



# Policies Relating To Historic Weapons Demonstrations



# STANDARDS FOR HISTORIC WEAPONS FIRING IN AREAS ADMINISTERED BY THE NATIONAL PARK SERVICE

Approved: \_\_\_\_\_  
Associate Director, Interpretation, Education, and Volunteers

Effective Date: \_\_\_\_\_

Duration: This Section of the Reference Manual (RM) will stay in effect until amended or rescinded.

The previous edition of RM-6 for Historic Weapons Program dated 2011, is superseded and replaced in total by this Manual.

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# 2006 NATIONAL PARK SERVICE MANAGEMENT POLICIES

## CHAPTER 7: INTERPRETATION AND EDUCATION

**7.5.8 Historic Weapons:** All uses of historic weapons in parks will strictly comply with the Historic Weapons Demonstrations Safety Standards contained in Reference Manual 6, and will follow the procedures specified therein for the particular weapon(s) being used.

Weapons firing demonstrations conducted in NPS administered areas are restricted to reproduction black powder weapons only. Original NPS museum weapons will not be used. Requests by outside groups or individuals to use non-NPS original weapons will follow the exemption request procedure prescribed in Reference Manual 6, and will be granted or denied in writing by the superintendent.

**7.5.9 Reenactments:** Battle reenactments and demonstrations of battle tactics that involve exchanges of fire between opposing lines, the taking of casualties, hand-to-hand combat, or any other form of simulated warfare are prohibited in all parks. Even the best-researched and most well intentioned representation of combat cannot replicate the tragic complexity of real warfare. Respect for the memory of those whose lives were lost at these sites and whose unrecovered remains are often still interred in these grounds precludes the staging of inherently artificial battles at these memorial sites. Battle reenactments create an atmosphere that is inconsistent with the memorial qualities of the battlefields and other military sites placed in the Service's trust. The safety risks to participants and visitors, and the inevitable damage to the physical resource that occurs during such events are also unacceptably high when seen in light of the NPS mandate to preserve and protect park resources and values.

### CULTURAL RESOURCE MANAGEMENT GUIDELINES, 1997

#### Chapter 9, Section D. Stewardship, Part 4. Consumptive Use of Historic Objects:

(i): The requirement to request an exemption for the use of original objects applies only to objects that are in NPS ownership. In granting permits to outside groups (e.g., Civil War reenactors) who will be using other original or reproduction objects on park premises, the superintendent must be satisfied that such use is consistent with the resource preservation and interpretation values of the park.

Black Powder Storage, Handling and Transportation Standards apply to all uses of firearms in the park, whether by NPS personnel or outside groups and whether objects are in NPS or other custody. NPS personnel will use only reproduction weapons in firing demonstrations. No waivers for use of original museum firearms will be granted.

### DIRECTOR'S ORDERS NO. 6: INTERPRETATION AND EDUCATION, 2017

#### 4.7 HISTORIC WEAPONS

The NPS considers any interpretive demonstration in any area under its administration that either displays historic weapons from the 17th, 18th, 19th, or 20th century or demonstrates the firing of these weapons to be a historic weapons program.

All such programs in units of the National Park system will:

- Meet the park's strategic interpretive goals and objectives.
- Comply with the Historic Weapons Safety Standards outlined in Reference Manual 6.

## STANDARDS FOR HISTORIC WEAPONS FIRING IN AREAS ADMINISTERED BY THE NATIONAL PARK SERVICE

Note: The final version of this document will be included in the Reference Manual for *Director's Order #6, Interpretation and Education*. The corresponding chapter in the current DO-6 (approved 2005) is 8.7 Historic Weapons. In the revised DO-6 currently under development, the corresponding chapter is 4.7.

### RM-6 SECTION XX (TBD)

#### XX.1 DEFINITIONS

**Black Powder** — A potassium nitrate based compound that forms a flammable solid used in most firearms manufactured prior to 1898.

**Bulk Black Powder** — Any amount of black powder not in the form of prepared cartridges or ignition devices shall be considered bulk black powder.

**Demonstration Interpreter** — A person separate from the demonstration who controls each demonstration in which two or more demonstrators are involved. This individual may be the park's Historic Weapons Supervisor, a volunteer, or employee trained by the Historic Weapons Supervisor.

**Event Volunteer** — An individual or member of a group who is recruited by a park to perform historic weapons demonstrations for a specific program or special event and are not annually trained and certified by the park's historic weapons program supervisor.

**Historic Weapon** — A full-scale replica or military surplus firearm or artillery piece.

**Historic Weapons Demonstrator** — An employee or volunteer who is at least 16 years old and trained to use historic weapons in demonstrations by a park's Historic Weapons Supervisor.

**Historic Weapons Program Instructor** — A currently certified Historic Weapons Supervisor who assists in presenting biannual certification training.

**Historic Weapons Supervisor** — An officially trained and certified career, career-conditional, or term National Park Service (NPS) employee, 21 years of age or older, responsible for the enforcement of all safety standards and precautions relating to demonstrations in that area.

**Human Powered Weapon** — A weapon that utilizes human power, sometimes augmented by machinery, to propel a projectile such as an arrow, bolt or spear.

**Ignition Device** — Any manufactured or commercially available device used to ignite the main powder charge in Pre-1898 firearms and artillery. Examples are friction primers, slow match, quill primers and percussion caps.

**Lead Historic Weapons Supervisor** — The Historic Weapons Supervisor designated in writing by the superintendent to assume primary responsibility for program management in a park with more than one Historic Weapons Supervisor.

**Magazine** — Structure used to store explosives, ammunition or ignition devices.

Park volunteer — A volunteer who successfully completes park level training that includes written and practical assessments on an annual basis.

Pass Box — A lockable container with an interior covered in non-sparking materials used for the temporary storage and transport of black powder ammunition.

Post-1898 Firearm — A bolt-action or semi-automatic pistol or rifle manufactured after 1898 that utilizes metal, centerfire cartridges and smokeless powder as the propellant.

Pre-1898 Weapon — Any model firearm or cannon produced prior to 1898 that uses black powder as the propellant for the projectile.

Regional Inspector — A currently certified Historic Weapons Supervisor assigned to provide assistance to and assess other park's historic weapons programs.

Regional Point of Contact — A member of a regional interpretation or risk management program who aids and coordinates inspections of park historic weapons programs within the region.

## **XX.2 GENERAL REQUIREMENTS**

XX.2.1 Program Planning: All historic weapons demonstrations must be described in the park's approved Comprehensive Interpretive Plan before implementation. When considering the role of historic weapons in their interpretive programming, parks should work with its Regional Point of Contact to:

1. Determine that historic weapons demonstrations are an appropriate technique for conveying the park's interpretive themes;
2. Ensure the park has sufficient facilities and space to meet range safety and storage requirements;
3. Identify employee(s) to become a certified Historic Weapons Supervisor(s); and
4. Determine and commit to meeting the costs of supporting a historic weapons program including weapons, safety equipment, uniforms, ammunition, storage requirements, training requirements, and historic weapons program inspections.

XX.2.2 Historic Weapons Program Supervision: (a) Management of all NPS programs (firing & non-firing) utilizing historic weapons must be under the supervision of an officially trained and certified career, career-conditional, or term NPS employee, 21 years of age or older. (b) Any park with a regular, recurring historic weapons program shall have a certified Historic Weapons Supervisor on its staff. (c) Those parks hosting intermittent demonstrations or events must request a certified Historic Weapons Supervisor from another park to supervise special events or programs.

XX.2.3 Compliance with Director's Orders Relating to Living History Interpretation: All historic weapons demonstrations will comply with the Director's Orders regarding Living History Interpretive Programs and any related NPS Management Policies including the prohibition of battle reenactments (7.5.7 & 7.5.8).

XX.2.4 Impact on Resources: Demonstrations that would adversely affect the natural or cultural features of an area are prohibited.

- XX.2.5 Use of Reproduction Weapons: (a) Only reproduction weapons may be used in firing demonstrations conducted in areas administered by the NPS. (b) Military surplus weapons may be used for firing demonstrations if reproductions of approved post-1898 firearms are not commercially available.
- XX.2.6 Use of Reproduction Artillery: Reproduction artillery used in areas administered by the NPS must be full scale. Tubes and equipment must be made from the same base materials as the originals using the specifications in Appendix E.
- XX.2.7 Non-Firing Use of Original Weapons: Original period weapons may be used in a non-firing program or display provided they are of a type on the Historic Weapons Supervisor's certificate and pass an inspection administered by the Historic Weapons Supervisor.
- XX.2.8 Use of Human Powered Weapons: (a) Parks may present programs featuring the use of human powered weapons provided that the park has an approved plan or standard operating procedure (SOP) in place detailing the interpretive need and cultural significance for such demonstrations, program supervision, training requirements, weapons inspections and checklists, range safety protocols and storage/security requirements. The park superintendent and regional risk management officer must sign the plan. (b) Human powered weapons demonstrations will be limited to blow guns, bows and arrows, crossbows, spears and atlatls. (c) Park plan/SOP must be reviewed and re-signed every four years.
- XX.2.9 Background Checks: All employees and volunteers demonstrating or supervising the use of post-1898 weapons must have successfully completed a National Agency Check with Inquiries (NACI).
- XX.2.10 Exemptions: (a) Requests for exemption to any part of these Director's Orders must be made in writing using the following procedure.

Exemption Request Procedure

1. Initial request must be endorsed by the superintendent and the Lead Historic Weapons Supervisor and forwarded to the Regional Inspector(s) for review.
2. The Regional Inspector will endorse or reject the proposed exemption and either return to the park for re-drafting or forward to the Regional Point of Contact.
3. The Regional Point of Contact will endorse or reject the proposed exemption and forward to the Regional Director.
4. The Regional Director will endorse or reject the proposed exemption and forward to the Associate Director of Interpretation, Education, and Volunteers.
5. The Associate Director will make a final determination based on the analysis above and work with the Regional Point of contact to inform the originating park in writing.

(b) Exemptions will be evaluated on a case-by-case basis and will not be construed to establish a precedent for other parks. (c) Exemptions are valid only in the park initiating the request, must be reviewed, and renewed each year.

- XX.2.11 Non-Compliance Procedures: A team of Regional Inspectors and Historic Weapons Program Instructors will investigate all reports of activities not in compliance with these policies. Should the team determine that a violation has occurred, penalties ranging from a verbal warning to suspension of the park's historic weapons program will be assessed. See Appendix J for a detailed description of the non-compliance process.

- XX.2.13 Media Events/Commercial Filming: (a) Media events, theatrical presentations, commercial photography and filming will be regulated under a special use permit. (b) Historic weapons standards will be applied to any firing of historic weapons in the park relative to these activities.
- XX.2.14 Pyrotechnic Displays: (a) Pyrotechnic displays will be regulated under a special use permit. (b) Pyrotechnic displays on NPS lands must be supervised by a licensed technician. (c) Historic weapons supervisors are not certified to, and will not, supervise pyrotechnic displays.
- XX.3 RESPONSIBILITIES, TRAINING, & CERTIFICATION OF HISTORIC WEAPONS PERSONNEL**
- XX.3.1 Historic Weapons Supervisor
- XX.3.1.1 Historic Weapons Supervisor Program Responsibilities: (a) All historic weapons firing demonstrations within an NPS site or performed by NPS employees or volunteers must be under the supervision of an officially trained and certified career, career-conditional, or term NPS employee, 21 years of age or older, who shall be responsible for the enforcement of all safety standards and precautions relating to demonstrations in that area.
- XX.3.1.2 Historic Weapons Supervisor Training Responsibilities: (a) The Historic Weapons Supervisor is responsible for training persons involved in demonstrating historic weapons in his or her park on a regular and recurring basis. (b) This training must be documented and include a thorough review of NPS standards for historic weapons demonstrations and the approved manual for the weapon(s) used. (c) Documentation must include name of trainee, description of competencies taught, hours of training, and a record of which competencies were met or unmet by the trainee.
- XX.3.1.3 Historic Weapons Supervisor Certification: (a) Certification for park historic weapons supervisors is obtained only by demonstrating mastery of the required competencies described in the Historic Weapons Supervisor training curriculum to the satisfaction of a certified Historic Weapons Instructor. (b) Certification is valid to the end of the calendar year, four (4) years from the certification date and is limited to only those historic weapon types listed on the certificate. (c) The Superintendent must authorize a certified Historic Weapons Supervisor to carry out their function by signing the certificate. (d) Term, seasonal or Pathways employees may be certified as historic weapons supervisors provided that: 1) training slots are available after all requests from career, career-conditional, or term employees are filled, and 2) Term, seasonal or Pathways employees will not be designated as a park's lead historic weapons supervisor.
- XX.3.2 Historic Weapons Demonstrator
- XX.3.2.1 Minimum Age Requirement: The minimum age of a historic weapons demonstrator is 16 years.
- XX.3.2.2 Historic Weapons Demonstrator Responsibilities: Historic weapons demonstrators will adhere to all NPS rules and regulations and only present programs in accordance with the themes and approaches approved by the park.
- XX.3.2.3 Historic Weapons Demonstrator Competency: All persons involved in demonstrations of historic weapons in NPS areas will be required to demonstrate their competency in the use of the weapon to the satisfaction of the park Historic Weapons Supervisor. Competency is met after successfully meeting the criteria of the demonstration checklist.
- XX.3.3 Historic Weapons Demonstration Interpreter

- XX.3.3.1 Historic Weapons Demonstration Interpreter Responsibilities: (a) The park's Historic Weapons Supervisor, or persons (employee or volunteer) trained by the Historic Weapons Supervisor, will control each firing demonstration involving two or more demonstrators. (b) Historic Weapons Demonstration Interpreter assures the range is clear; all safety procedures are being followed, and presents interpretive programming to the public.
- XX.3.3.2 Historic Weapons Demonstration Interpreter Competency: The Historic Weapons Demonstration Interpreter will be required to demonstrate competency regarding knowledge of NPS range safety requirements, misfire procedures, appropriate demonstration techniques and any park specific requirements to the satisfaction of the park's Historic Weapons Supervisor.
- XX.3.4 Historic Weapons Program Instructor
- XX.3.4.1 Historic Weapons Program Instructor Responsibilities: Certified Historic Weapons Instructors provide training and review competency requirements for the certification of NPS Historic Weapons Supervisors.
- XX.3.4.2 Historic Weapons Program Instructor Certification: The Historic Weapons Instructor Team will evaluate candidates who have successfully completed two certification courses for demonstrated mastery of the required competencies described in the Historic Weapons Supervisor training curriculum and recommend suitable candidates for approval by WASO Office of Interpretation, Education, and Volunteers.
- XX.3.5 Regional Inspector/Point of Contact
- XX.3.5.1 Regional Inspector Responsibilities: (a) Each Regional Director must designate at least one Regional Inspector and a Regional Point of Contact (RPOC), who are responsible for providing program support and conducting in-person reviews of park programs within the region. (b) Where a region might have a high number of parks or complex historic weapons operations, additional inspectors, or specialist inspectors may be designated by the Regional Director. (c) Where a region does not have many active parks, a region may share an inspector with another region.
- XX.3.5.2 Regional Inspector Qualifications: Regional Inspectors must hold a current historic weapons supervisor certification and be currently supervising an active historic weapons demonstration program.
- XX.3.5.3 Regional Point of Contact Qualifications: RPOC must be a member of the regional office staff with responsibilities for managing either interpretation or risk management and be familiar with the Historic Weapons Program in parks throughout their region. The RPOC coordinates regional program inspections and serves as the connection for communications between field personnel and the Regional Director.
- XX.3.6 Washington Administrative Staff Office (WASO) Historic Weapons Program Lead
- XX.3.6.1 Washington Administrative Staff Office (WASO) Historic Weapons Program Lead: Must be a member of the WASO staff with responsibilities for managing either interpretation or risk management and be familiar with the Service-wide Historic Weapons Program. The WASO Historic Weapons Program Lead provides a leadership role in developing strategic direction, funding guidance, and program evaluation. The Lead works collaboratively with Risk Management, Interpretation, and other disciplines to write policy, guidance, and standards for the

service-wide program. The Lead serves as the liaison between the WASO Chief of Interpretation, Education, and Volunteers and the Regional Inspectors and the Certified Historic Weapons Instructors and Supervisors.

## **XX.4 WEAPON STORAGE, SECURITY, & INSPECTIONS (ALL PROGRAMS)**

**XX.4.1** Approved Weapons: The following weapons are approved for use in NPS historic weapons demonstrations provided they are representative of the interpreted time period and listed on the Historic Weapons Supervisor's certificate:

**Pre-1898 Artillery** — Full-scale replicas of muzzle loading artillery pieces manufactured using the same base materials as the original.

**Pre-1898 Firearms** — (a) Full-scale replicas of muzzle-loading firearms utilizing match, flint or percussion locks. (b) Breech-loading replicas utilizing paper cartridges and percussion caps. (c) Breech-loading or repeating replicas utilizing brass cartridges containing a primer. (d) Replica revolvers using paper cartridges and percussion caps or brass cartridges containing a primer.

**Post-1898 Firearms** — (a) Only reproduction or military surplus weapons owned and maintained by the NPS may be used in firing demonstrations. (b) Only the following weapons may be used in firing demonstrations or non-firing displays: Model 1892-1899 Krag-Jorgensen Rifle, Model 1903 Springfield Rifle, Model A3-03 Springfield Rifle, Model 1911 Automatic Colt Pistol, Model 1917 Enfield, Model 1917 Colt or Smith & Wesson Revolver and the M-1 Garand Rifle or Carbine.

**XX.4.2** Storage: (a) Historic weapons will be treated as sensitive property as defined in Director's Orders for Property Management and the storage standards described below.

**Pre-1898 Firearms** — will be stored in a locked cabinet or windowless storage room when not in use. Access to weapons storage will be limited to the Historic Weapons Supervisor, those employees trained in the safe use, and handling of historic weapons requiring access. A log documenting the date, time, and person accessing weapons storage will be maintained.

**Post-1898 Firearms** — must be stored in a locked cabinet or windowless storage room separate from black powder weapons. Access to weapons storage will be limited to the Historic Weapons Supervisor, law enforcement personnel, and those trained employees requiring access. A log documenting the date, time, and person accessing weapons storage will be maintained.

(b) Storage of post-1898 weapons will meet standards in RM-9, Chapter 30.

**XX.4.3** Security: Structures used to store historic firearms will be guarded with a monitored intrusion detection system.

**XX.4.4** Identification: (a) All historic firearms used in demonstrations will have permanent identification markings placed in an inconspicuous location. (b) A complete inventory of firearms will be maintained by serial number, manufacturer, model, NPS property number, barrel length, caliber, and location of identification markings on the firearm.

**XX.4.5** Stolen/Lost Weapons: All lost or stolen historic firearms must be reported immediately to law enforcement personnel.

XX.4.6 Inspections and Maintenance: (a) All historic weapons will be inspected by the park's Historic Weapons Supervisor upon receipt and annually thereafter. (b) Each weapon used in an NPS historic weapons demonstration (including non-firing programs) will be given a thorough visual inspection by the park Historic Weapons Supervisor at the beginning of each day. Visual inspection will follow the appropriate checklist in Appendix C. (c) Post-1898 Firearms will be inspected and certified as safe by a licensed gunsmith at the time of purchase and every four, (4) years thereafter.

XX.4.7 "Tagged-Out" Weapons: (a) Any weapon failing to pass according to the approved checklist will be tagged with a description of the problem and not be used/issued until repairs are made. (b) Following repairs, the inspection checklist will be applied again to insure compliance before removing the tag and returning the weapon to service.

## XX.5 BLACK POWDER/AMMUNITION STORAGE, SECURITY & INSPECTIONS

XX.5.1 Regulatory Requirements: (a) In recognition of its public safety responsibility, NPS policy is to comply with all applicable provisions of federal, state, and local safety codes and standards. (b) Where regulations differ, the NPS will be governed by the most restrictive regulations.

XX.5.2 Approved Ammunition: (a) Only blank ammunition using potassium-nitrate based sporting grade black powder is permitted for use in NPS historic weapons demonstrations. (b) The use of a Lyle Gun to fire a bolt as part of a Beach Apparatus Drill following the approved NPS manual is permitted. (c) The use of projectiles may be approved using the waiver process in section XX.2.9 for training purposes only.

**Pre-1898 Weapons** — (a) Ammunition using bulk black powder must be prepared following the procedures described in the approved manuals. The Historic Weapons Supervisor will insure that paper cartridges are made to specifications, using the proper caliber former, and also that powder loads do not exceed maximum loads listed in Appendix I. (b) Park's must purchase commercially available blank metal cartridges charged with black powder for those weapons that require such ammunition. (c) Use of hand loaded/reloaded metal cartridges for interpretive firing demonstrations is prohibited.

**Post-1898 Weapons** — (a) Only commercially available, or military surplus, blank ammunition using the minimum propellant charge needed to ensure proper function of ejection and feeding systems may be used in post-1898 weapons demonstrations. (b) Rifle ammunition should be six (6) crimp. Five (5) crimp blanks are more powerful and designed for grenade launching. (c) Use of hand loaded/reloaded metal cartridges for interpretive firing demonstrations is prohibited.

XX.5.3 Approved Ignition Devices: (a) Only commercially available "4-Wing" percussion caps are approved for NPS historic firearms demonstrations. (b) Only slow match, quill primers, and approved commercially available friction primers and kits will be used in artillery demonstrations. (c) The use of port-fires is prohibited. (d) Ignition devices must be stored separately from black powder.

XX.5.4 Ammunition Storage Facilities:

**Pre-1898 Weapons** — (a) Bulk black powder and blank ammunition that does not contain a primer will be stored in a magazine that meets all of the standards below. (b) Cartridge ammunition that contains a primer will be stored in a locked cabinet with access limited to the

park's Historic Weapons Supervisor or trained employees requiring access.

**Post-1898 Firearms** — Blank ammunition will be stored in a locked cabinet that meets standards contained in RM-9, Chapter 30. Access will be restricted to the park's Historic Weapons Supervisor, law enforcement personnel, and those trained employees requiring access.

- XX.5.5 Ammunition Storage Supervision: (a) Black powder/ammunition storage and use within the park must at all times be under the supervision of an officially trained and certified career, career-conditional or term employee, 21 years of age or older, whom the superintendent has designated in writing to be responsible for the enforcement of all safety regulations and precautions. (b) In the temporary absence of the responsible employee of two weeks or less, a career, career-conditional or term employee shall be designated in writing to perform visual inspections during this period. (c) Ammunition for Post-1898 weapons must also be supervised by and accessible to the Senior Law Enforcement Officer or a commissioned officer designated in writing.
- XX.5.6 Notification of Local Fire Authorities: Written notification will be provided to local fire authorities as to the type, capacity and location of each site where black powder and ammunition are stored.
- XX.5.7 Storage Limits: (a) Park's should store no more black powder or cartridge ammunition than they can use in one year. (b) Bulk black powder may be stored for no more than two years. (c) Artillery cartridges should not be stored for a period greater than five (5) days. (d) Metallic cartridge ammunition may be stored for no more than four years. (e) No park may store more than 300 pounds of bulk black powder.
- XX.5.8 Outdoor Storage of Black Powder: (a) Fifty (50) pounds or more of black powder or prepared cartridges will be stored in an NPS Class 1 magazine, or multiple Class 2 magazine(s) stored within another structure. Refer to Appendix F for NPS black powder storage standards. (b) Ignition devices must be stored in a magazine or pass box separate from black powder and ammunition.
- XX.5.9 Indoor Storage of Black Powder: (a) Fifty (50) pounds or less of black powder or prepared cartridges may be stored in an NPS Class 2 Magazine. Refer to Appendix F for NPS black powder storage standards. (b) Ignition devices must be stored in a magazine or pass box separate from black powder and ammunition.
- XX.5.10 Use of Inhabited Buildings: Visitor centers and buildings containing regularly staffed offices or workstations shall be considered as "inhabited buildings" under OSHA regulations. No portion of these buildings shall be used for magazines containing black powder, ammunition, or other explosive devices, nor for loading operations using these materials.
- XX.5.11 Use of Historic Structures: Historic structures, including historic fort magazines may be considered individually as locations for NPS Class 2 magazines. Proof that the facility and location exceed safety regulations must be recorded in writing, approved by the Regional Director, and be on file in the park.
- XX.5.12 Removal of Black Powder or Ammunition:
- Pre-1898 Weapons** — (a) Removal of black powder from a magazine shall be in an approved pass box if the powder is not in its approved shipping container. (b) Loose powder must never be allowed in a demonstration area. (c) A pass box containing ammunition shall be kept locked and

attended by an employee at all times until contents are used in a demonstration or returned to the magazine. (d) Ignition devices such as percussion caps and friction primers must be stored in a separate pass box. (e) Ammunition may be transferred from the pass box to suitable historical containers such as cartridge boxes or limber chests for demonstration purposes. (f) At the completion of the day's demonstrations, unused ammunition will be returned to the pass box, and then to the magazine, unless locked and under the control of a park employee at all times between demonstrations.

**Post-1898 Weapons** — (a) Removal of ammunition from the storage locker shall be in a metal or wood container kept under the supervision of an employee at all times. (b) Ammunition may be transferred to magazines/clips prior to the demonstration. (c) Loaded magazines/clips should not be placed in a firearm outside of the demonstration area.

XX.5.13 Inspections and Inventory: (a) Regular visual inspections of magazine and/or ammunition storage locker exteriors must be performed by the responsible employee at least weekly to ensure that there have been no unauthorized attempts at entry. (b) The responsible employee will conduct an inventory of magazine and/or ammunition storage locker contents every ninety (90) days. (c) Black powder containers and ammunition packages should be dated and the oldest used first. (d) An inventory log will be maintained to document use of black powder and ammunition. See Appendix G for recommended inventory sheet.

XX.5.14 Ammunition Loading Areas: (a) Ammunition loading areas shall be in an uninhabited building located at least 50 feet from the magazine. (b) In addition, the loading area will be provided with a non-sparking worktable or bench, adequate spark-free lighting, non-sparking floor surface and entrance control by the person handling the black powder. (c) The loading area will be cleaned as needed with water to prevent the accumulation of black powder dust.

XX.5.15 Exposed Powder: (a) Exposed powder should be kept to a minimum and must not exceed one pound. (b) A pass box should be used to protect any additional powder in the loading area. (c) Loaded ammunition should be placed in a pass box as units are completed. (d) Preparation of ammunition components (i.e. "cylinders") will be completed before powder is brought to the loading area.

XX.5.16 Disposal of Black Powder/Damaged Cartridges: The Historic Weapons Supervisor will destroy all excess bulk black powder or torn/damaged cartridges by soaking in water until the powder is dissolved. The remains will be disposed in a safe place according the park's approved Misfire Plan. Under no circumstance will torn or damaged cartridges be returned to the magazine/ammunition storage area.

## XX.6 BLACK POWDER TRANSPORTATION

XX.6.1 Regulatory Requirements: (a) Transportation of bulk black powder outside of park boundaries should be avoided whenever possible. Explore all avenues to get direct delivery to the park by the distributor before undertaking NPS transportation.

XX.6.2 Transportation Requirements: If bulk black powder must be transported outside of park boundaries, the following requirements must be met.

- a) A historic weapons supervisor possessing a valid driver's license must transport powder.
- b) Powder must be transported in a government vehicle that has been inspected using the

checklist in Appendix H.

- c) Transportation operations will comply with checklist in Appendix H in addition to any requirements imposed by jurisdictions along the route.

XX.6.3 Local Regulation: State, county, and municipal authorities shall be contacted before transporting black powder through their jurisdictions to insure compliance with all existing regulations.

## XX.7 RANGE SAFETY (ALL PROGRAMS)

XX.7.1 Local Zoning Requirements: (a) Local zoning codes and authorities shall be consulted before designing demonstration ranges on parklands. Regulations and local sentiment regarding noise or potential hazards of blank firing must be considered before the program is implemented.

XX.7.2 Park Requirements: Suitability of parklands used for historic weapons demonstrations must be assessed to minimize potential safety hazards and adverse effects on resources. Maintaining the minimum cleared area shown on the range drawings in Appendix A is essential to keeping undetected visitors out of the danger zone. Whenever possible the site should also provide natural barriers to noise and encroachment.

XX.7.3 Physical Barriers: Physical barriers are required to keep visitors at the safe distances indicated on the range drawings in Appendix A. If natural features are inadequate to restrain visitors, ropes, fences, or other artificial barriers will be used.

XX.7.4 Minimum Range Distances: Park's should stage demonstrations so that no person, including employees and demonstrators, is permitted in front of the muzzle line.

**Artillery Demonstrations** — No person, including demonstrators and NPS employees, will be allowed in an area beyond the muzzle of firing cannon unless they are located at least 50 yards to either side of the nearest piece.

**Small Arms Demonstrations** — No person, including demonstrators and NPS employees, will be allowed in an area beyond the muzzle of a firing small arm unless they are located at least 25 yards to either side of the closest firearm.

**Human Powered Weapons Demonstrations** — No person, including demonstrators and NPS employees, will be allowed in an area beyond the release point of a human powered weapon.

XX.7.5 Use of Down-range Barriers: Cannons and firearms may be blank fired at a solid barrier such as a wall, building, or berm located no less than half the minimum downrange distance provided such firings will not damage the barrier.

XX.7.6 Minimum Rear Area Distances: (a) In areas behind the muzzle line or demonstrator(s), visitors will not be permitted closer than five (5) yards from the nearest demonstrator during small arms or human powered weapons demonstrations. (b) In areas behind the muzzle line, visitors must be separated from the closest cannon by at least twelve (12) yards and from the closest limber/ammunition chest by at least seven (7) yards.

## **XX.8 DEMONSTRATION SAFETY**

XX.8.1 Use of Manuals: All demonstrations shall follow the approved NPS manual for the particular weapon involved.

If a park wishes to demonstrate a weapon for which there is no manual, they must:

1. Submit a draft manual based on the period manuals/best practices to the Historic Weapons Safety Course Instructor Team for review.
  - a. Park's demonstrating or displaying human-powered weapons will develop manuals for their use and interpretation in consultation with experienced NPS personnel as well as Native Americans, Alaska Natives, or Native Hawaiians who have traditionally utilized those weapon(s).
2. The instructors will review/edit the manual in cooperation with the park then forward with their recommendation for acceptance or rejection to WASO.
3. Final review and approval/rejection by the WASO Chief of IE&V.

XX.8.2 Types of Weapons Supervised: (a) Only weapons listed on the Historic Weapons Supervisor's certificate may be used in demonstrations or non-firing programs/displays. (b) All certified Historic Weapons Supervisors may independently supervise demonstrations utilizing weapons listed on their certificate. (c) All Historic Weapons Supervisors may assist in supervising demonstrations of weapons not listed on their certificate provided the programs are supervised by a Lead Historic Weapons Supervisor with certification in those weapons. (d) All certified Historic Weapons Supervisors will receive certification in the inspection of all NPS approved weapons for use in non-firing programs and displays.

XX.8.3 Pre-Demonstration Inspections: (a) All historic weapons will be inspected by the park's Historic Weapons Supervisor using appropriate demonstration checklists (See Appendix B) prior to beginning the day's demonstrations.

XX.8.4 Demonstration Interpreter: (a) One-person separate from the demonstration will control each demonstration in which two or more demonstrators are involved. This individual may be the park's Historic Weapons Supervisor or a volunteer or employee trained by the Historic Weapons Supervisor. (b) The Demonstration Interpreter assures the range is clear, all range safety procedures are being followed, and the demonstration is explained adequately to visitors. (d) An individual trained to serve as a Demonstration Interpreter may not act as a substitute for a certified Historic Weapons Supervisor in the performance of supervision requirements in section XX.8.5. (c) The Demonstration Interpreter will be assisted by additional range lookouts as necessary.

XX.8.5 Demonstration Supervision: (a) A certified Historic Weapons Supervisor must be on duty and in the park during any small arms demonstration performed by employees or park volunteers who have successfully completed training at the park level. (b) A certified Historic Weapons Supervisor must be present at all artillery demonstrations and demonstrations presented by event volunteers or volunteer groups who have not completed park level training.

XX.8.6 Down Range Barrier Supervision: At least one employee or volunteer will be stationed to ensure that no visitor enters the range from behind the barrier unless such entry would be impossible.

XX.8.7 Demonstrator Limits:

**Pre-1898 Weapons** — No more than two (2) artillery pieces or forty (40) small arms demonstrators may fire under the supervision of one Historic Weapons Supervisor.

**Post-1898 Weapons** — Demonstrations featuring the firing of post-1898 weapons will be limited to one demonstrator at a time.

- XX.8.8 Visitor Warnings: Before firing, the demonstration interpreter will warn visitors to remain behind barriers, beware of the loud noise, caution people with hearing aids, and request control of children and pets.
- XX.8.9 Artillery Rate of Fire: A minimum of 10 minutes must elapse after a firing and before reloading.
- XX.8.10 Misfires: (a) If a weapon misfires, the demonstration interpreter will explain the situation and procedures to visitors, keeping them safely in place until the weapon is discharged or rendered safe. (b) If attempts fail to correct an artillery misfire, visitors will be removed from the demonstration area. Once visitors have been removed, unloading procedures prescribed in the appropriate manual will be followed. (c) If attempts fail to correct a small arms misfire, the demonstrator(s) will remove themselves from any firing line and remain in the demonstration area until unloading procedures prescribed in the manual can be applied. (d) All parks must have a written misfire plan approved by the regional inspector prior to initiating any weapons demonstrations.
- XX.8.11 Handling of Weapons by Visitors: (a) Visitors will not be allowed to touch or handle any loaded weapon or equipment containing ammunition. (b) Visitors may be permitted to touch unloaded firearms provided the demonstrator keeps them under physical control. (c) Visitors are prohibited from touching or handling any edged weapon.
- XX.8.12 Reduced Light Firing: (a) As a rule, historic weapons should be demonstrated during daylight hours. (b) Reduced light firings must be approved in writing by the park Historic Weapons Supervisor and Superintendent and include a justification based on interpretive themes. (c) A certified Historic Weapons Supervisor must be physically present for all reduced light firing demonstrations. (d) No reduced light firing may take place unless light levels permit demonstrators to see their weapons and equipment and the range is visible to the demonstrators and Historic Weapons Supervisor for distance of at least fifty (50) yards.

## XX.9 PERSONAL PROTECTION EQUIPMENT

- XX.9.1 Protective Clothing: (a) All demonstrators firing historic weapons will wear natural fiber or skin/hide long-sleeved outer garments or full uniforms appropriate to the historical period. (b) No firearms or artillery demonstrations will be conducted in NPS uniforms or other modern clothing. (c) Special care should be exercised with worn, thin, or fringed clothing.
- XX.9.2 Hearing Protection: All demonstrators must receive documented training in the proper use and care of all personal protective equipment and wear approved hearing protection during a firing demonstration.
- XX.9.3 Artillery Personal Protection Equipment: (a) Demonstrators performing the duties at the muzzle of the cannon are required to wear leather gauntlets. (b) The cannoneer handling the sponge/rammer must wear welder's gauntlets. (c) The cannoneer tending the vent must wear a leather thumb stall.

## **XX.10 PROGRAM MANAGEMENT**

- XX.10.1 Multiple Supervisors: In parks having more than one certified Historic Weapons Supervisor, the superintendent shall designate a Lead Historic Weapons Supervisor who will have primary program management responsibility in writing.
- XX.10.2 Loss of Certified Supervisor: (a) If a park loses its certified Historic Weapons Supervisor, the superintendent must terminate all historic weapons firing demonstrations and eliminate through transfer or destruction its inventory of black powder, detonation devices, and/or ammunition until a new supervisor has been trained and certified. (b) The superintendent may seek to establish a written agreement with a Historic Weapons Supervisor from another park to assume magazine inspection responsibilities and firing program supervision to avoid termination of their program. All historic weapons program requirements must be met under such an agreement.
- XX.10.3 Assistance to Other NPS Areas: (a) A park may request a certified Historic Weapons Supervisor from another park to assist with special events or to manage historic weapons firing demonstrations on a temporary basis due to the loss of certified personnel. The request should include a description of the demonstration program and types and uses of the historic weapons involved. (b) The request will be in writing and signed by the superintendent. A request for assistance by a superintendent authorizes the Historic Weapons Supervisor to enforce all NPS safety standards.
- XX.10.4 Assistance to Non-NPS Organizations: (a) Certified historic weapons supervisors may provide information about NPS historic weapons training standards, manuals, policies and related information to other agencies, organizations, groups and individuals. (b) Historic Weapons Supervisors shall not supervise firing demonstrations, battle re-enactments, ceremonial salutes or similar activities taking place on non-NPS property sponsored by other agencies or organizations. (c) Only NPS Historic Weapons Instructors may instruct in courses sponsored by other federal, state or local agencies. NPS sponsored training does not confer certification on non-NPS personnel. (d) Under no circumstances, shall NPS historic weapons or equipment be loaned to other agencies/organizations for use in demonstrations not sponsored and managed by the NPS.
- XX.10.5 Off-Site Firing Demonstrations: (a) Off-site firing demonstrations conducted by qualified NPS staff or volunteers are permitted. (b) All requirements of the NPS Historic Weapons Safety Standards will be followed, including the prohibition of battle reenactments in NPS Management Policies (7.5.7 & 7.5.8).
- XX.10.6 Report of Accidents and Incidents: (a) Historic Weapons Supervisors will report all injury and property damage accidents using the Safety Management Information System within 24 hours. (b) Historic Weapons Supervisors will report all injury/property damage accidents and significant incidents to their Regional Inspector and Regional Point of Contact within 48 hours of the incident. A significant incident is defined as any occurrence in which the safety of a demonstrator may have been placed in jeopardy, an incident resulting in property damage, or an incident, which may have service-wide safety implications.
- XX.10.7 Annual Historic Weapons Program Summary: The park's Historic Weapons Supervisor will submit an annual program summary that includes the number of demonstrations presented, number of visitors attending those programs, number of volunteers and hours contributed, staff time devoted to historic weapons programs and expenditures.

XX.10.8 Annual Program Inspection Certification: Every park will submit the following items to their Regional Inspector on an annual basis.

1. Copy of Historic Weapons Supervisor(s) certification card(s) signed by the Superintendent.
2. Copy of the park's Misfire Plan.
3. Completed Program Management & Black Powder Storage and Handling, Range Safety, and Weapons Storage checklists signed by the Lead Historic Weapons Supervisor and Superintendent.
4. Certification of historic weapons inspections signed by the Lead Historic Weapons Supervisor.

Regional Inspectors will forward annual inspection documentation to the Regional Point of Contact with a copy to WASO Historic Weapons Program Lead.

XX.10.9 On-Site Inspections: Regional Inspectors will conduct an on-site inspection of every park in their region within a three to four-year period to ensure the effectiveness of annual reporting.

## XX.11 EVENT VOLUNTEERS

XX.11.1 Required Supervision: To provide proper safety supervision, a minimum ratio of one certified Historic Weapons Supervisor per forty small arms demonstrators and/or two artillery pieces is required. Additional historic weapons supervisors may be required for complex events.

XX.11.2 Competency Requirements: (a) All event volunteers who demonstrate using historic weapons will operate under a volunteer agreement or special use permit. (b) All persons involved in these demonstrations shall demonstrate competency to the Historic Weapons Supervisor in the use of the weapon by successfully meeting the criteria of the appropriate demonstration checklist (Appendix B) and weapon manual.

XX.11.3 Written Agreements: (a) The Park will provide all event volunteers with a copy of the *Standards for Historic Weapons Firing in Areas Administered by the NPS* and the appropriate approved weapon manual(s) at least 30 days prior to the program. (b) It is the responsibility of the individual or group to certify in writing that they have read and will adhere to the standards they have received from the park. This written agreement must be received by the park prior to the demonstration. (c) Any violation of the standards may result in immediate cancellation of the demonstration and removal of the individual or groups from further weapons firing demonstrations in the park.

XX.11.4 Weapons Provided by Volunteer Groups: (a) Groups demonstrating approved pre-1898 firearms and artillery may use their own reproduction weapons provided they pass an inspection administered by the Historic Weapons Supervisor. (b) Groups displaying approved pre-1898 firearms and artillery may use their own weapons provided they pass an inspection administered by the Historic Weapons Supervisor. (c) Approved post-1898 firearms may be displayed but not fired after passing an inspection by the Historic Weapons Supervisor.

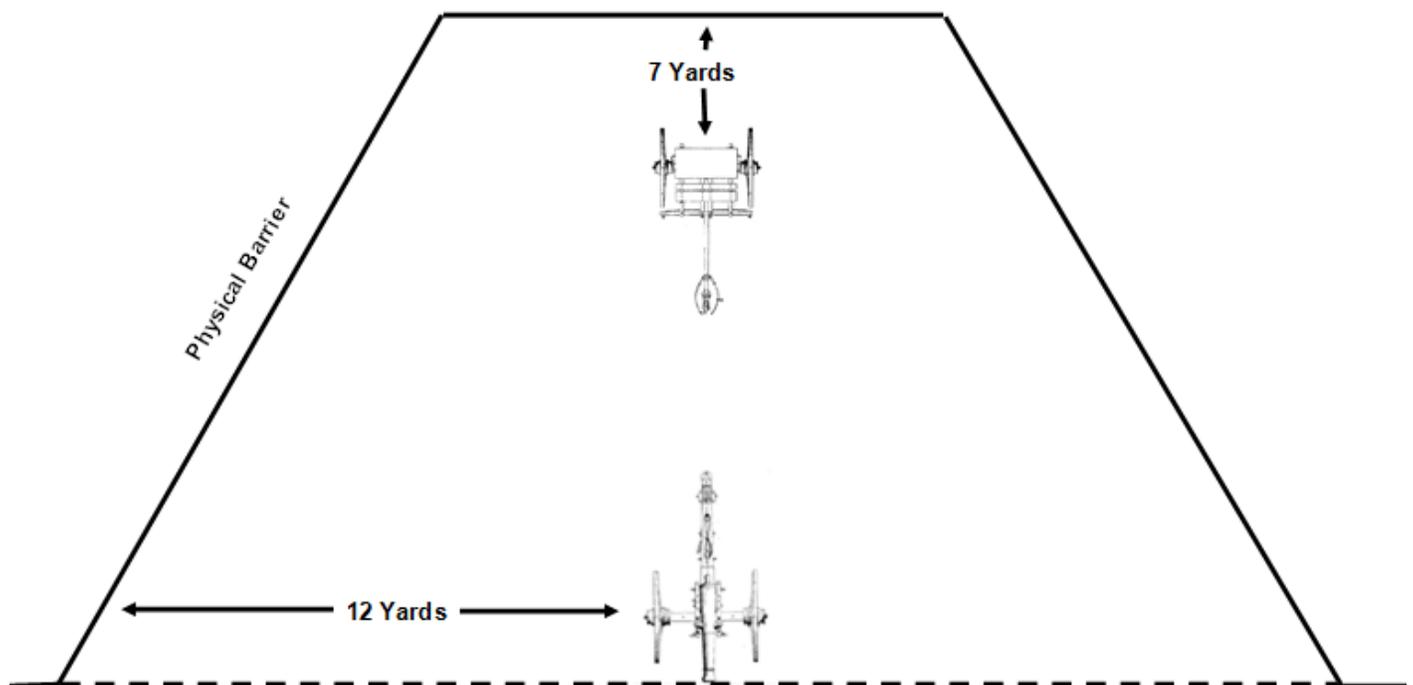
XX.11.5 Ammunition Provided by Volunteer Groups: (a) All black powder brought into an NPS area by event volunteers for use in firing demonstrations will be in the form of prepared cartridges and placed under NPS supervision. (b) Cartridges will be prepared in accordance with standards described in the relevant weapons manuals. (c) Bulk or loose powder is prohibited.

- XX.11.6 Inspections: (a) At the beginning of each day, the Historic Weapons Supervisor will give a thorough visual inspection to each weapon used in a firing demonstration. Visual inspection will follow the appropriate checklist (See Appendix C). (b) Members of groups shall submit to an on-site safety inspection of their cartridge boxes and other equipment before being permitted to participate in NPS demonstrations. (c) This requirement applies to non-firing events.
- XX.11.7 Demonstration Supervision: (a) A certified Historic Weapons Supervisor must personally observe and supervise all firing demonstrations conducted by event volunteers within the park's boundaries. (b) The Historic Weapons Supervisor must be prepared and authorized by the park superintendent to act immediately on any violation of NPS policies including canceling the program and removing the individual or group from further firing demonstrations as appropriate.

# APPENDIX A — APPROVED RANGES FOR HISTORIC WEAPONS DEMONSTRATIONS

## Artillery Demonstrations

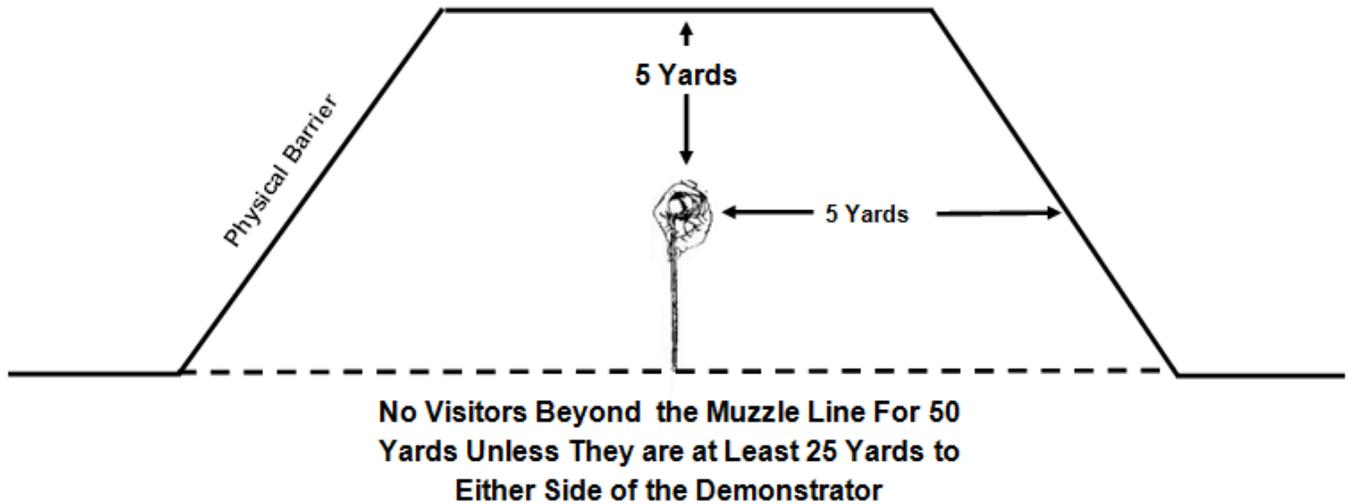
- Visitors must be separated from the demonstration area by a physical barrier.
- Visitors may not be located anywhere beyond the muzzle line for a distance of at least 100 yards to the front and both sides of the piece.
- Minimum Distance Between Limber and Visitors — 7 Yards
- Minimum Distance Between Cannon and Visitors — 12 Yards



**No Visitors Beyond the Muzzle Line For 50  
Yards Unless They Are At Least 50 Yards  
to Either Side of the Piece**

## Small Arms & Human Powered Weapons Demonstrations

- Visitors must be separated from the demonstration area by a physical barrier.
- Visitors may not be located anywhere beyond the muzzle line for a distance of at least 50 yards in front or to either side of the demonstrator during a small arms demonstration.
- **No one will be permitted beyond the release point during a human powered weapon demonstration.**
- Minimum Distance Between Closest Demonstrator and Visitors — 5 Yards



## APPENDIX B — DEMONSTRATION CHECKLISTS

### *Artillery Demonstration Checklist*

<b>BEFORE</b>	
	The gun has been inspected, inside and out. Bore is clean of foreign material.
	The carriage is in good condition and all keys are secure.
	The accessory equipment is in good condition (sponge head in good repair, rammer and sponge head secure on staff, etc.).
	Sponge head fits bore snugly, but not too tight.
	Ammunition boxes, haversacks, etc., are clean and free of spilled powder.
	Ammunition is properly prepared, with only enough for one day's demonstrations.
	All implements are in their correct place on the piece (not on the ground).
	Misfire equipment in place at the firing position.
	Required number of personnel are present to safely fire the piece.
	Limber placement is at least seven yards distance from barricade.
	There are at least ten yards between the limber and the trail of the piece.
	Visitors have a good field of vision of the demonstration.
	The interpreter has a clear view of all the visitors and downrange area.
	The carriage is free to recoil if necessary so it won't buck or break carriage.
	There is a fixed barricade between the visitors and the demonstration area.
	The wind conditions are not too strong for a safe demonstration.
	Conditions are not too dry as to risk a range fire from the muzzle blast.
	First Aid kit and emergency communications are available.
	There are no open fires nearby (campfires, brush clearing, etc.).
	Final review of misfire drill and accident procedures.
<b>DURING</b>	
	The crew is following the approved manual with each person is in their correct position during each portion of the drill.
	The sponge is adequately damp, but not soaking wet.
	Cannoneer #1 (Ramming position) is holding the rammer correctly.
	Cannoneer #1 and Cannoneer # 2 (the two cannoneers who service the muzzle of the piece) are wearing gauntlets.
	Gauntlets are not so stiff or heavy as to cause fumbling or other difficulty.
	When quill primers are used: linstock and lantern are handled safely.
	The sponge head is not allowed to contact the ground at any time during the demonstration (to prevent grass, sand, etc. from sticking to it).
	Cannoneer # 3 (cannoneer who services the vent) is sealing the vent correctly during sponging and loading operations.
	If there is a misfire, is it handled correctly.
<b>AFTER</b>	
	After firing, the piece was cleared of all cartridge material, washed, and dried.
	All weapons, explosives, and accessory pieces are accounted for.
	The field piece and limber are secured and stored properly.
	The demonstration area is inspected carefully for smoldering residue.
	Sponge head is thoroughly rinsed and dried.
	All remaining explosives are returned to storage facility.

## Small Arms Demonstration Checklist

<b>BEFORE</b>	
	The piece has been inspected, inside and out. Bore is clean of foreign material.
	The demonstrator approaches the demonstration area carrying the firearm in a safe and military fashion.
	The demonstrator is not encumbered with superfluous equipment.
	Misfire equipment is in place at the demonstration area.
	Visitors have a good field of vision of the demonstration.
	The interpreter has a clear view of all the visitors and down range area.
	Physical barriers between the visitors and the demonstration area are in place.
	Conditions are not too dry or windy to risk a range fire from the muzzle blast.
	First aid kit and emergency communications are available.
<b>DURING</b>	
	The demonstrator is competent with the manual he is using.
	There are sufficient additional people for interpretation and crowd control.
	The demonstration area is safe for the size of the audience.
	The firearm is always pointed in a safe direction.
	At no time are there any parts of the demonstrator's body placed in a hazardous position in relation to the firearm.
	In the event of a misfire or other unscheduled event, the demonstrator reacts properly.
<b>AFTER</b>	
	The demonstrator maintains military bearing and leaves the area carrying the firearm safely and in a military fashion.
	The demonstration area is policed for dropped cartridges, cartridge papers, etc.
	Any remaining cartridges are returned to storage facility
	The piece is cleaned, dried and oiled. The piece is returned to the storage facility.
	Any accessories are accounted for.
	Your overall impression is favorable.

# APPENDIX C — HISTORIC WEAPONS INSPECTION CHECKLISTS

## Artillery Inspection Checklist

Park: \_\_\_\_\_ Weapon: \_\_\_\_\_ Serial/Property #: \_\_\_\_\_

THE TUBE	
	The tube is clean and free of rust and corrosion.
	No sign of external damage or strain (dents, cracks, etc.)
	Inside of the bore is smooth or relatively smooth.
	No sign of internal damage (bulges, lodgments, pits, etc.)
	No sign of corrosion at the breech of the bore.
	On iron guns with liners, the liner is secure.
	The vent is clear and of acceptable size (should never exceed 25").
	No sign of cracks or bending around the trunnions.
	No sign of weakness at the chaplets on bronze tubes.

EQUIPMENT	
	All necessary equipment is present.
	Sponge is in good condition and fitted to the bore.
	Rammer head is secure and free of cracks.
	Prongs of the worm are sharp and not bent.
	Smaller items in good condition (linstock, thumb stall, buckets, etc.)
	Leather gauntlets are in good condition (not hard, dry, or torn).
	Limber box and haversack are clean and free of spilled powder.
	The gun book is kept up to date.

THE CARRIAGE	
	Wheels are tight and free of rot or insect infestation.
	Body of the carriage is free of rot or insect infestation.
	No parts are missing, cracked, bent, or broken.
	Wheels move freely.
	Elevating mechanism works smoothly and properly.
	None of the ironwork is loose.
	Tube rotates freely on its trunnions.
	Cap squares fit snugly and are properly keyed.
	Lids of limber chests and/or side boxes fit securely.
	Wood generally free of serious checking or splintering.
	Wheel hub does not gouge the end of the axle tree.
	Linch pin is not digging into the wheel hub.

## Breech Loading "Trapdoor" Rifle or Carbine Inspection Checklist

Park: \_\_\_\_\_ Weapon: \_\_\_\_\_ S.N./Prop. # \_\_\_\_\_

PRIOR TO ASSEMBLY	
	Make sure the weapon is unloaded.
	Your overall first impression favorable.
The Stock	
	No cracks, splits or weak repairs.
	The butt plate, trigger guard assembly, fit tightly.
	No burrs on butt plate or trigger guard screw heads that would snag clothing or hands.
	Do the band springs function smoothly and not bound by the wood.
	Generally, no splits or rough edges.
	Two-piece stocks have sections securely joined.
The Lock	
	Lock works smoothly.
	The hammer fits tightly on the tumbler.
	All the positions are firm and solid.
	The half-cock ("safety") position works properly.
	Smooth trigger pulls with no catching on half-cock.
	Trigger pull is proper: — not too heavy and not a "hair" trigger.
	The lock fits properly into the stock and snugly against the barrel.
	The striking face of the hammer is not battered.
	Hammer face strikes the firing pin squarely and in the center.
The Barrel	
	Barrel fits the stock properly.
	Barrel is free of visible dents or cracks.
	The muzzle is not dented or worn.
	The sights complete and operable.
	The barrel bands hold the barrel securely.
	There is no excessive side-to-side play on the opened breech block. (There will be some play in order for the breech to function properly, but if it is excessive the hinge pin must be replaced. Make certain that the breech-block works properly)
	The cam-latch has adequate spring tension and freedom of movement.
	The firing pin moves freely within the breech block. ***

Barrel continued	
	The breech block closes and locks securely.
	The ejector works crisply, has spring tension, and that it is the proper length
	On rifles, the cleaning rod is straight, fits the stock properly, and the threads at the lower end clean and free of burrs.

AFTER DISASSEMBLY	
The Stock	
	There are no shiny spots in the lock recess indicating rubbing by metal.
	The lock recess is clean and free of splinters; no splitting or cracking.
	No splitting or cracking around tang screw hole.
	The bed for the barrel clean.
	If there is a ramrod spoon or spring, it works freely and its recess is clean.
	The tip is securely fastened to the stock.
	A careful check of a two-piece stock shows the joint is firm.
The Lock	
	All internal screws are tight.
	No internal parts are broken, cracked or chipped.
	The nose of the sear and the tumbler notches are they sharp and in good condition.
	No signs of metal rubbing on the inside of the Lock-plate.
	No signs of improper repairs or incorrect replacements.
	With the hammer or cock fully forward, the mainspring does not disconnect from the tumbler nor does any part of it protrude below the lock-plate.
	All parts clean and lightly oiled.
	All internal screws are tight.

\*\*\*If it does not, it should be cleaned. (Note: First model .45 caliber rifles and all .50 caliber rifles have firing pin springs. With the block open, press the firing pin down with the thumb and watch the hole in the face of the block to see that the tip of the pin protrudes. The point of the firing pin should be rounded.)

## Colt and Smith and Wesson Revolver Inspection Checklist

Park: \_\_\_\_\_ Weapon: \_\_\_\_\_ S.N./Prop. # \_\_\_\_\_

	The piece is confirmed to be unloaded.
	Your overall first impression is favorable.
	The grips fit snugly and are free of cracks, serious chips or splinters.
	The action works smoothly and with definite "clicks".
	The half-cock and safety positions function properly.
	The cylinder rotates freely on the half-cock.
	The cylinder rotates and locks properly when the hammer is brought smartly to full cock.
	There is no excessive longitudinal play to the cylinder nor is there any excessive gap between the cylinder and the barrel.
	The bore is in good condition.
	There is adequate tension on the mainspring.
	The cylinder bushing on Colt's Revolvers is clean and functioning properly.
	The ejector rod works smoothly and the spring is of the proper tension.
	The loading gate closes securely on Colt's Revolvers.
	The barrel-catch on S&W revolvers latches securely.
	The cylinder pin is held in place securely.
	The firing pin is free of burrs and other excessive damage.
	Park staff reports no problems in using this firearm.

# Flintlock Musket & Rifle Inspection Checklist

Park: \_\_\_\_\_ Weapon: \_\_\_\_\_ S.N./Prop.# \_\_\_\_\_

PRIOR TO ASSEMBLY	
	The weapon is confirmed to be unloaded by springing the rammer.
	Your overall first impression is favorable.
The Stock	
	No cracks or splits.
	Butt plate, trigger guard, etc. fit tightly.
	No burrs on butt plate, trigger guard or barrel band screw heads that would snag clothing or hands.
	No burns around the top of the lock.
	No splinters or rough edges on the stock.
	Do any barrel band springs work smoothly.
	** <i>If pin fastened</i> – all pins tight and in place.
	Any ramrod spring or spoon works freely.
	Two-piece stocks have sections secured.
The Lock	
	Lock works smoothly.
	The hammer fits tightly on the tumbler.
	The half-cock (safety) position works correctly.
	Smooth trigger pull with no catching of half-cock.
	Correct trigger pull – not too heavy, not “hair” trigger.
	Lock fits properly into the stock and snug against the barrel.
	** <i>If a set trigger</i> , it is properly adjusted.
	The cock screw works smoothly, jaws grip flint securely.
	The frizzen spring is of the right tension.
	The frizzen is in good condition and not gouged.
	The pan is clean and in proper relationship to the vent.
	The flint is in good condition and set at correct angle.
	There is a leather or lead flint cap.
The Barrel	
	The barrel fits the stock correctly.
	Free from visible dents or cracks.
	The muzzle is not dented or worn.
	No signs of heavy corrosion around the vent.
	** The barrel bands hold the barrel securely.

	The ramrod is straight, fits the stock correctly.
	The ramrod head is tight on the ramrod.
	The ramrod threads are clean and free of burrs.

AFTER DISASSEMBLY	
The Stock:	
	There are no shiny spots in the lock recess from rubbing by the metal parts of the lock assembly.
	Lock recess is clean and free of splinters and cracks.
	No splitting or cracking around the tang screw and tang recess.
	The barrel bed is clean.
	**Any nose cap – is securely fastened to the stock.
	Recheck two-piece stock for firm secure joint.
The Lock:	
	All internal screws are tight.
	No internal parts are broken or chipped.
	The nose of the sear and the tumbler notches are sharp and in good condition.
	No signs of metal rubbing on the inside of the lock plate.
	No signs of incorrect repairs or incorrect replacement parts.
	With hammer fully forward, the mainspring does not disconnect from the tumbler nor does any part of the mainspring protrude below the lock plate.
	The frizzen fits snugly on top of the pan.
The Barrel:	
	Any signs of flint striking or gouging the barrel.
	The vent is clear and of acceptable size.
	All parts are clean and lightly oiled.
	The breech plug is fully seated and correctly aligned.
	***“Patent Breeches” – there is no indication of seam separation.
	Bore check with light or reflector – Clean and in good condition.
	Bore wiper check-patch comes out clean.
	**On pin fastened pieces – all barrel lugs are complete and in good condition.
	Park Staff reports no problems in using the firearm.

## Matchlock Inspection Checklist

Park: \_\_\_\_\_ Weapon: \_\_\_\_\_ S.N./Prop.# \_\_\_\_\_

	Make sure the weapon is unloaded.
	Is the overall impression of the gun favorable or unfavorable?
<b>The Stock</b>	
	Is it cracked or split?
	Are there any burrs on the butt plate, screw heads, lock plate or any other metal components?
	Are pins all there and tight or is the wood around the pins chewed up or splintered so they are loose?
	Is the stock burned around the top of the lock or pan?
	In general, are there any splinters or rough edges?
<b>The Lock</b>	
	Does it work smoothly?
	Do the jaws of the serpentine grip tightly on the match cord?
	When the trigger or cat's tail is pulled does it come up smoothly and without snagging?
	Is the trigger pull proper, not too heavy or light?
	Does the lock fit properly into the stock?
	Is the pan clean and in proper relationship with the touch hole on the barrel?
	Does the pan cover fit snugly over the pan?
	Do the pan and pan cover form a proper seal?
<b>The Barrel</b>	
	Does it fit the stock properly?
	Is it free from visible dents, cracks, wear and rust?
	Is the serpentine striking the barrel?
	Is the vent clear and of acceptable size?
	Is there any sign of corrosion around the vent hole?
	Do the barrel bands hold the barrel securely?
	Is the scouring stick straight? Does it fit into the stock properly?

## Percussion Musket & Rifle Inspection Checklist

Park: \_\_\_\_\_ Weapons: \_\_\_\_\_ S.N./Prop.# \_\_\_\_\_

BEFORE DISASSEMBLY	
	Firearm is confirmed to be unloaded by springing the rammer.
	Your overall first impression is favorable.
The Stock:	
	No cracks or splits.
	Butt plate, trigger guard, etc., fit tightly.
	No burrs on butt plate, trigger guard or barrel band screw heads that would snag clothing or hands.
	No burns on top of the lock.
	No splinters or rough edges on the stock.
	Do barrel band springs work smoothly.
	**If pin fastened – all pins tight and in place.
	Any ramrod spring or spoon works freely.
	Two-piece stocks have sections securely joined.
The Lock:	
	Lock works smoothly.
	Hammer fits tightly on the tumbler.
	All positions are firm and solid.
	The half-cock (safety) position work correctly.
	Smooth trigger pull with no catching of half-cock.
	Correct trigger pull – not too heavy, not “hair” trigger.
	The striking face of the hammer is not battered.
	Hammer face strikes the cone squarely and in the center.
The Barrel:	
	The barrel fits in the stock correctly.
	Free from visible dents or cracks.
	The muzzle is not dented or worn.
	Cone is well seated and not battered.
	The opening of the cone is clear and of acceptable size.
	The shoulders of the cone are not worn.
	No signs of heavy corrosion around the cone.
	Sights are complete and operable.
	The barrel bands hold the barrel securely.
	The ramrod is straight and fits the stock correctly.
	The ramrod head is tight on the ramrod.
	The ramrod threads are clean and free of burrs.

AFTER DISASSEMBLY	
The Stock:	
	There are no shiny spots in the lock recess from rubbing by the metal parts of the lock assembly.
	Lock recess is clean and free of splinters and cracks.
	No splitting or cracking around the tang screw and tang recess.
	The barrel bed is clean.
	**Any nose cap – is securely fastened to the stock.
	Recheck two-piece stock for firm secure joint.
The Lock:	
	All internal screws are tight.
	No internal parts are broken or chipped.
	The nose of the sear and the tumbler notches are sharp and in good condition.
	No signs of metal rubbing on the inside of the lock plate.
	No signs of incorrect repairs or incorrect replacement parts.
	With hammer fully forward, the mainspring does not disconnect from the tumbler nor does any part of the mainspring protrude below the lock plate.
The Barrel:	
	All parts are clean and lightly oiled.
	The breech plug is fully seated and correctly aligned.
	***“Patent Breeches” – there is no indication of seam separation.
	Bore check with light or reflector – Clean and in good condition.
	Bore wiper check-patch comes out clean.
	**On pin fastened pieces – all barrel lugs are complete and in good condition.
	Park Staff reports no problems in using the firearm.

## Percussion Revolvers Inspection Checklist

Park: \_\_\_\_\_ Weapon: \_\_\_\_\_ S.N./Prop. # \_\_\_\_\_

	The piece is confirmed to be unloaded.
	Your overall first impression is favorable.
	The grips fit snugly and are free of cracks, serious chips, or splinters.
	The action works smoothly and with definite "clicks".
	The half-cock and safety positions function properly.
	The cylinder rotates freely on the half-cock.
	The cylinder rotates and locks properly when the hammer is brought smartly to full cock.
	There is no excessive longitudinal play to the cylinder, nor is there any excessive gap between the cylinder and the barrel.
	Cylinder and chambers display no fouling or corrosion.
	The bore is in good condition.
	There is adequate tension on the mainspring.
	The cones fit into the cylinder snugly (no wear or corrosion on screw threads).
	The loading lever functions properly, and its catch secures it beneath barrel.
	Cones show no excessive wear or damage.
	Hammer functions properly, and holds securely at half- and full cock.
	The hammer displays no excessive wear, and strikes cones squarely.
	The trigger releases hammer with sufficient tension.
	Park staff reports no problems in using this firearm.

**Post-1898 Rifle Checklist (Krag-Jorgensen .30-40; M1903 Springfield .30-06)**

**Park:** \_\_\_\_\_ **Weapon:** \_\_\_\_\_ **S.N./Prop. #** \_\_\_\_\_

<b>BEFORE DISASSEMBLY</b>	
	Firearm is confirmed to be unloaded by opening the action and inspecting the breech. Insure the chamber and magazine are empty.
	Your overall first impression is favorable.
	Rifle is clean, lightly oiled, and free of obvious wear.
<b>The Stock</b>	
	No cracks or splits.
	Butt plate, trigger guard, etc., fit tightly.
	No burrs on butt plate, trigger guard, or any part like swivels or bands.
	No splinters or rough edges on the stock.
	Stock pieces do not come off easily/are securely fastened.
	Sling and stacking swivels are secure, free of damage.
<b>The Action</b>	
	Bolt works smoothly.
	All positions in bolt movement are firm and solid.
	The safety works correctly.
	Cut-off switch works correctly.
	Smooth trigger pull.
	Correct trigger pull – not too tight, nor too loose.
	Cocking piece functions, and relieves tension on firing pin with trigger pull.
	Breech seals tightly with bolt closed.
	Parts show no pitting, corrosion. Action is lightly oiled.
<b>The Magazine</b>	
	Spring functions properly when depressed. Bolt can be worked with spring depressed, and is held rigid by spring with empty magazine.
	No corrosion or powder residue.
	For Krag-Jorgensen, side box magazine side plate, gate, and hinge bar function properly.
	Magazine seals properly, and is correctly lubricated.
<b>The Barrel</b>	
	The barrel fits in the stock correctly.
	Free from visible dents or cracks.
	The muzzle is not dented or worn.
	No signs of heavy corrosion.
	Sights are complete and operable.

<b>AFTER DISASSEMBLY</b>	
<b>The Stock</b>	
	There are no shiny spots in recess from rubbing by the metal parts.
	Recess is clean and free of splinters and cracks.
	The barrel bed is clean.
<b>The Barrel</b>	
	All parts are clean and lightly oiled.
	Bore check with light or reflector – clean and in good condition. Free of fouling, pitting, and corrosion.
	Bore wiper check – drawn patch clean of residue, fouling, rust, grease, or excess oil.
	Park Staff reports no problems in using the firearm.

## Swivel Gun Inspection Checklist

Park: \_\_\_\_\_ Weapon: \_\_\_\_\_ Serial/Property #: \_\_\_\_\_

	Confirm the weapon is unloaded.
	Your overall impression is favorable
<b>The Tube:</b>	
	The tube is clean and free of dust and corrosion.
	No sign of external damage or strain (dents, cracks, etc.)
	Inside of the bore is clean and relatively smooth.
	No internal signs of damage (bulges, lodgments, pits, etc.)
	No sign of corrosion damage at breech of the bore.
	On iron guns with liners, the liner is secure.
	The vent is clear and of acceptable size.
	No signs of cracks or bending around the trunnions.
	No signs of weakness at the chaplets on bronze tubes.
<b>The Yoke:</b>	
	The yoke is mounted securely on the post.
	The yoke accommodates the tube easily (i.e. the trunnion fit securely, yet allow the tube to swivel with ease.)
	No signs of cracks or bending in any portion of the yoke.
<b>The Post:</b>	
	The post is mounted securely in the ground.
	There are no signs of deterioration (rot, insect damage) which would cause an unsafe demonstration.
	No serious cracks which would make the demonstration unsafe.
	Deep cracks have been repaired.
<b>Equipment:</b>	
	All necessary equipment is present.
	Sponge is in good condition and fitted to the bore.
	Rammer head is secure and free of cracks.
	Small items in good condition (lintstock, thumbstall, buckets, etc.)
	Prongs of the worm are sharp and not bent.
	Haversack is clean and free of spilled powder.
	The gun book is being kept up to date.

**APPENDIX D — BLACK POWDER SAFETY DATA SHEET****Section 1: Identification**

**Product Identifier:** Black Powder (includes all grades)  
**Manufacturer's Name:** GOEX Powder, Inc.  
**Address:** P.O. Box 659  
 Doyline, LA 71023-0659  
**Informational Telephone Number:** 1-(318) 382-9300  
**Emergency Phone Number:** 1-(800) 255-3924 (Chem Tel)  
**Recommended Use:** for use in competitive and recreational shooting, muzzleloading hunting and the U.S. Military.

**Section 2: Hazard(s) Identification**

Hazard category	Signal Word	Hazard statement	Pictogram
Division 1.1	Danger	Explosive; mass explosion hazard	

**Target Organ Warning:** Above OSHA levels, chronic exposure may cause skin irritation and damage to the respiratory system, and acute exposure can cause skin, eye, and respiratory irritation.

**Section 3: Composition/information on ingredients**

Component	CAS-Number	Weight %
Charcoal	16291-96-6	8-18%
Sulfur	7704-34-9	9-20%
Potassium Nitrate	7757-79-1	70-76%
Graphite (note: not contained in all grades of black powder)	7782-42-5	<1%

**Section 4: First-aid measures**

**Ingestion:** Not a likely route of exposure. If ingested, dilute by giving two glasses of water and induce vomiting. Avoid, when possible and contact a Poison control center for advice on treatment, if unsure.

**Eye Contact:** Not a likely route of exposure. Flush eyes with water.

**Inhalation:** Remove patient from area to fresh air. If not breathing, give artificial respiration, preferably by mouth to mouth. If breathing is difficult, give oxygen. Seek prompt medical attention. Avoid when possible.

**Skin Contact:** Wash the affected area with copious amounts of water. Some persons may be sensitive to product.

**Injury from detonation:** Seek prompt medical attention immediately.

**Note to Physician:** Treat symptomatically.

**Section 5: Fire-fighting measures**

**Extinguishing media:** Water may be used as the extinguishing method. **DO NOT FIGHT EXPLOSIVES FIRES.** Evacuate the area according to Emergency Response Guide 112 guidelines. Isolate the area and guard against any intruders.

**Special Procedures:** Black Powder is extremely flammable and may deflagrate. Get away and evacuate the area.

**Unusual Hazards:** As with any pyrotechnic, if under confinement or piled in slight confinement, Black Powder can explode. No known toxic fumes are emitted, but good ventilation should still be present.

**Flash Point:** Not applicable.

**Auto ignition Temp:** Approximate range: 392°–867°F / (200°–464°C)

**NFPA Ratings:** **Health = 1      Flammability = 3      Reactivity = 1**

**Advice and PPE for Firefighters:** Fires involving Black Powder should not be fought unless extinguishing media can be applied from a well-protected and distant location from the point of fire. Self-contained breathing apparatus (SCBA) and protective clothing must be worn. Follow Emergency Response Guide 112. Wash all clothes prior to reuse.

## Section 6: Accidental release measures

### Personal precautions, protective equipment and emergency procedures:

Non-flammable or flame retardant clothing should be worn when cleaning up spilled material. Material is sensitive to ignition from sources such as heat, flame, impact, friction or sparks. Therefore, non-sparking utensils should be used.

**Spill/leak response:** Use appropriate personal protective equipment. Isolate area and remove sources of friction, impact, heat, low level electrical current, electrostatic or RF energy. Only competent, experienced persons should be involved in cleanup procedures.

### Environmental precautions:

Clean up spills immediately using non-sparking utensils Do not dispose of in the ground.

Spill residues may be disposed of per guidelines under Section 13: Disposal Considerations.

## Section 7: Handling and storage

**Storage Conditions:** Store in a cool, dry place in accordance with requirements of 27CFR555.201-555.219 (ATF Subpart K)

Avoid heat, impact, friction and static. Protect against heat effects. Keep away from heat, open flame and ignition sources.

Absolutely no smoking around open powder or packages. Keep away from combustibles. Avoid electrostatic charges.

Store in a cool, dry place Do not store in the same area with highly combustible materials.

Keep containers closed at all times when not being used. Keep out of reach of children. Open and handle container with care.

Follow all local, state and federal laws when storing this product.

## Section 8: Exposure controls/personal protection

### Personal protection for routine use:

Respiratory protection is not normally needed. If significant dusting occurs, a NIOSH approved dust mask should be worn. Good ventilation is recommended when working with Black Powder. Gloves may be worn to protect skin. Safety glasses with side shields are recommended for eye protection. Flame retardant outerwear such as coveralls or lab coat may be worn.

**Health Hazards (Acute or chronic):** TLV is unknown for ingestion of dust.

**Signs/Symptoms of Exposure:** Burning or itching of the eyes, nose or skin; shortness of breath.

**First Aid Procedures:** Remove the patient from exposure and if skin contact, wash the affected area with water

## Section 9: Physical and chemical properties

**Physical State:** Granular powder

**pH:** 6.0-8.0

**Appearance:** Black in color

**Odor:** Noodor detectable

**Solubility:** Good in water

**Vapor Pressure/Density:** not applicable

**Auto-ignition Temp.:** 392°–867° F /200°–464°C

**Boiling Point:** Not applicable

## Section 10: Stability and reactivity

**General Information:** Loading data and the instructions for loading must be observed.

**Hazardous decomposition:** Detonation produces hazardous overpressures and fragments (if confined). Gases produced may be toxic if exposed in areas with inadequate ventilation.

**Conditions to Avoid:** Avoid heat, impact, friction or static. Protect against heat effects. Keep away from heat, open flame and ignition sources. A violent burn or deflagration could occur by above mentioned items.

**Substances to Avoid:** Avoid contact with alkaline substances or strong acids.

**Section 11: Toxicological information**

LD<sub>50</sub> Values: unknown

TLV unknown for ingestion of dust. Some persons may be unusually sensitive to the product.

None of the components of Black Powder are listed as a carcinogen by NTP, IARC or OSHA.

Routes of entry include Skin, Inhalation and Ingestion. (Acute Toxicity=Category 4) per Table A.1.1 of 29CFR1910.1200

**Section 12: Ecological information**

Do not dispose of powder or residues into any water streams or bodies of water. Avoid spilling powders onto any soils. Clean up any spills promptly.

No known adverse effects on marine or other aquatic organisms.

**Section 13: Disposal considerations**

Care must be taken to prevent environmental contamination from the use of this material. The user has the responsibility to dispose of unused material, residues and containers in compliance with all relevant laws and regulations regarding treatment, storage and disposal for hazardous and non-hazardous waste. Powder can be burned in very small quantities and in very thin layer and must only be ignited from a safe distance.

**Waste Disposal:** Desensitize by diluting in water. Open train burning, by qualified personnel, may be used for disposal of small unconfined quantities. Dispose of in compliance with Federal Regulations under the authority of RCRA (40CFR Parts 260-271).

Do not dispose of the black powder container into a fire.

**Section 14: Transport information**

Label required: **Explosive**



**Highway:**

**Class or division:** 1.1D or 4.1 Flam Solid-(if <100 pounds).

**UN Number:** UN0027 (NA0027 for 4.1 Flam Solid)

**Shipping Name:** Black Powder

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**Air Transport:** **Forbidden!**

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**Maritime IMDG**

**Class or division:** 1.1D

**UN Number:** UN0027

**Shipping Name:** Black Powder

**Section 15: Regulatory information**

All products related to Black Powder are reported annually as per Community Right-to Know (Tier II). Black Powder has been approved by PHMSA and copies of the approvals are on file with Environmental, Health and Safety Manager.

**Section 16: Other information**

**Prepared By:** Mark Wendt, Environmental, Health and Safety Manager email: [mwendt@hodgdon.com](mailto:mwendt@hodgdon.com)

**SDS Creation Date:** April 1, 2014

**SDS Print Date:** April 1, 2014

**Disclaimer:** The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

## APPENDIX E — ARTILLERY SPECIFICATIONS

### SPECIFICATIONS FOR REPRODUCTION BRONZE CANNON USED IN NATIONAL PARK SERVICE HISTORIC WEAPONS DEMONSTRATIONS

\* Gun shall conform in all principal dimensions and weights as specified period manuals.

For Civil War:

**1861 ORDNANCE MANUAL FOR THE USE OF THE OFFICERS OF THE UNITED STATES ARMY and 1849 ARTILLERY FOR THE LAND SERVICE** by Major Alfred Mordecai.

For earlier periods use:

**AMERICAN ARTILLERIST'S COMPANION** by Louis de Tousard or **TREATISE OF ARTILLERY** by John Muller or any other relevant source.

- Tube will be cast using:
  - **Bronze** — 88 parts copper, 10 parts tin and 2 parts zinc,
  - **Gun Metal** — 90 parts copper, 10 parts tin or,
  - **Silicon Bronze** — 82 parts copper, 14 parts zinc and 4 parts silicon.
- The tube will be cast solid and bored. Core casting is not acceptable.
- The bore will be free of gouges, holes, cracks, burrs or other imperfections. The bore will be of uniform diameter for its entire length. The radius of the breech will be one fourth of the diameter of the breech.
- Vent and vent piece: For mid-19<sup>th</sup> century guns; the vent will be in a vertical plane passing through the axis of the bore and makes an angle of 80 degrees with it. The vent enters the bore at a distance from the bottom equal to one fourth of the diameter of the bore. The diameter of the vent will not exceed .2 inches. A removable vent piece made of “marine bronze” or copper will be installed as per the original manufacturer. For early period guns, installation of a vent piece is optional. The contractor will supply one replacement vent with the gun.
- Barrel Markings: The barrel manufacturer will place their company’s identification stamp **ONLY** on the underside of the barrel between the trunnions or on the left rim base. Any additional stampings are at the discretion of the purchasing park.
- Park will stamp the National Park Service property number on the right rim base.
- Exterior finish: There will be no gouges, voids cracks, burrs or other imperfections on the exterior finish of the barrel. All traces of lathe marks will be removed, leaving a smooth finish suitable for polishing. The exterior finish of the barrel should be free of paint, lacquer or other composition.
- OPTIONAL: On bronze guns an iron pendulum hausse sight base will be installed on the center top of the base of the breech, adjacent to the base ring, as per original manufacturer.

An iron front sight will be installed on the top portion of the muzzle swell, as per original manufacturer.

- Changes or substitutions: No changes or substitutions of materials or design shall be made without the written approval of the contracting officer after consultation with the park's Historic Weapons Program Supervisor and a Regional Inspector.
- Inspection and acceptance: The U.S. Government shall have the option of inspecting the gun at the contractor's location or at the park site. The government shall have seven days to perform a final inspection, if the gun is delivered to the site. The contractor agrees to perform the necessary changes or the purchase order shall be cancelled.
- Contractor's Warranty: The contractor shall warrant all parts and labor for a period of two years from the date of acceptance of delivery. The contractor shall replace without cost to the U.S. Government any part that fails due to manufacturing or material defect during the warranty period. All cost of transportation of the gun for repair covered by warranty will be at the expense of the contractor.

# SPECIFICATIONS FOR REPRODUCTION IRON CANNON USED IN NATIONAL PARK SERVICE HISTORIC WEAPONS DEMONSTRATIONS

\* Gun shall conform in all principal dimensions and weights as specified period manuals.

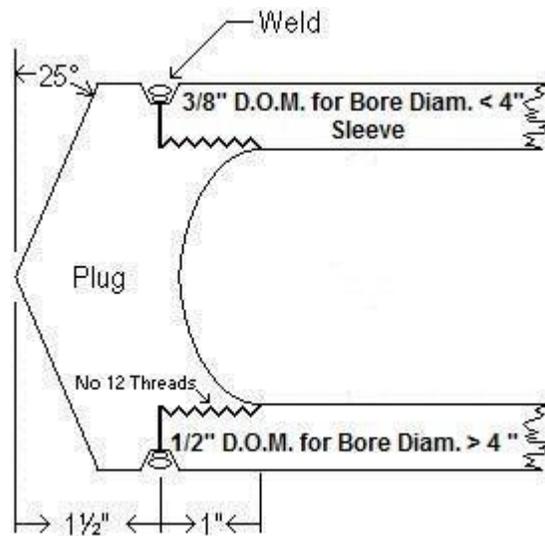
For Civil War:

**1861 ORDNANCE MANUAL FOR THE USE OF THE OFFICERS OF THE UNITED STATES ARMY and 1849 ARTILLERY FOR THE LAND SERVICE by Major Alfred Mordecai.**

For earlier periods use:

**AMERICAN ARTILLERIST'S COMPANION by Louis de Tousard or TREATISE OF ARTILLERY by John Muller** or any other relevant source.

- Tube must be cast of cast ductile iron.
- Tube will be cast solid and bored. Core castings are not acceptable.
- Liner
  - $\frac{3}{8}$  inch-thick D.O.M. (Drawn Over Mandrel) steel tubing for bore diameters less than 4 inches.
  - $\frac{1}{2}$  inch thick D.O.M. steel tubing for bore diameters greater than 4 inches
- Tube will not be cast with the liner in place.
- The bore of the liner will be of uniform diameter for its entire length.
- Internal breech of the steel sleeve must consist of an appropriate radius steel plug threaded into place and secured in sleeve with a deep fillet weld around the circumference exterior surface of the plug.



- Trunnion diameter not to exceed measurement of original design.
- Where appropriate the tube will have lathe turned external finish.

- Vent and vent piece: Where appropriate the tube will be vented with a brass or copper vent piece, as per the original guns. The vent will be on a vertical plane passing through the axis of the bore and makes an angle of 80 degrees with it. The vent enters the bore at a distance from the bottom equal to one fourth the diameter of the bore. The diameter of the vent will not exceed .2 inches.
- Barrel markings: The barrel manufacturer may place their company's identification stamp ONLY on the underside of the barrel between the trunnions or on the left rim base. Any additional stampings are at the discretion of the purchasing park.
- Park will stamp the National Park Service property number on the piece.
- Vent and vent piece: For mid-19<sup>th</sup> century guns; the vent will be in a vertical plane passing through the axis of the bore and makes an angle of 80 degrees with it. The vent enters the bore at a distance from the bottom equal to one fourth of the diameter of the bore. The diameter of the vent will not exceed .2 inches. A removable vent piece made of "marine bronze" or copper will be installed as per the original manufacturer. For early period guns, installation of a vent piece is optional. The contractor will supply one replacement vent with the gun.
- Paint-minimum standards: one coat of metal primer and one coat of semi-gloss black, oil base enamel.
- OPTIONAL: Sights or sight brackets are installed at the discretion of the park.

While not required, it is appropriate and park is encouraged to order a false muzzle of cosmetic rifling. The final ten or twelve inches of the steel sleeve at the muzzle should be cosmetically rifled as in an original tube of the type that is duplicated.

- Changes or substitutions: No changes or substitutions of materials or design shall be made without the written approval of the contracting officer after consultation with the park Historic Weapons Program Supervisor and a Regional Inspector
- Inspection and acceptance: The U.S. Government shall have the option of inspecting the gun at the contractor's location or at the park site. The government shall have seven (7) days to perform the final inspection, if the gun is delivered to the site. The contractor agrees to perform the necessary changes or the purchase order shall be cancelled.
- Contractor's Warranty: The contractor shall warrant all parts and labor for a period of two years from the date of acceptance of delivery. The contractor shall replace without cost to the U.S Government any part that fails due to manufacturing or material defect during the warranty period. All cost of transportation of the gun for the repaired covered by warranty will be at the expense of the contractor.

## APPENDIX F —BLACK POWDER STORAGE REQUIREMENTS

- Magazine storage is under the supervision of an officially trained and certified career, career-conditional or term employee, 21 years of age or older.
- Magazine storage responsibilities must be designated in writing by the Superintendent.
- Temporary absences of the responsible employee shall be delegated in writing to act during this period.
- Magazines must receive a visual exterior inspection every seven days.
- Stored black powder, ammunition, and ignition devices will be inventoried every three months (quarterly).
- "Inhabited buildings" are not used for magazines or for loading operations.
- Historic structures used for National Park Service Class 2 magazines will be supported in writing, approved by the Regional Director, and be on file in the park.
- Parks may store no more than the amount black powder projected to be expended in a twelve-month period with maximum storage limit of 300 pounds.
- Powder containers are dated.
- Powder is consumed within two years.
- Powder inventory log is kept current and up to date including documentation of quarterly inventories.
- Containers are not placed directly against interior wall or vent.
- Containers are placed so content identification is visible for inspection and inventory.
- Magazines are kept clean and floors are swept.

## National Park Service CLASS 1 MAGAZINE (Outdoor Storage of More than 50 pounds)

- Location of National Park Service Class 1 Magazine is consistent with the *National Park Service Table of Distance for Storage of Black Powder* below.
- "NO SMOKING" signs are clearly marked around the magazine, or within any room containing an indoor magazine.
- No openings are present except door and ventilation.
- Adequate drainage provided.
- Interior walls are constructed of, or covered with a non-sparking material.
- Floors are constructed of, or covered with a non-sparking material.
- Foundation constructed of masonry. If wood piers are used, the space under the building is enclosed with metal.
- Except for fabricated metal roofs, the outer roof is to be covered with no less than 26 gauge iron or aluminum, fastened to at least  $\frac{7}{8}$ <sup>th</sup> inch sheathing.
- Doors to be constructed of not less than  $\frac{1}{4}$  inch steel plate lined with two inches hardwood.
- Hinges and hasps attached by welding, bolting or riveting. Hinges and hasps cannot be removed when door is closed and locked.
- Two locks are required:
  - (2) mortise locks, or
  - (2) padlocks with  $\frac{3}{8}$  in. hasps on separate hasps, or
  - mortise lock and (1) padlock, or
  - A mortise lock that requires two keys to open, or
  - A three-point lock.
- If padlocks are used, they must be covered with  $\frac{1}{4}$  inch steel hoods.
- Vents are screened. Side wall vents must be offset.
- No exposed metal on interior. All ferrous metal nail heads are covered.
- Lighting is provided by battery activated safety lantern. Electric lighting must meet "National Electric Code" Class III installations (hazardous areas).
- Dry grass, brush, small trees or rubbish is kept at least 25 feet in all directions from magazine.
- Volatile materials are kept at least 50 feet from magazine.

***Masonry construction:*** Hollow masonry units filled.

***Fabricated metal wall construction:*** Not less than 14-gauge thickness. Walls lined inside with brick or hardwood no less than 4 inches, or sand 6 inches of sand fill.

***Wood frame construction:*** Exterior is covered with iron or aluminum not less than 26 gauge. Walls to be no less than six inches thick, filled with sand or weak concrete.

## CLASS 2 MAGAZINE (Indoor Storage of 50 pounds or less)

- "NO SMOKING" signs are clearly marked around the magazine, or within any room containing an indoor magazine.
- Door overlaps sides by at least one inch.
- Hinges and hasp welded, riveted or bolted.
- Padlock has 3/8-inch shackle.
- No exposed metal on interior. All ferrous metal nail heads are covered.
- Lighting is provided by battery activated safety lantern. Electric lighting must meet "National Electric Code" Class III installations (hazardous areas).
- Painted red with 3-inch letters on sides and top: "EXPLOSIVES Keep Fire Away."

**Wood Magazine:** Constructed of 2-inch hardwood and covered with metal no less than 20 gauge.

**Metal Magazine:** Constructed of no less than 12-gauge steel, lined with at least 1/2 inch plywood or hardboard.

**National Park Service  
Table of Distances for Storing Black Powder**

Powder Stored (Pounds)	Inhabited Buildings, Public Highways, and Passenger Railroads	Other Magazines
0-25	75 feet	10 feet
26-50	85 feet	15 feet
51-75	95 feet	20 feet
76-100	105 feet	25 feet
101-125	115 feet	30 feet
126-150	125 feet	35 feet
151-175	135 feet	40 feet
176-200	145 feet	45 feet
201-225	155 feet	50 feet
226-250	165 feet	55 feet
256-275	175 feet	60 feet
276-300	185 feet	65 feet





## APPENDIX H — BLACK POWDER TRANSPORTATION CHECKLIST

**The preferred method transporting black powder is to have it shipped by commercial carrier directly to the park.** If bulk black powder must be transported outside the park, use this checklist to make sure you do it SAFELY and CORRECTLY.

<b>Notification</b>	
	Notify all state, county, and local authorities along your route.
<b>Vehicle</b>	
	Use a marked government vehicle to transport black powder. GSA and DOI license plates are sufficient.
	Capable of carrying the load
	Flame proof and moisture proof tarp for loads carried in open area
	Two (2) functional fire extinguishers that are rated at least 10-BC
<b>Check the following for proper function.</b>	
	Electrical wiring is protected and securely fastened
	Undercarriage is reasonably free of grease and oil
	Fuel tank and lines have no leaks and are secure
	Brakes
	Lights
	Horn
	Windshield wipers
	Steering
	Tires (inflation, tread, deformities)
<b>Operation</b>	
	No Smoking!
	No matches or other flame producing devices
	No carrying firearms or loaded cartridges
	Driver is a historic weapons supervisor possessing a valid driver's license.
	No parking on public streets or near places where people work
	Avoid congested areas and heavy traffic.
	Vehicle is physically attended by driver or another government employee aware of the hazards and procedures at all times. Vehicle may be left locked for short periods of time for meal and restroom breaks.

# APPENDIX I — TABLES OF MAXIMUM LOADS

## TABLE OF MAXIMUM LOADS — BLACK POWDER SMALL ARMS

All loads will be Ff Grade black powder unless otherwise specified.

WEAPON TYPE	CALIBER	MAXIMUM BLANK LOAD
<b>17TH CENTURY</b>		
Matchlock	.60 to .75 (varies)	125 grains
<b>18TH CENTURY</b>		
“Brown Bess” Musket	.75	125 grains
Charleville Musket	.69	125 grains
Kentucky Rifle	Varies	90 grains
Pistols and Horse Pistols	Varies	35 grains
<b>19TH CENTURY</b>		
U.S. Musket (Percussion Conversion)	.69	75 grains
U.S. Rifle, M1841 and 1855	.54 and .58	60 grains
U.S. Musket, M1842 (Also Rifled Musket)	.69	75 grains
U.S. Rifle Musket, M1855-64	.58	60 grains
British Enfield Rifle Musket, P1853 (Also Rifle, P1858 and Musketoon)	.577	60 grains
Percussion Revolver	.36	20 grains Fffg
Percussion Revolver	.44	28 grains Fffg
<b>19TH CENTURY METALLIC CARTRIDGES (COMMERCIAL PURCHASE ONLY)</b>		
U.S. Springfield Rifle	.50	70 grains
Sharps Carbine	.50	70 grains
U.S. Springfield Rifle	.45	70 grains
U.S. Springfield Carbine	.45	55 grains
Colt’s Revolver, M1873	.45	28 grains Fffg
Smith and Wesson Schofield Revolver	.45	28 grains Fffg

**Note:** Maximum blank loads for weapons not identified on this chart shall not exceed the documented historic load for firing a projectile.

## **TABLE OF MAXIMUM LOADS – BLACK POWDER ARTILLERY**

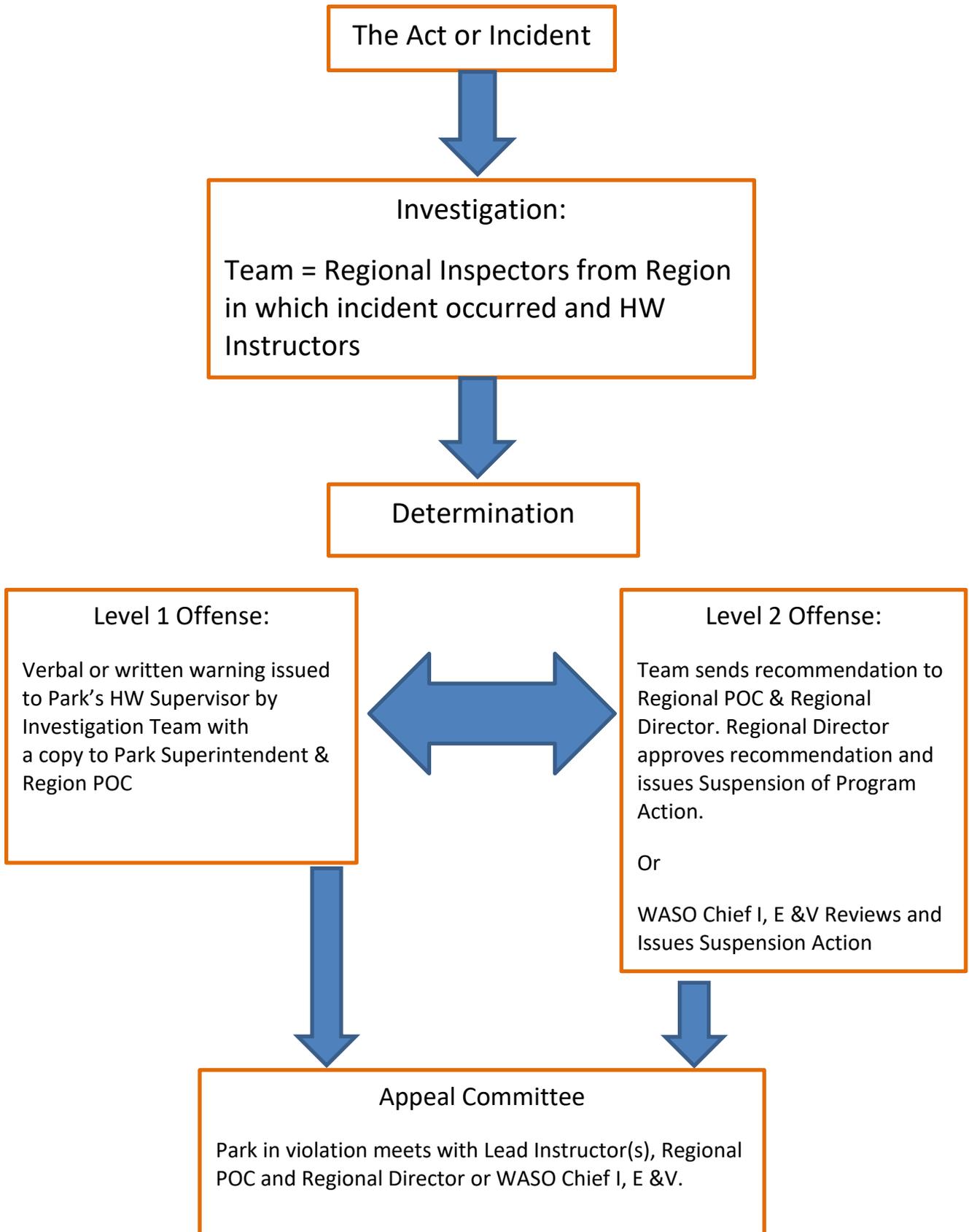
All loads will be Cannon Grade or Fg black powder unless otherwise specified.

WEAPON TYPE	CALIBER	MAXIMUM BLANK LOAD
<b>18<sup>TH</sup> CENTURY</b>		
Swivel Gun	2 pounder	4 ounces Fg
“Grasshopper”	3 pounder	6 ounces
British Light Gun	6 pounder	12 ounces
British Field Howitzer	5.8 inch	10 ounces
Iron Gun	3 pounder	6 ounces
Iron Gun	4 pounder	8 ounces
Iron Gun	6 pounder	10 ounces
Iron Gun	12 pounder	16 ounces
Howitzer	8 inch	16 ounces
Howitzer	8.76 inch	16 ounces
Iron Gun (Armstrong)	9 pounder	16 ounces
Iron Gun (Armstrong)	18 pounder	16 ounces
Iron Gun (Armstrong)	24 pounder	16 ounces
<b>19<sup>TH</sup> CENTURY</b>		
M1841 Gun	6 pounder	10 ounces
M1841 Field Howitzer	12 pounder	10 ounces
M1841 Mountain Howitzer	12 pounder	8 ounces
M1857 Gun-Howitzer (“Napoleon”)	12 pounder	16 ounces
Parrott Rifle	3 inch	10 ounces
Ordnance Rifle	3 inch	10 ounces
Lyle Gun	—	1.5 ounces Fg

**Note:** Maximum blank loads for weapons not identified on this chart shall not exceed 3.5 ounces of Cg powder for every 1 inch of chamber diameter up to one pound.

**NO CANNON WILL BE FIRED WITH A CHARGE GREATER THAN ONE (1) POUND.**

# APPENDIX J — PROCESS FOR RESPONDING TO NON-COMPLIANCE WITH HISTORIC WEAPONS PROGRAM POLICIES



## Category & Type of Violations in Historic Weapons Programs

1. Unsafe Practice: examples — failure to use proper safety equipment, clothing etc.; program has had several near-misses or accidents; poor range safety
2. Poor Storage Management: examples — lost or stolen weapons or powder/primers; records not kept up-to-date; magazine kept in poor condition; weapon damage from lack of care
3. Presenting Historic Weapons Demonstration Activities Contrary to Director’s Orders: examples — opposing line firing; taking of casualties; simulated combat; pyrotechnic displays; park has no approved interpretation plans/documents on use of historic weapons as interpretive demonstration
4. Conducting Programs Outside of Certification: examples — working outside of century trained; using weapons not listed as approved historic weapons
5. Unauthorized Personnel Participation: example — individuals or groups not trained in historic weapons but take part in demonstrations
6. No Current Certification: examples — failure to secure program with loss of personnel certified to lead program; park conducting historic weapons program without seeking certification

### EXAMPLES OF VIOLATIONS BY CATEGORY

LEVEL 1
Program has experienced several near-misses or accidents
Records not kept up-to-date
Magazine kept in poor condition
Weapon damage from lack of care
Annual Summary or other required reporting not done on time
Failure to secure program with loss of certified personnel
Failure to keep current on inspections

LEVEL 2
Failure to use proper safety equipment, clothing etc.
Range Safety Violations
Failure to Follow Established Storage Procedures
Working outside of certification(s)
Magazine does not meet minimum standards
Opposing line fire demonstrations; simulated combat; taking of casualties
Failure to follow established acquisition and inspection procedures
Use of personnel not trained in historic weapons
Park conducting historic weapons programs without certification or assistance of same

### PENALTIES

LEVEL 1
1 <sup>ST</sup> Offense — Verbal Warning (documented and kept on file for one year)
2 <sup>nd</sup> Offense — Written warning kept on file for duration of HW Supervisor’s certification (up to four years)
3 <sup>rd</sup> Offense — Treated as Level 2 Violation

LEVEL 2
1 <sup>st</sup> Offense — Suspension of Program until On Site Inspection by Regional Inspector
2 <sup>nd</sup> Offense — Suspension of Program Until Next Certification Training and Successful On Site Inspection