

# BLACK POWDER SAFETY MANUAL

Georgia Department of Natural Resources

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The following materials should be in every Black Powder Safety Officers Training Manual for reference and review. A copy of the various forms should be retained for copying when needed. Sections should be replaced when superseded with revised procedures or manuals.

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## I. ***DNR Training Program***

### ***1. Introduction***

Georgia Department of Natural Resources training consists of a combination of classroom instruction at formal Black Powder Training Workshops and individual instruction from Certified Safety Instructors and Certified Safety Officers. DNR Safety Officers and Safety Instructors can work at all DNR facilities.

Demonstrators are usually trained one-on-one and are trained for a specific weapon at a specific range. Each certified Demonstrator and Safety Officer must pass an examination, which will guarantee that they have read and comprehend the material involved. Demonstrators will only have to pass the proper material that covers the century and individual weapon involved at their assigned or volunteer site or park. The purpose of the entire training program is to safeguard the health and well being of staff, volunteers and visitors at DNR sponsored black powder demonstrations.



## **2. *Nature of Training***

The training of a safety officer should be in at least three phases. The phases should be in the nature of an introduction, presentation of a study guide, a training period and an examination. The following format is suggested:

### **A. Introduction**

Impress the trainee with the responsibility involved with safeguarding employees, volunteers, visitors, property and guarding against tort suits.

Inform the trainee as to the method of training.

Conduct the training courses.

Prepare trainee for the written examination, which will have to be completed before the trainee can become a safety officer.

### **B. Training Programs**

#### **1. Formal DNR Black Powder Workshops**

The formal training will be conducted over three days with at least 24 hours of classroom and hands on instruction. The workshop will follow the training examples cited in the appendix of this document.

#### **2. For Demonstrators and Safety Officers (one-on-one)**

The training will consist of the following series of informal talks, which are based upon the material distributed during formal DNR Black Powder Workshop:

Introduction of the Standards.

Discussion of how the standards apply to the trainee and his specific site or park.

Black powder handling and storage.

Visitor safety, range and crowd control.

Inspection of the specific arms to be used.



## **II. DNR Black Powder Safety Standards**

### **1. *Introduction***

Interpretive demonstrations featuring the firing of reproduction historic black powder weapons have proliferated in recent years in response to increased visitor interest. These programs involve employees, seasonal employees, and outside groups and are presented to thousands of visitors annually in several parks and historic sites.

The storage and use of black powder for interpretive demonstrations brings with it the potential for accidents resulting in employee and visitor injuries with attendant possibilities for tort claims. To minimize the potential risk a program of standards, training, certification and inspection has been developed and implemented. This program is designed to ensure that personnel are properly trained, the required safety procedures for storing and handling black powder are implemented and followed, the proper procedures for firing reproduction historic weapons are identified and followed, and equipment is maintained in a safe condition.

The following information describes the Safety Standards and Certification Program for interpretive demonstrations of reproduction historic weapon firing and the storage and handling of black powder used in those demonstrations. It also includes the minimum standards that must be met. Please note that these are minimum standards. Regions and/or parks and sites are welcome to impose tighter safety requirements and procedures if they feel they are needed to ensure visitor and/or employee safety.

### **2. *Definitions***

***Certified Safety Instructor:*** A full time DNR State Parks and Historic Sites employee who is 21 years old or older and holds a valid certificate from the Georgia Department of Natural Resources. The certificate is earned by meeting all the requirements to be a black powder safety officer and serving in that capacity for at least two years, teaching at least one course at a DNR Black Powder training class and being approved by a panel of three Certified Safety Instructors. The instructor can serve as a Demonstrator, a Certified Safety Officer, and instructor of other Certified Safety Officers. Instructors are expected to develop their skills through further training opportunities as they are offered including, but not limited to, National Park Service, National Muzzle-loading Rifle Association, and other relevant classes.

***Regional Safety Inspectors:*** a DNR State Parks and Historic Sites Region Manager who is trained by at least two Certified Safety Instructors or attended the Black Powder Workshop to analyze requests for firing demonstrations and approve only those requests that meet standards and who shall inspect parks and sites storage and handling facilities during scheduled inspections.

***Certified Safety Officer:*** a full time DNR employee, or full time DNR contract employee through the North Georgia Mountains Authority, at least 21 years old, who is trained by a Certified Safety Instructor and holds a valid certificate signed by the Safety Instructor. This employee assumes the responsibility of seeing that a black powder demonstration is carried out safely and supervises Black Powder Demonstrators.

***Black Powder Demonstrator:*** A seasonal or permanent employee, at least 16 years old, or a volunteer who has been trained and/or checked out on specific weapons by the Certified Safety Officer. The Safety Officer supervises the Demonstrator.

### **3. General Description**

The Safety Standards and Certification Program for demonstrations of reproduction historic weapon firing and the storage and handling of black powder used in those demonstrations consists of three parts:

- A. Standards. A written document that sets standards for the handling, storage, transportation and use of black powder and black powder weapons in historic demonstrations and safety oriented live firing events that take place on state property.
- B. Training and Certification. 1. Training and certification of a state employee who will be on hand before any firing of black powder weapons can take place on a park or historic site. Retraining and certification must take place every four years. 2. Training of all park personnel, seasonals, etc., in park who will be involved in the interpretive demonstration. A Safety Officer does this training on site.
- C. Inspection. All black powder storage and handling areas and procedures, reproduction historic weapons, and firing demonstrations are inspected at regular intervals by the Safety Officer and Regional Manager.

### **4. The Standards**

#### **A. Introduction**

In recognition of its public safety responsibility, the State Parks, Recreation, and Historic Sites Division's policy is to comply with all applicable provisions of Federal, State, and local safety codes and standards. Where the Occupational Safety and Health Act and the Alcohol, Tobacco, and Firearms regulations differ, the Parks, Recreation & Historic Sites Division will be governed by the more restrictive requirements.

#### **B. Storage**

The following instructions, not covered by law, will govern the handling and control of black powder under DNR jurisdiction.

1. Magazine storage and black powder use within the park must at all times be under the supervision of an officially trained and certified full time DNR State Parks and Historic Sites employee, 21 years of age or older, whom the manager has designated in writing to be responsible for the enforcement of all safety precautions. In the temporary absence of the responsible employee, a Parks employee shall be designated, in writing, to act during this period. The site manager must notify local police and fire officials of the location and quantities of black powder stored to allow them to make proper plans to protect their staffs.
2. Outdoor storage of more than 50 pounds of black powder, detonation devices, or ammunition will only be in a Type 1 (ATF) storage facility; that is, a permanent magazine constructed according to **Title 27 CFR 555.207** and located according to the American Table of Distances (Table H-21, OSHA).
3. Indoor storage of between 5 and 50 pounds or less of black powder will be in a Type 4 (ATF) box magazine constructed according to **Title 27 CFR 555.210**. A box magazine is basically a lockable wooden box sheathed with metal. These magazines shall be located according to the American Table of Distances at least 150 feet from a public building or highway. An uninhabited building is one that is used for no purpose that causes a regular congregation of people during the period of time the powder is stored in it. A separated Type 4

box magazine is required to store friction primers, percussion caps, loaded metallic ammunition, primed cases and other detonating devices; it must be located at least 10 feet away from a Type 4 magazine containing black powder.

4. Visitor Centers and/or Administrative Offices shall be considered "inhabited buildings" under ATF and 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.

5. Historic fort magazines may be considered individually as locations for Type 4 box magazines. Proof that the facility and locations exceed safety regulations must be recorded in writing, approved by the Regional Manager, and be on file in the park. Some items to be considered:

Fire resistive room. (Heavy Masonry Construction).

Increased Security.

National Electrical Code-Class III, Installations Hazardous locations, lighting.

Visitor exposure is less than other probable locations within the park.

Approval of variances, by applicable Regional Managers, should be on file in the park.

6. Removal of black powder from a magazine shall be in a spark-proof, wood pass box if the powder is not in its approved shipping package. Explosives shall be attended by an employee at all times until they are used in a demonstration or returned to the magazine. The pass box is suitable for all non-sparking, exclusively black powder materials including loaded paper cartridges, powder horns, and flasks, quill primers, and assembled cannon charges, but excluding percussion caps and friction primers. Ammunition may be transferred from the pass box to suitable historical containers such as cartridge boxes or limber chests for demonstration purposes. At the completion of each demonstration unused ammunition will be returned to the pass box, and thus to the magazine, unless locked and under the control of a park employee at all times between demonstrations.

7. Regular openings and inspection of magazines must be performed by the responsible employee at least every 7 days to insure that there have been no unauthorized attempts at entry or removal of materials. A record of inspection will be noted on the "Magazine Inspection Sheet" in the forms section and appendix **Title 27 CFR 555.212 "smoking and open flames"** (ATF) must be enforced at all times. The black powder inventory should be kept as small as program demand allows. An excess of six months' supply should be avoided, and in no case shall black powder be stored more than two years. Containers should be dated and oldest powder used first.

8. Ammunition loading areas will be in an uninhabited building located at least 75 feet from the storage magazine in compliance with OSHA 1910.109(5) (ii) on repacking of explosives. In addition, the loading area will provide a non-sparking worktable or bench, adequate spark-free lighting, non-sparking floor surface, and entrance control by the person handling the black powder. The loading area should be cleaned frequently with water to prevent the accumulation of black powder dust.

9. Exposed powder should be kept at a minimum and not exceed one pound or enough for one artillery round if that is in excess of one pound. A pass box should be used to protect any additional powder in the loading area. Loaded ammunition should be placed in a pass box as units are completed. Preparation of ammunition components should be completed before powder is brought into the loading area.

## **C. Transportation**

1. Transportation of explosives in quantities of more than five pounds is governed by OSHA regulations of Section 1910.109(d). Because the requirements are complex, transportation should be avoided whenever possible. Explore all avenues to get direct delivery to the park or site by the distributor before undertaking transportation. Several dealers are usually listed in current issues of the official magazine of the National Muzzle Loading Rifle Association, *Muzzleblast*, who will ship directly to your park or site by Federal Express or United Parcel Service
2. State, county, and municipal authorities shall be contacted before transporting black powder through their jurisdictions to insure compliance with all existing regulations.

DNR employees shall have all black powder delivered by commercial carriers to the site or park if at all possible. Quantities of 25 pounds of black powder can be ordered from suppliers who advertise in publications such as the NMLRA magazine *Muzzleblasts*. The regulations for transporting black powder are very stringent because it is classed as a "Hazardous Material" and such transportation should be avoided at all times. DNR transportation of black powder is governed by OSHA Part 1910.109 (Appendix C), which is based on Department of Transportation Regulations.

OSHA transportation regulations demonstrate that transporting black powder is not a simple operation and the need for DNR transportation should be avoided if at all possible. All avenues should be explored to get directly to the park or site before undertaking transportation. State, County and Municipal authorities should be contacted before transporting black powder through their jurisdictions to insure compliance with all existing regulations.

After 9-11, changes in transportation of black powder were revised. For transportation of amounts less than 100 pounds, the following regulations were published in the Code of Federal Regulations 49 Part 173.170 *Black powder for small arms* as follows:

**Black powder for small arms that has been classed in Division 1.1 may be re-classed as 4.1 material, for domestic transportation by motor vehicle, subject to the following conditions:**

- a. The powder must be examined and approved for Division 1.1 and Division 4.1 classification in accordance with 173.56 and 173.58;
- b. The total quantity of black powder in one motor vehicle may not exceed 100 pounds;
- c. The black powder must be packed in inner metal or heavy wall conductive plastic receptacles not over 15.9 ounces net capacity each, with no more than 25 cans in one outer UN 4G fiberboard box. The inner packaging must be arranged and protected so as to prevent simultaneous ignition of the contents.
- d. Each complete package must be marked "BLACK POWDER FOR SMALL ARMS" and "NA 0027"; and
- e. Each package must bear the FLAMMABLE SOLID label.

In summary, foil wrapped cannon charges should be carried in an enclosed fiberboard or plastic cylinder. Aluminum foil should NOT be considered a rigid metal container. Keep all cannon charges under 15.9 ounces.

TABLE: 1. American Table Of Distances For Storage Of Explosives (December 1910), As Revised And Approved By The Institute Of Makers Of Explosives-June 1991

Explosives Quantities (in lbs)		Distances in Feet When Storage is Barricaded			
over	not over	Inhabited Buildings	Passenger Railways	Public Highways	Separation of Magazines
2	5	70	30	51	6
5	10	90	35	64	8
10	20	110	45	81	10
20	30	125	50	93	11
30	40	140	55	103	12
40	50	150	60	110	14
50	75	170	70	127	15
75	100	190	75	139	16
100	125	200	80	150	18
125	150	215	85	159	19
150	200	235	95	175	21
200	250	255	105	189	23
250	300	270	110	201	24
300	400	295	120	221	27
400	500	320	130	238	29
500	600	340	135	253	31
600	700	355	145	266	32
700	800	375	150	278	33
800	900	390	155	289	35
900	1,000	400	160	300	36
1,000	1,200	425	165	318	39
1,200	1,400	450	170	336	41
1,400	1,600	470	175	351	43
1,600	1,800	490	180	366	44
1,800	2,000	505	185	380	48
2,000	2,500	550	190	408	49
2,500	3,000	580	195	432	52
3,000	4,000	635	210	474	58
4,000	5,000	685	225	513	61
5,000	6,000	730	235	546	65
6,000	7,000	770	245	573	68
7,000	8,000	800	250	600	72
8,000	9,000	835	255	624	75
9,000	10,00	865	260	645	78
10,000	12,000	875	270	687	82
12,000	14,000	885	275	723	87
14,000	16,000	900	280	756	90
16,000	18,000	940	285	786	94
18,000	20,000	975	290	813	98
20,000	25,000	1,055	315	876	105

## D. Range Safety and Personal Protective Equipment

### Range Location (Blank Firing)

Local zoning codes and authorities shall be consulted before designing demonstration ranges on park lands. Regulations and local sentiment regarding noise or potential hazards of blank firing must be considered before the program is implemented.

Suitability of park lands must be assured. The minimum cleared area shown on the range drawings is essential to keeping undetected visitors out of the danger zone. Whenever possible, the site should also provide natural barriers to noise and encroachment.

#### Ammunition Preparation

**Small Arms.** In addition to following strictly the procedures described in the approved manuals for the military demonstrations, safety officer will insure that paper cartridges are made neatly using the proper caliber former, and that powder loads do not exceed maximums listed in the attached table of maximum loads. Civilian arms will follow the most closely related military manual for loading and firing without commands.

**Artillery.** In addition to following strictly the procedures required in the approved manuals, the Certified Safety Officer will insure that aluminum foil cartridges are made neatly using a former of the proper size, that the "projectile end" of the cartridge is obvious and that powder loads do not exceed the maximum loads.

Loose powder must never be allowed in the demonstration area. Friction primers must be kept separately in cannoneer #4's tube pouch and never stored loose in the limber chest with the cartridges or the stoppered powder horn used for priming must contain only enough powder (Fffg) for the immediate demonstration and a possible misfire. (Quill primers are preferred).

Prepare only enough cartridges for scheduled demonstration. All cartridges and friction primers are to be strictly accounted for.

No torn or damaged cartridge will be returned to the magazine. All torn or damaged cartridges will be destroyed by soaking in water until the powder is dissolved and the remains will be disposed of in a safe place.

HOMEMADE PYROTECHNICS ARE UNRELIABLE AND CONSTITUTE A SEVERE HANDLING AND LOADING HAZARD. ONLY SLOW MATCH, QUILL PRIMERS AND COMMERCIALLY AVAILABLE FRICTION PRIMER KITS WILL BE MANUFACTURED AND USED. INSTRUCTION IN THE APPROPRIATE MANUALS WILL BE STRICTLY ADHERED TO WITHOUT EXCEPTION.

### Visitor Safety

Physical barriers are required to keep visitors at the safe distances indicated on the range drawings. If natural features are inadequate to restrain visitors, ropes, fences, or other artificial barriers will be used. **No visitor** will be allowed in front of a line perpendicular to the muzzle of a demonstration weapon. Minimum distances between demonstration weapons and visitors are 5 yards for small arms and 12 yards for artillery (see Figures 1 and 2).

The Certified Safety Officer, or a person designated and specifically trained, will control each firing demonstration, including those of outside groups or individuals and seasonals, assuring that the range is clear, that all safety procedures are being followed, and that the demonstration is explained adequately to visitors. This person will be in addition to the demonstrator or demonstrators and shall not be counted in complying with minimum artillery

**RANGE SPECIFICATIONS  
FOR BLANK CANNON  
DEMONSTRATIONS**

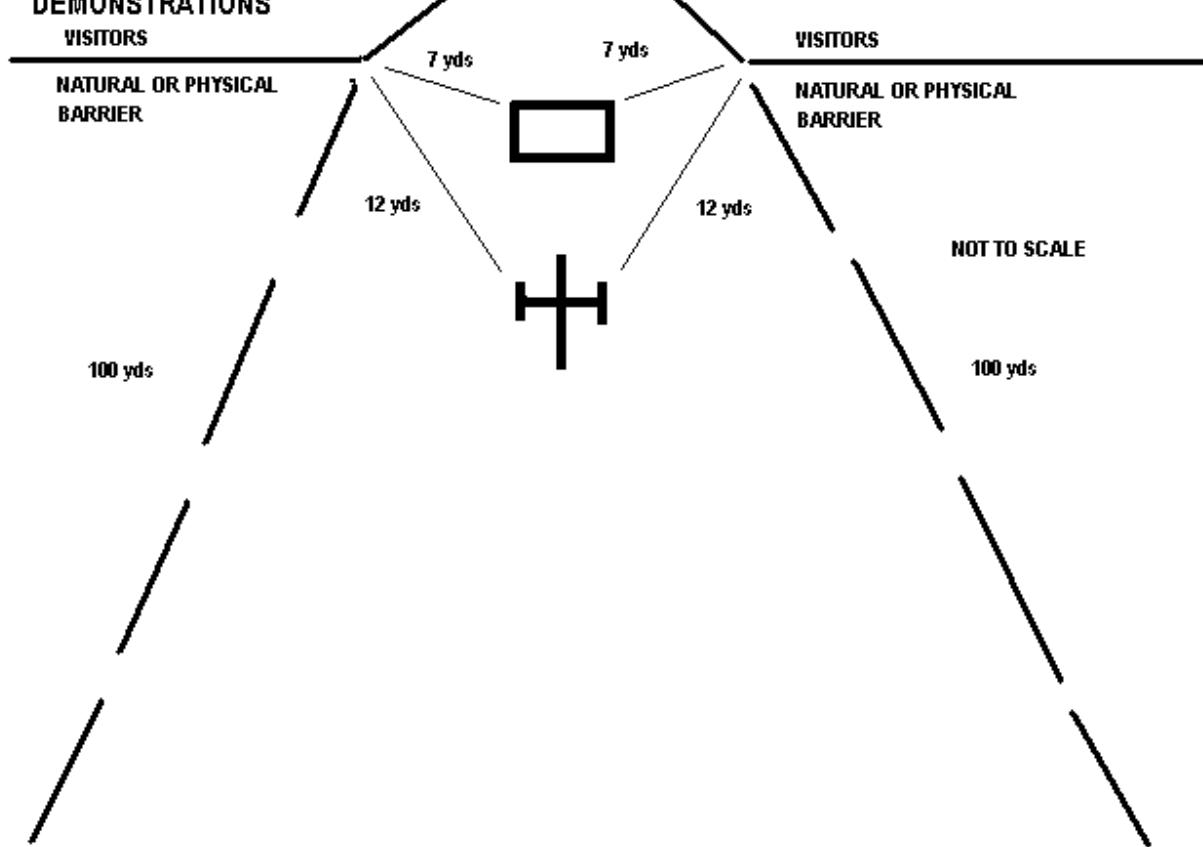


Figure 1.

**RANGE SPECIFICATIONS FOR BLANK  
SMALL ARMS DEMONSTRATIONS**

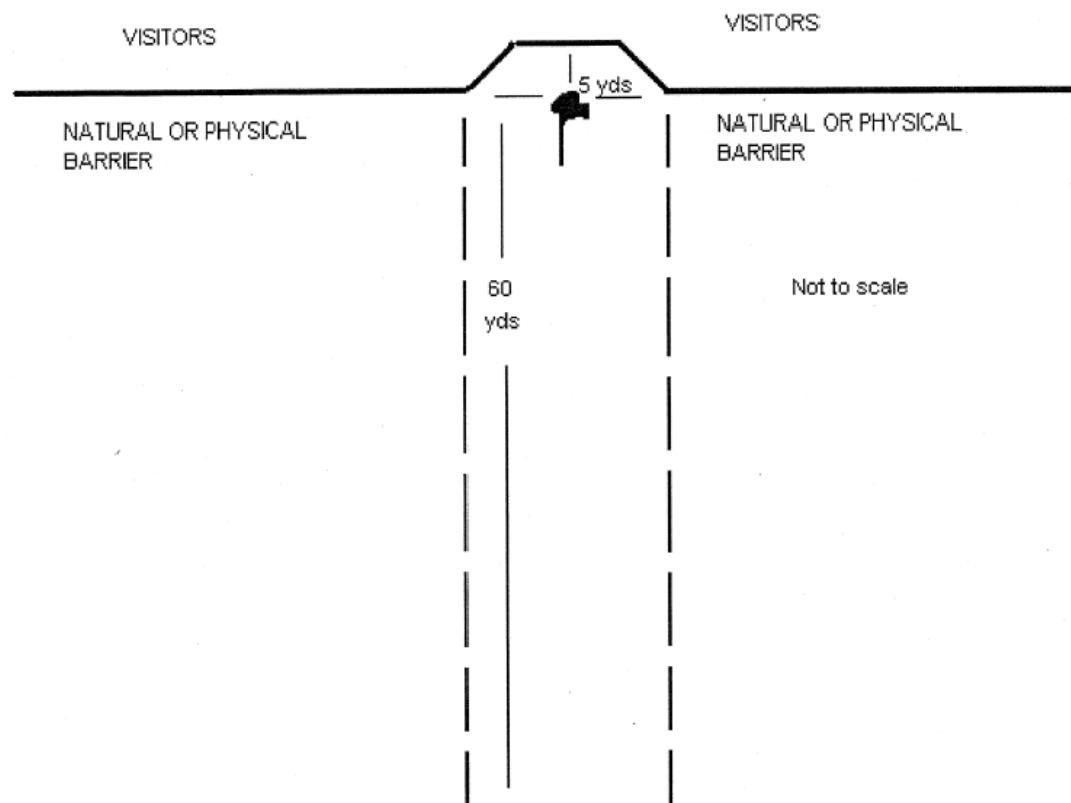


Figure 2.

crew sizes (see specific regulations in approved manuals for appropriate weapon type). The interpreter shall be assisted by additional lookouts as necessary.

In case of weapon misfires the interpreter will first explain the situation and procedures to visitors, while holding the weapon aimed down range for at least 10 seconds, keeping them safely in place until the weapon is discharged or rendered safe. If attempts fail to correct a misfire, small arms will be removed from the area. Visitors will be removed from artillery areas for prescribed unloading procedure to be followed.

Before actual firing, the interpreter will warn visitors of the loud noise, recommending caution to people with hearing aids and requesting control of children and pets. Visitors should be warned that the noise will startle children and pets and the concussion will sometimes set off vehicle alarms.

Visitors shall not be allowed to handle any weapon or equipment containing black powder. Empty weapons or equipment can be handled but shall remain in the control of the interpreter, i.e. a visitor could heft a rifled musket vertically while the interpreter holds the sling. Sheathed edged weapons likewise may be observed and handled but not controlled by visitors.

## **Employee Safety**

All demonstrations shall follow the approved National Park Service (NPS) manual for the particular weapon or manuals developed and approved by the DNR. Demonstration of types of weapons lacking formal manuals will adhere to the basic safety precautions of the manual of arms for the most similar military weapon as specified in manuals for that period.

For protection from flash burns, all demonstrators firing black powder weapons will wear natural fiber or skin long-sleeved outer garments or full uniforms as appropriate to the historical period being interpreted, unless exempted by the Regional Manager. Special care should be exercised with worn, thin, or fringed clothing.

Hearing protection requires the wearing of approved ear protection such as Swedish wool or earplugs for each employee involved in weapon firing demonstrations.

Employees demonstrating the firing of Black Powder weapons, who wear prescription eyeglasses, shall wear safety lenses within frames of sufficient size to provide reasonable protection to the wearer's eye.

For artillery firing crews, additional protection consisting of all-leather gauntlets similar to welder's gloves shall be provided for and used by the #1 cannoneer (who sponges and rams the piece). The #2 cannoneer (who inserts the ammunition and corrects misfires) shall be provided with and use leather gauntlet gloves similar to the cavalry type glove available from living history suppliers.

Artillery shall not be reloaded within ten minutes of being last fired.

No demonstrations of edged weapons combat will be conducted on DNR facilities.

## **E. Historic Weapons Firing**

### **General (Blank Firing)**

Generally, only reproduction weapons will be fired. Any weapon over 50 years old is considered a historic item and shall only be fired with the approval of the Certified Safety Officer.

Black powder and range safety standards and approved historic weapon manuals shall be followed strictly in preparing ammunition and conducting demonstrations.

All historic weapon firing demonstrations within the park or site must be under the supervision of an officially trained and certified full time DNR Parks and Historic Sites employee, 21 years of age or older, who shall be responsible for the enforcement of all safety standards and precautions relating to such demonstrations in that area. A visiting Certified Safety Officer may serve in this capacity.

The only types of historical weapons that are authorized to be fired in a particular area are those for which the area's Certified Safety Officer has been officially trained and certified.

All persons involved in demonstrating the firing of historic black powder weapons in areas administered by the State must be trained and/or personally checked out and declared competent to perform the necessary drill, including misfire procedures, without mistake, by the area's Certified Safety Officer, prior to their initial participation in the demonstration.

All outside individuals and groups, including seasonals and those operating under special use permits, intending to demonstrate the firing of historical weapons in any area administered by the State must first demonstrate their competency with the particular weapon or weapons involved, to the satisfaction of an area's Certified Safety Officer, before they will be allowed to participate in or conduct any firing demonstrations in that particular area.

The park or site will provide all outside individuals and groups with a copy of the sections of the Standards for Historic Black Powder Weapons Firing, and the appropriate approved historic weapon manual, applicable to the intended firing demonstration at least a week prior to their participation in the program. It is the responsibility of the outside individual or group to certify in writing that they have read and will adhere to the standards they received. This written agreement must be received by the park at least 40 hours before the firing demonstration is scheduled to take place. Any violation of the standards by the individual or group shall result in immediate cancellation of the demonstration and the removal of the individual or group from further weapons firing demonstrations in the park.

A Certified Safety Officer must personally observe and supervise all firing demonstrations conducted by outside individuals and groups within the area's boundaries. The Certified Officer must be prepared and authorized by the park manager to act immediately on any violation of the Standards for Historic Black Powder Weapons Firing, including canceling the program and removing the individual or group from further firing demonstrations in the park, as appropriate.

### **Blank Firing Tactical Demonstrations**

- There will be no attempted re-enactments of battles where lines of opposing troops meet.
- In tactical demonstrations with confrontation of opposing troops, safety standards for blank firing ranges will be observed. The lines will be marked and the demonstration will be stopped if zones are transgressed.
- Each confrontation situation will have the demonstration area and a scenario approved by the Regional Manager.
- All arms used by volunteers will be inspected.
- No ramrods will be on the field.
- The site will supply all cartridges.
- **No Cartridge Weapons are allowed during tactical demonstrations.**
- **No projectiles will be allowed on the field.**

## F. Handling

### Introduction

Black powder is the oldest explosive and propellant known and as such, dramatically changed man's ability to conduct wars and accelerate world change. From the beginning, black powder was held in fear and treated with great respect. Time has not changed these necessities, as illustrated in excerpts from today's U. S. Army Regulations: "Black powder is very sensitive to ignition by flame, incandescent particles or electric spark. Black powder ignites spontaneously at about +540 F. These properties make black powder one of the most dangerous explosives to handle."

The hazards of black powder must be recognized and never forgotten while it is in use is demonstrated during the interpretation of the evolution of military arms. Black powder cannot be substituted as its sensitivity to ignition by flame and spark and burning characteristics made it ideal for the development of the arms we interpret today.

Black Powder Safety Guide. Chapter 1, Some Basic Facts About Gunpowder.  
Gunpowder, as it was originally known 600 years ago, is what we now refer to as black powder. Today, the term "gunpowder" includes many kinds of powder, which are quite different from black powder. It is imperative that the muzzle loading gun shooter of today understands the very real differences between black powder and other types of powders.

Black powder is called "black" because of its color. More recently developed gunpowder, usually referred to as "smokeless powder", is dyed to whatever color the maker wishes. The name black powder is used today, simply as a means of distinguishing it from smokeless powder. Black powder differs from the more modern smokeless gunpowder in many respects, including the way black powder is made. It is a mixture of three materials: potassium nitrate, a chemical compound, sulfur and charcoal. The 15% charcoal content explains the black color of the powder. The care with which these are mixed, the thoroughness of their incorporation, and other factors of its manufacture affect the quality of black powder.

The first and most important thing to understand is that any type of gunpowder is an explosive material. All are capable of exerting great force, which is sometimes destructive. Black powder produces less energy than most other powders, but, as history tells us, it can burst a gun barrel. Bombshells, rockets, and grenades were all developed as a result of the discovery of a mixture of materials which produced a black colored explosive that for the first time in history energized a firecracker, blasted rock in a quarry and hurled stones or bullets from cannons and shoulder firearms. It even powered the first torpedo and petard. The discovery of black powder ushered in the era of explosives. It altered warfare, speeded construction, provided defense, and supplied food and even now remains a most effective explosive, especially for small firearms  
(excerpt from Gearhart-Owen Corporation).

The following excerpts from U. S. Army Training and Technical Manuals (TM) illustrate the modern concepts on characteristics, precautions, and disposal of black powder.

#### 6-1. Ignition, Fuze, and Fuse

General:

Black powder is the generic name originally applied to a mixture of charcoal, sulfur, and potassium nitrate and now applied also to compositions containing bituminous coal instead of charcoal and sodium nitrate instead of potassium nitrate. In appearance it varies from a black, very fine powder to dense pellets, which may be black, or have a grayish-black color because of a graphite-glazed surface. The composition of black powder containing potassium nitrate, charcoal, and sulfur has remained essentially unchanged for 400 years, as any considerable modification of the 75:15:10 proportionality of the ingredients has been found to result in the powder burning more slowly or producing less effect. While no longer used as a military propellant, black powder finds application in the ignition of smokeless powder, time fuzes, saluting charges, squibs, smoke-puff charges, and catapult charges. Other uses are in ignition of rocket and missile propulsion units by means of black powder and black powder compositions used in rocket, Jato, and missile boosters and sustainers (TM 9-1300-214/TO 11A-1-34 BLACK POWDER).

Sensitivity. Black powder is less sensitive than tetryl, but is very sensitive to ignition by flame, incandescent particles or electric spark. Black powder ignites spontaneously, for example, at about +540 F.). Sodium nitrate black powder is slightly less sensitive to impact than potassium nitrate black powder.

Stability and moisture absorption. In the absence of moisture, black powder is highly stable. Its ingredients are essentially non-reactive with each other, even at +120 C. (+250 F.) Heating black powder above +70 C. (+160 F) tends to vaporize the sulfur. This results in a change in composition or uniformity of composition. Black powder picks up moisture more because of the charcoal present than because of the moisture-absorbing nitrate. While moisture does not cause black powder to become unstable, it can react with and corrode such metals as steel, brass and copper. When sodium nitrate is substituted for potassium nitrate a composition is obtained that picks up moisture more readily than potassium nitrate black powder. Both black powders are comparable in stability. (Note: Commercial grade sporting black powder uses potassium nitrate and all DNR events should use powder made with this compound).

Precautions: Black powder, which is very sensitive to friction, heat and impact, is one of the most dangerous explosives to handle. It will deteriorate rapidly on absorption of moisture but retains its explosive properties indefinitely if kept dry. Black powder may be desensitized by placing it in water. Discarding the water separately from the residue, however permits wet black powder to dry out and regain some of its explosive properties. Combustible materials which have absorbed liquids leached from black powder constitute a severe fire hazard and may become explosive (TM 9-130-200-2-12 BLACK POWDER).

#### PROPELLANTS AND OTHER EXPLOSIVES

a. Black powder. Black powder is an intimate mechanical mixture of potassium or sodium nitrate, charcoal and sulfur. It is very sensitive to friction, heat and impact. These properties make black powder one of the most dangerous explosives to handle. It will deteriorate rapidly on absorption of moisture but retains its explosive properties indefinitely if kept dry. Black powder may be desensitized by placing it in water and discarding the water separately from the residue, for wet black powder when permitted to dry out may regain its explosive properties."

b. Black powder. Black powder may be completely destroyed by leaching or washings separately from the residue (AMCR 385-100 27-8b(2): 14-6).

## **Black Powder and Georgia Law**

The use of black powder, which is an explosive, is subject to special federal, state and frequently local laws. The use of firearms or other projectile weapons on state parks and historic sites land is regulated by law [See Georgia Code 12-3-10, paragraph (o)]. This procedure outlines the steps by which activities can be conducted on state parks and historic sites utilizing firearms that use black powder as a propellant. Appendix A contains excerpts from the Department Red Book governing Black Powder activities.

## **Black Powder and Federal Regulations**

Storage, use, and transportation of Black Powder are controlled by law, as set forth in the Codes of Federal Regulations. The Georgia DNR has a dual responsibility when using black powder in providing for Public Safety and Employee Safety.

1. To meet these responsibilities we must comply with, and use as minimum standards, Title 27, CFR, Part 555 Bureau of Alcohol, Tobacco, and Firearms, Department of the Treasury and Title 29, CFR, Part 1910-109, OSHA, Department of Labor. The regulations have two main objectives for which we have mutual concern:

- Prevent black powder from getting into the hands of unauthorized persons
- Prevent the injury of person and destruction of property from the accidental explosion of black powder.

2. The future of living history demonstration of black powder weapons depends on the continuing attainment of all of the above objectives. Full texts of the above regulations should be considered as part of this document and, therefore, are included as appendices to this manual.

### **III. Training And Certification Of Personnel**

Any interpretive demonstration of reproduction historic weapon firing conducted in any area administered by the Parks, Recreation and Historic Sites Division, involving either state personnel or outside groups or seasonals, and all associated black powder storage and handling, must be under the supervision of an officially trained and certified Georgia DNR full time state parks employee, 21 years of age or older, who shall be held responsible for the enforcement of all safety standards and precautions relating to such demonstrations in that area.

Official certification is obtained only by the successful completion of the official weapon certification course recognized by the DNR. Certification is valid for a period of four years and is limited to only those historical weapon types listed on the certificate. Refresher courses can recertify safety officers, but safety instructors have to be recertified by retaking and/or teaching parts of Black Powder Training Workshop and retaking the examination and passing an oral exam given by at least three Certified Black Powder Instructors.

The certified safety officer is responsible for the training of persons involved in demonstrating the firing of historic black powder weapons on his or her park or site. This training must include a thorough review of the Standards for Historic Black Powder Weapons Firing and the approved manual for the particular weapon or weapons involved. Each demonstrator must be able to perform the necessary drill, including misfire procedures, without mistake, to the satisfaction of the Certified Officer, before being allowed to participate in any weapons firing demonstrations in the park. The training the demonstrators receive does not constitute any type of official certification and is not automatically transferable to other areas.

If a park that is involved with historic weapon firing demonstrations permanently loses its Certified Safety Officer, it must terminate all historic weapons firing demonstrations until a new officer has been trained and certified. Apply for a new Certified Safety Officer through your Regional Manager. The request should include a description of the demonstration program, type and uses of historic weapons involved. The request should be made before the incumbent leaves to insure an uninterrupted demonstration program.

## **IV. Inspection**

The park's Certified Safety Officer will give each reproduction historic weapon used in the park firing demonstration at the beginning of each day that the weapon is scheduled to be fired. The visual inspection on artillery will be based on the attached Muzzle Loading Cannon Inspection Checklist. The visual inspection of shoulder arms will be based on the attached Small Arms Inspection List. Shoulder arms will be disassembled, cleaned and inspected, at regular intervals during the firing season.

Any weapon failing to pass according to the approved checklist will be tagged and removed for repairs. Following repairs, the inspection checklist will be applied again to insure compliance before removing the tag and returning the weapon to service.

All park black powder demonstration will be inspected by the Certified Safety Officer, using the attached checklist, at regular intervals to insure adherence to these standards and the appropriate manuals. Parks and sites conducting historic weapon firing demonstration can expect inspection of their weapons and demonstrations programs by the Regional Inspector at any time. Usually, but not always, these regional inspections will be arranged with the park in advance.

## **V. Demonstrations**

### **1. *Tactical Demonstrations***

#### **A. Pre-Event**

1. Objectives: These should be clearly outlined. What is it that you want to achieve with the event? What are you attempting to portray to your audience? What impressions do you want your audience to take away with them after the event?
2. Demonstration Area: Should be clearly defined and marked with flags, signs, or physical barriers (fence, rope, line, etc.). Fields should be clear of hazards, or possible hazards marked. Wooded terrain should be checked for possible hazards created by man or nature.
3. Spectator Area: Should be clearly designated and marked as such with proper signs. Some kind of physical barrier, such as rope, fence, ditch, etc. should be utilized to prevent visitor encroachment upon the area. During the event, the host group should provide additional spectator enforcement.
4. Camps: Authentic camps should have a designated commander who will supervise proper layout and security. Camp should exhibit some attempt at a military appearance. Modern camp should be provided as near to the event site as possible without providing an improper background to the authentic site. Sanitation facilities, fresh water, and firewood should be the minimum support provided.
5. Emergencies: First aid kits, fire extinguisher of some sort, and if possible, certified Red Cross trained personnel should be available at all times. It is preferable to have an ambulance or First Aid vehicle on hand during the event. The location of First Aid service and the fire extinguisher should be in a prominent area, readily accessible, and the location of the nearest public telephones should also be readily available.
6. Organizations: A headquarters area for the event should be maintained by the host group at all times and located in a prominent position. Assistance to participants will be provided here, and it will serve as the gathering point for designated meetings. Participants should adhere to the established schedule. A system of runners should be maintained to communicate with the various camps and unit commanders.
7. Powder and Firearms: All cartridges for the event (artillery and infantry) should be made up prior to the event. No loose powder should be allowed on the field, or in the camps. A designated area for cartridge manufacture should be provided, and clearly marked. This area should be under guard during the time cartridges are being made. Artillery will use quill primers or friction primers, but no loose powder should be permitted as propellant igniters. Weapons should be secured while in camp and not left lying indiscriminately about. Safety of the weapon is the responsibility of the individual. All powder will be managed by the event coordinator under supervision of the Safety Officer. All rules for handling and transporting powder will be strictly followed. No pyrotechnics will be allowed. Only enough cartridges for the event will be prepared and carried on the field in cartridge boxes or limber chests.
8. Animals: No animals other than cavalry or artillery horses should be allowed in the event area. No dogs or personal pets should be present with participants or visitors unless kept under proper restraints such as leashes.

9. Provost: It is the responsibility of the host group to designate and provide proper provost members to enforce established regulations before, during and after the event. These individuals will assist the participants, enforce crowd control measures during the event, and patrol the field perimeters during the event. Provost members will be clearly identified through the use of armbands or other means.

## B. Event

1. Commanders Meetings: A gathering of unit commanders prior to the event will finalize event tactics. Events should be fairly simple, with no elaborate plans. A basic scenario should be established and scripted to conserve ammunition and make the last. Runners will be designated to maintain communications between the opposing commanders and the Event Commander during the demonstration. Clearly marked zones of maneuver will be marked following separation standards.

2. Inspections: Participants should be drawn into unit formations previous to the event where weapons, accoutrement and cartridges will be inspected. Those failing this inspection will be utilized with the provost detachment during the event if proper corrections cannot be made to meet established requirements. Any participants who are not affiliated with a unit at the event will be assigned to a unit and will act as members of that unit during the event. A written roll call from each participating unit will be provided to the commanders of opposing sides.

3. Requirements: Participants portraying Infantry and Cavalry will have the appropriate uniforms for the event/period portrayed such as the following for a War Between the States event:

- (1) Hat or Kepi (2) Natural Fiber Shirt (3) Wool Jacket (4) Approved Weapon and Accoutrement (5) Wool Pants (6) Approved Shoes or Boots (7) Red Bandanna or Handkerchief (\*)

Participants portraying Artillery will have the following items in order to participate in events:

- (1) An Inspected and Approved Gun (2) Approved Limber Chest or Magazine and Pass Box for Transporting Powder to Gun (3) Proper Implements to Operate Gun such as: Sponge which fits to Bore of Gun, Water Bucket, Gloves for No. 1 and No. 2 positions, Thumbstall, Leather Haversack, Hearing Protection, Wool Jacket, Pants, and Natural Fiber Shirts for Crew Members, and a Well-Drilled Crew, and a Red Bandanna or Handkerchief (\*).

(\*) For Civil War Events, participants will carry a Red Bandanna or Handkerchief to signal when, and if, the individual is actually injured when on the field. Anyone seeing someone exhibiting a Red Bandanna or Handkerchief will immediately aid, or seek aid for the individual. In this way, an emergency can be spotted and dealt with, without disrupting the event.

4. Demonstration Area: Perimeter should be patrolled during the event by designated provost personnel to prevent spectator encroachment during the event.

5. Camps: Proper security measures should be taken by campers and by host group to protect the Authentic and Modern camps during the event. The Authentic Camp should have a time set when spectators are allowed within its confines. Before and after this established period of time spectator traffic within the Authentic Camp should be discouraged.

6. Inferior Force Rule: No battle can ever be "re-enacted". The DNR approach should be from a "re-creation" or "demonstration" standpoint to be effective. In order to properly interpret

events from military tactics, the Inferior force should always be the defending force, unless specific facts require a different situation and the lay of the demonstration area is such that terrain will allow the Inferior force the illusion of offensive strength.

7. **Defensive Lines:** Firm defensive lines should be drawn, and if possible, breastworks built. This should be part of the event, not prepared in advance, and would help lengthen the show. Unit officer should be allowed to deploy their units and work with coordinating and communication with the line commanders and Event Commander. Events should not be rushed. Movement of troops, preparation of defenses, and offensive lines of approach, and conservation of ammunition would help make the event longer. Lulls in the fighting could be used for the repositioning of troops and resupply of ammunition.

8. **Infantry:** These forces should move in unit formation on the field, whether defending or attacking. Only designated skirmishers or sharpshooter units should be allowed to act independently of the main body of troops. Opposing lines of infantry should never close to a distance of less than 60 yards and infantry should never move closer than 100 yards to the muzzles of cannon that are to be fired. No hand-to-hand combat should be allowed regardless of the expertise of the units. Infantry should carry no side arms. One N.C.O. per unit should be allowed to carry a ramrod to inspect unit weapons prior to and after the event. All other troops will leave their ramrods in camp.

9. **Mounted Forces:** Cavalry should be used to skirmish and harass during the lulls in the main demonstration. They could illustrate the techniques of mounted, and dismounted skirmishing while the infantry lines prepare for the next phase. Cavalry will be allowed the use of pistols and swords. Only approved carbines will be used.

10. **Artillery:** Artillery should be used between major infantry demonstration, during lulls, or in designated cannonade sequences to open or close the event. Artillery should never fire with infantry to their immediate front, or downrange a distance of more than 100 yards. No firing over troops: Artillery will be under the command of an overall commander who will determine when the guns are loaded and fired, and where the fire is to be directed. Lulls in the demonstration can be used to move artillery to different firing locations. This would give the spectators a variety of viewing angles and provide the gunners experience in shifting fields of fire. Artillery should never be exposed to the possibility of being over-run by an enemy force.

11. **Officer:** Only officers and NCOs will be authorized to carry personal side arms. Officers should not draw their swords unless given a specific order to do so or given permission by the Event Commander or the Field Commander of the force. Officer will be expected to command their units and their authority will be respected during the event.

12. **Headquarters:** During the event both sides should establish a field Headquarters area in the rear of their respective lines. This Headquarters should be clearly marked with a stand of colors or some other method. The field Commanders should COMMAND their forces from their Headquarters through the use of the runners to communicate with their Line Officers. The demonstration should give the impression of being a planned event and not an impromptu affair.

13. **Casualties:** A system of determining casualties will be devised and enforced. A suggested method is shown below.

(A) Divide participants into two mixed groups (i.e. U.S. and C.S. troops for a Civil War event). One group will count down 1-5. The other group will count off A-Z (or other designated letter or numbers)

(B) If the event has three main assaults and three skirmish periods, the numbered people will be potential casualties for the assaults and the lettered people will be potential

casualties for the skirmishes. Unit commanders will then designate in which movement what lettered or numbered people would be casualties.

(C) During lulls or designated cease-fire periods, casualties could be brought to an area where they could be utilized at the discretion of the Event Commander as replacements to extend the demonstration time. Casualties can be recycled piecemeal, or collected as a group and reintroduced into the demonstration as a reinforcement unit.

## **C. After the Event**

1. Upon conclusion of the event, participants will form into their respective units for review, inspection of weapons, and written roll call sheets will be returned to the unit commanders so that proper accounting for all participants can be taken.
2. Once inspection and roll calls have been completed, units will police the demonstration area for lost items, dropped cartridges, etc. After the field has been policed, units will be marched to their camps and released from duty.
3. Spectators should not be allowed on the field before it is policed and discouraged from doing so after the event.
4. Evaluation: Unit commanders, the Event Commander, and any participants who wish to do so, will meet at the Event Headquarters area for a brief evaluation of the event to determine if the established objectives for the event have been met.

## **2. Basic Demonstration Scenarios**

1. REAR GUARD: The Inferior Force fights a rear guard action at an objective. The Superior Force assaults and maneuvers against the defenses of the Inferior Force. Scenario ends with the Inferior Force retreating off the field.
2. AMBUSH: A concealed force attacks an exposed force. This could be utilized with the Inferior Force in either role of Attacker or Defender. The scenario end could result from the Defensive forces either: (1) Surrendering, (2) Breaking out of surrounding or Attacking forces, (3) Attacking Force breaks off the action and retreats, (4) Defensive position overrun with no survivors.
3. MOVEMENTS DEMONSTRATIONS: This is for use in a large demonstration area, and is your "running battle". The Inferior Force fights a defensive action at one position, falls back to a new position and receives a second attack. This could utilize numerous defensive positions, either prepared in advance of the event, or as the scenario develops. The event could be initiated either by (1) Inferior Force assaulting the Superior Force and then falling back as the Superior Force responds to the attack, or (2) Superior Force pressing the Inferior Force. Scenario would end with either (3) Inferior Force retreating off the field, (4) Inferior Force holding their final position against all attacks, (5) Inferior Force being destroyed.
4. OFFENSIVE OPTION: If the Offensive Force is large enough, it can be broken down into three equal units. These can be committed to the event as individual units in individual assaults. In this way, while one unit is involved in an attack on the Defensive Force, one other unit can be held in reserve while the third force replenishes its ammunition and prepares for its assault. These three units can be committed in rotating assaults for however many individual unit attacks are deemed necessary by the Field Commander. After each unit has had an opportunity to participate in an assault (or assaults), the surviving unit members can be combined for one last assault at the climax of the event.

### **3. *Live Firing Safety Procedures***

Live firing of any Black Powder Weapons, including but not limited to muskets, pistols, and cartridge weapons and artillery, is prohibited on Georgia State Parks and Historic Sites.

## **Appendix A. Red Book Regulations for Black Powder Usage.**

### **O-P-9 - BLACK POWDER ACTIVITIES -**

The use of black powder, which is an explosive, is subject to special federal, state and frequently local laws. The use of firearms or other projectile weapons on state parks and historic sites land is regulated by law (See Georgia Code 12-3-10, paragraph (o). This procedure outlines the steps by which activities can be conducted on state parks and historic sites utilizing firearms that use black powder.

#### **BLACK POWDER ACTIVITIES**

- A. Activities involving the use of black powder shall be approved by the Regional Manager. Such approval can be for an ongoing interpretive program or for a special event. A "Request for Permission to Hold a Black Powder Demonstration" form shall be used to document this requirement. This form is located in the Black Powder Safety Manual.
- B. The Regional Manager or his/her designee shall inspect and approve all areas that will be used to demonstrate, store or use black powder.
- C. All activities utilizing black powder will follow the guideline established in the Black Powder Safety Manual which is the basis for training and demonstration activities for the division.

#### **CERTIFIED SAFETY OFFICERS**

- A. Only those persons who have successfully passed the "Black Powder Safety Officer Examination" with a grade of over 90% as part of the Safety Standards and Certification Program will be designated to issue prior approval to possess and use black powder firearms on state parks or historic sites.
- B. The Black Powder Safety Certified Safety Officer shall be a full time DNR employee, or full time DNR contract employee through the North Georgia Mountains Authority, 21 or older, who will be responsible for safeguarding employees, volunteers, visitors and property and for doing what is reasonable and prudent to maintain a safe environment in using inherently dangerous instruments.
- C. Park or site managers are responsible for having a certified safety officer on hand for all black powder activities. A current list of certified safety officers can be obtained from the Region Manager.

#### **BLACK POWDER SAFETY RULES**

- A. All military style black powder events shall follow the safety rules entitled Military Black Powder Safety Rules in the Black Powder Safety Manual
- B. Military re-enactment demonstrations shall follow the guidelines for Tactical Demonstrations.

Authority  
OCGA 12-3-10 (o).

# **Appendix B. BLACK POWDER FORMS**

## ***Small Arms Demonstrations Checklist***

- ( ) The demonstrator approaches the demonstration area carrying the weapon in a safe and military fashion.
- ( ) The demonstrator has all the equipment he needs for the demonstration (weapon, cartridge box, cap box, a cartridge).
- ( ) Demonstrator is not encumbered with superfluous equipment.
- ( ) Demonstrator seems knowledgeable and familiar with the manual he is using.
- ( ) The weapon is always pointed down range.
- ( ) At no time are there any parts of the demonstrator's body placed in a hazardous position in relation to the weapon.
- ( ) In the event of a misfire or other unscheduled event the demonstrator reacts properly.
- ( ) After the demonstration the demonstrator maintains military bearing and leaves the area carrying the weapon safely and in a good military fashion.
- ( ) The demonstrator follows commands of his commander and the safety officer.
- ( ) The demonstrator follows the "ground" rules of the demonstration or script in the case of a tactical demonstration.
- ( ) Your overall general impression remains favorable.

Safety Inspector \_\_\_\_\_

Date \_\_\_\_\_

### **Special Use Permit- Small Arms**

Firearms are not allowed on Georgia State Parks or Historic Sites. This inspection checklist constitutes a special use permit to allow \_\_\_\_\_ to have a firearm on State lands on the dates \_\_\_\_\_. This permit is instantly revocable if any of the safety regulations or procedures are judged to be broken by the Safety Officer, park or site staff. If the regulations are broken the firearm will be ordered off the park or site.

Any firearm that does not meet the inspection checklist will not be allowed on park or site grounds. Any item marked by an asterisk (\*) must be successfully passed.

#### **INSPECTION CHECKLIST**

- ( ) The weapon is confirmed to be unloaded by springing the rammer.
- \* ( ) Your overall first impression is favorable.

##### **The Stock:**

- \* ( ) No cracks or splits in critical areas such as the wrist.
- ( ) Butt plate, trigger guard, etc., fit tightly.
- ( ) No burrs on butt plate or trigger guard screw heads that would snag clothing or hands.
- ( ) If band springs, they work smoothly (not bound by wood).
- ( ) If pin-fastened, pins all there, tight, wood not splintered.
- ( ) No burns around the top of the lock.
- ( ) Generally, no splinters or rough edges.
- \* ( ) Two-piece stocks have sections securely joined.

##### **The Lock:**

- ( ) Lock works smoothly.
- \* ( ) The hammer or cock fits tightly on the tumbler.
- \* ( ) All the positions are firm and solid.
- \* ( ) The half-cock (safety) position works properly.
- \* ( ) When trigger pulled, it lets off smoothly without catching on half-cock.
- \* ( ) Trigger pull is proper; not too heavy, not "hair" trigger.
- ( ) Lock fits properly into the stock and snugly against the barrel.
- \* ( ) The striking face of a percussion hammer is not battered. It strikes the cap or cone squarely and in the center.
- ( ) A flintlock's cock screw works smoothly; jaws grip flint securely.
- ( ) There is a proper leather or lead flint cap.
- ( ) The flint is in good condition and set at a proper angle.
- ( ) The frizzen spring of a flintlock is of the right tension.
- ( ) The frizzen is in good condition and not gouged.
- \* ( ) The pan of a flintlock is clean and in proper relationship to the touch-hole of the barrel.

##### **The Barrel:**

- ( ) Barrel fits the stock properly.
- \* ( ) Free from visible dents or cracks.
- ( ) On flintlocks, the flint is not striking the barrel.
- \* ( ) The muzzle is not dented or worn.
- \* ( ) The cone of percussion pieces is well-seated and not battered.
- \* ( ) The hole is clear and of an acceptable size. The shoulders are not worn down.
- \* ( ) On flintlocks, the vent is clear and of an acceptable size.
- ( ) No signs of heavy corrosion around the vent or cone.
- ( ) The sights are complete and operable.
- ( ) The ramrod is straight, fits the stock properly, and the threads at the lower end are clean and free of burrs.

Safety Inspector \_\_\_\_\_

Date \_\_\_\_\_

\* Any weapon that fails an inspection marked with an asterisk is automatically excluded from a firing demonstration. All factors on the Demonstration Checklist are critical and must be followed or the Safety Officer will halt the demonstration.

**Special Use Permit- Small Arms (Cartridge Weapons) -- *Henry Rifle, Spencer Rifle and other breech loading rifles/carbines***

Firearms are not allowed on Georgia State Parks or Historic Sites. This inspection checklist constitutes a special use permit to allow \_\_\_\_\_ to have a firearm on State lands on the dates \_\_\_\_\_. This permit is instantly revocable if any of the safety regulations or procedures are judged to be broken by the Safety Officer, park or site staff. If the regulations are broken the firearm will be ordered off the park or site. Any firearm that does not meet the inspection checklist will not be allowed on park or site grounds.

**Prior to Inspection:**

- ( ) MAKE SURE THE WEAPON IS UNLOADED!
- ( ) Is your overall first impression favorable or unfavorable?

**The Stock:**

- ( ) Is it cracked or split?
- ( ) Does the butt plate, trigger guard, etc., fit tightly and snugly?
- ( ) Are there any burrs on butt plate or trigger guard screw heads that would snag clothing or hands?
- ( ) Do the band springs function smoothly or are they bound by the wood?
- ( ) In general, are there any splinters or rough edges?
- ( ) On reproductions with two-piece stocks, are the two pieces securely joined together?
- ( ) Are there any shiny spots in the lock recess indicating rubbing by metal?
- ( ) Is the lock recess clean and free of splinters? Is there any indication of splitting or cracking?
- ( ) Is there any indication of splitting or cracking around tang screw hole?
- ( ) Is the bed for the barrel clean and free of dirt?
- ( ) If there is a nose cap, is it securely fastened to the stock?
- ( ) If it is a two-piece stock, check the joint again, CAREFULLY!

**The Lock and Lever:**

- ( ) Does it work smoothly?
- ( ) Does the hammer or cock fit tightly on the tumbler?
- ( ) Are the "clicks" or positions firm and solid?
- ( ) Does the half-cock (safety) position work properly?
- ( ) When the trigger is pulled, does it let smoothly and without snagging on the half-cock position?
- ( ) Is the trigger pull proper – not too heavy and not "hair" trigger?
- ( ) Does the lock fit properly into the stock and snugly against the barrel?
- ( ) Is the striking face of the hammer battered?
- ( ) (Henry Rifle) Does the lever action work smoothly?
- ( ) (Henry Rifle) Does the loading block open without Difficulty?
- ( ) Are all internal screws tight?
- ( ) Are any internal parts broken, cracked, or chipped?
- ( ) Check the nose of the sear and tumbler notches – are they wearing down or chipped?
- ( ) Are there any signs of metal rubbing on the inside of the lock plate?
- ( ) Are there any signs of improper repairs or incorrect replacements?
- ( ) With the hammer or cock fully forward, does the mainspring disconnect from the tumbler or does any part of it protrude below the lockplate?
- ( ) Are all parts clean and lightly oiled?

**The Barrel:**

- ( ) Does it fit the stock properly?
- ( ) Is it free of visible dents or cracks?
- ( ) Is the muzzle dented or worn?
- ( ) Are the sights (if any) complete and operable?
- ( ) Do the barrel bands hold the barrel securely?
- ( ) Is there excessive side-to-side play on the opened breech block?
- ( ) Does the latch have adequate spring tension and function properly?
- ( ) Does the firing pin move freely within the breech block?
- ( ) Does the breech block close and lock securely?

- Does the ejector work properly?
- (Henry Rifle) Is the loading spring clean and free of rust or dirt?
- (Henry Rifle) Does the loading spring reach from lock to loading latch?
- (Henry Rifle) Is there proper tension on the loading spring?
- Is the breech plug fully seated and properly aligned?
- Check the bore with lights and reflectors – is it clean and in good condition? Try a patch – is it clean?
- Is the chamber clean and in good condition?
- Finally, ask the park staff if they have been experiencing any difficulties with the weapon or   have had any specific problems with it.

Safety Inspector \_\_\_\_\_

Date \_\_\_\_\_

**All factors on the Demonstration Checklist are critical and must be followed or the Safety Officer will halt the demonstration.**



## **Artillery Demonstration Checklist**

- ( ) The gun has been inspected, inside and out. Bore is clean of foreign material.
- ( ) The carriage is in good condition and all keys 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 just enough on hand for one demonstration.
- ( ) The equipment is on hand to handle a misfire.
- ( ) The required number of personnel are present to safely fire the piece.
- ( ) The gun is situated safely in relation to the visitors.
- ( ) There is good visibility by the visitors so there will be no jostling and pushing to see and hear.
- ( ) The interpreter can see all of the visitors and also see downrange.
- ( ) The carriage is free to recoil if necessary so it won't buck or break something.
- ( ) The visitors are properly contained and at a safe distance.
- ( ) The ammunition boxes are at a safe distance from the piece as well as from the visitors.
- ( ) The wind is not too strong for a safe demonstration.
- ( ) Conditions are not so dry as to risk a range fire from the muzzle blast. Equipment is available should one develop.
- ( ) There is a first aid kit and emergency communications system available.
- ( ) There are no open fires nearby--campfires, etc.

Safety Inspector \_\_\_\_\_

Date \_\_\_\_\_

## **Inspection Checklist & Special Use Permit - Artillery**

Firearms are not allowed on Georgia State Parks or Historic Sites. This inspection checklist constitutes a special use permit to allow \_\_\_\_\_, Commander, to have an artillery piece on State lands on the dates \_\_\_\_\_. This permit is instantly revocable if any of the safety regulations or procedures is judged to be broken by the Safety Officer, park or site staff. If the regulations are broken the artillery piece will be ordered off the park or site.

Any piece that does not meet the inspection checklist will not be allowed on park or site grounds. Any item marked by an asterisk (\*) must be successfully passed.

### **MUZZLE-LOADING CANNON INSPECTION CHECKLIST**

\* ( ) Your overall first impression is favorable

#### **The Tube:**

- ( ) Tube is clean and free of rust or 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

#### **The Carriage:**

- \* ( ) Wheels are tight and free of rot and insect infestation
- \* ( ) Body of the carriage is free of rot and insect infestation
- ( ) No pieces or parts missing, cracked, bent or broken
- ( ) Wheels move freely
- ( ) Elevating mechanism works smoothly and properly
- ( ) None of the ironwork is coming loose
- ( ) Tube rotates freely on its trunnions
- ( ) Trunnion caps fit snugly and are properly keyed
- \* ( ) Lids of side boxes and limber chests fit snugly
- \* ( ) Limber chests and side boxes are clean and free of spilled powder
- ( ) Wood generally free of serious checking and splintering
- ( ) Wheel hub does not gouge the end of the axletree
- ( ) Linch pin is not digging into wheel hub

#### **Equipment:**

- \* ( ) 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
- \* ( ) Leather haversack is clean and free of spilled powder
- ( ) The gun book is being kept up-to-date

Safety Inspector \_\_\_\_\_

Date \_\_\_\_\_

**\*Any weapon that fails an inspection marked with an asterisk is automatically excluded from a firing demonstration. All factors on the Demonstration Checklist are critical and must be followed or the Safety Officer will halt the demonstration.**

## **REQUEST FOR PERMISSION TO HOLD BLACK POWDER EVENTS**

Park or Site: \_\_\_\_\_

Manager: \_\_\_\_\_

Date: From \_\_\_\_\_ To \_\_\_\_\_  
or

Regularly Scheduled Interpretive Demonstrations \_\_\_\_\_

Type Program: (Check all applicable lines)

Blank Single Weapon \_\_\_\_\_  
Tactical Demonstration \_\_\_\_\_  
Artillery Blank Firing \_\_\_\_\_

Name of Safety Officer (s) \_\_\_\_\_

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Description of Program:

Justification of Program:

Approved:  
Region Manager \_\_\_\_\_

Revised 11/1993  
Re-revised 03/2016

## **Storage Inspection Form**

### **Black Powder Storage Inspection Report**

Park/Site \_\_\_\_\_

Safety Officer in charge of security of storage area \_\_\_\_\_

Type 1 Magazine (more than 50 pounds stored)

Type 4 Magazine (less than 50 pounds stored)

The magazine was more than 150 feet from an occupied building, highway or railroad.

There were no signs of unauthorized entry.

No percussion caps or artillery fuses were stored with black powder.

The following measures should be taken before the next inspection on \_\_\_\_\_  
Date \_\_\_\_\_

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Region Inspector \_\_\_\_\_

Date \_\_\_\_\_

## ***Magazine Inspection Sheet***

**MAGAZINES ARE TO BE INSPECTED A MINIMUM OF EVERY SEVEN DAYS**

Park or Site \_\_\_\_\_

Type of Magazine \_\_\_\_\_

## **Registration and Waiver Release Form**

Event: \_\_\_\_\_ Date: \_\_\_\_\_

I understand that there are risks of injury or death or damage to property involved in my participation in such an event, that it is my responsibility to insure the safety of the equipment used and to see that it is operated properly, and that the Georgia Department of Natural Resources and its staff and representatives assume no responsibility for the condition of such equipment, its operations, or safety of the activities involved in this event. In consideration of the acceptance of this registration by the Department, I waive and release and hold harmless the Department and its staff and representatives from any and all claims of damages against the Department and its staff and representatives for injury, or death or damage to property that may occur as a result of or in connection with this event and agree to pay, protect, indemnify and save against all liabilities, damages, costs, expenses, causes of action, suits, demands, judgments and claims of any nature whatsoever arising from, by reason of, or in connection with any injury or death of persons or damage to property arising from, by reason of or in connection with my participation in this event.

I further understand that such an event requires all participants to be in good health and without physical limitations and I certify that I am in good health and have no physical limitations.

**(Please Print)**

**Full Name** \_\_\_\_\_

**Street Address** \_\_\_\_\_

**City** \_\_\_\_\_ **State** \_\_\_\_\_ **Zip** \_\_\_\_\_

**Age** \_\_\_\_\_

Please list any medical care or physical conditions that the event coordinators should be aware of (Examples: diabetic, or special medications).

**I have read this entire form, including the statement of good health, acceptance of risk and waive, release and indemnification provisions. All information I have given is accurate and correct.**

Signature \_\_\_\_\_

Date \_\_\_\_\_

Revised 11/2009

## **Registration and Waiver Release Form For Minors**

Event: \_\_\_\_\_ Date: \_\_\_\_\_

I understand that there are risks of injury or death or damage to property involved in my child's participation in such an event, that it is my responsibility to insure the safety of the equipment used and to see that it is operated properly, and that the Georgia Department of Natural Resources and its staff and representatives assume no responsibility for the condition of such equipment, its operations, or safety of the activities involved in this event. In consideration of the acceptance of this registration by the Department, I waive and release and hold harmless the Department and its staff and representatives from any and all claims of damages against the Department and its staff and representatives for injury, or death or damage to property that may occur as a result of or in connection with this event and agree to pay, protect, indemnify and save against all liabilities, damages, costs, expenses, causes of action, suits, demands, judgments and claims of any nature whatsoever arising from, by reason of, or in connection with any injury or death of persons or damage to property arising from, by reason of or in connection with my participation in this event.

I further understand that such an event requires all participants to be in good health and without physical limitations and I certify that my child is in good health and have no physical limitations.

**(Please Print)**

**Child's Full Name** \_\_\_\_\_

**Parent's or Guardian's Name** \_\_\_\_\_

**Street Address** \_\_\_\_\_

**City** \_\_\_\_\_ **State** \_\_\_\_\_ **Zip** \_\_\_\_\_

**Age** \_\_\_\_\_

Please list any medical care or physical conditions that the event coordinators should be aware of (Examples: diabetic, or special medications).

**I have read this entire form, including the statement of good health, acceptance of risk and waive, release and indemnification provisions. All information I have given is accurate and correct.**

**Signature** \_\_\_\_\_

**Date** \_\_\_\_\_

Revised 11/2009

## ***Emergency Procedures***

### ***In The Event of a Black Powder Accident:***

- ✓ Contact immediate supervisor. Prepare necessary forms.
- ✓ Park Manager to notify Region Manager
- ✓ Contact Marketing and Public Information Office. DO NOT give a statement or allow your staff or volunteers to give a statement to the media.
- ✓ Assist Marketing and Public Information Office in the preparation of an official statement.

### ***In the Event of Theft or Loss of Black Powder:***

- ✓ Contact Region and Department Law Enforcement Officers.
- ✓ File a report with your local law enforcement department
- ✓ Contact the Bureau of Alcohol, Tobacco and Firearms at 1-800-424-9555.