

**FISH AND WILDLIFE SERVICE
OCCUPATIONAL SAFETY AND HEALTH**

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OVERVIEW

3.1 What is the purpose of this chapter? This chapter establishes U.S. Fish and Wildlife Service (Service) policy and procedures for training, planning, and using explosives to propel rockets and wildlife capture nets to net wildlife.

3.2 What is the scope of this chapter? This chapter applies to all employees who use explosives to propel rockets and wildlife capture nets.

3.3 What are the authorities, responsibilities, and terms you need to know to understand this chapter? See 244 FW 1, Explosives Safety, for all the authorities, responsibilities, and definitions of terms for the chapters in Part 244.

BACKGROUND ON ROCKET NETTING

3.4 Why does the Service use rocket nets? We use rocket netting to capture live wildlife to:

A. Enable detailed studies, such as those on bird migration, habitat use, health, survival, disease, and other relevant research efforts; and

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B. Rehabilitate and release wildlife impacted by oil or other contaminants.

3.5 What are the safety hazards when rocket netting?

A. Projectiles in the form of internal combustion rockets and wildlife nets are safety hazards. Proper handling, storage, transportation, and use of explosives for rocket netting are critical to maintaining a safe work environment.

B. Firing sources or igniters can create a significant charge that can cause serious injury if you handle them improperly.

AUTHORIZATION

3.6 What are the minimum requirements for becoming an authorized rocket netter?

A. Your supervisor must authorize you to use explosives for rocket netting.

B. He/she may authorize you to become a rocket netter if you:

(1) Have current Cardiopulmonary Resuscitation (CPR) and first aid training as required by a recognized certification program such as those sponsored by the American Red Cross, American Heart Association, National Safety Council, etc.; and

(2) Successfully complete and maintain the rocket netting authorization requirements in section 3.6C below.

C. You must attend and successfully complete a rocket net training course acceptable to your Regional Safety Office (also see section 3.9). Course content must include:

(1) Classroom training and a written test covering the use, storage, and transportation of explosives and rocket netting materials; and

(2) A practical field exercise with a live, hands-on test of proficiency.

3.7 What documentation must an authorized rocket netter maintain?

A. You must maintain records of:

(1) Current CPR and first aid training,

(2) Completion of an initial rocket net training course,

(3) Explosives and Rocket Net Authorization (FWS Form 3-2403) that is signed by your supervisor, and

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(4) Completion of a rocket net refresher course within 4 years of the initial training and every 4 years after that (see section 3.9).

B. Your supervisor must enter your training information into the Department's Learning Management System (i.e., DOI Learn).

3.8 Who issues the rocket netting authorizations and for how long are they valid?

A. Project Leaders, Facility Managers, or supervisors issue Explosives and Rocket Net Authorizations (FWS Form 3-2403) and renewals to employees who successfully complete the requirements.

B. Rocket netter authorizations expire 4 years from the date of issue, unless temporarily suspended or revoked. The Project Leader/Facility Manager/supervisor may issue a new authorization after verifying that the rocket netter has completed an approved rocket netter course or refresher course within the 4-year authorization period, and that he/she is current in CPR and first aid.

C. A Project Leader/Facility Manager/supervisor may suspend or revoke rocket netter authorization for any of, but not limited to, the following reasons:

(1) Conviction for violating any law or regulation relating to explosives and rocket netting materials;

(2) Demonstrating lax security or using unsafe practices relating to explosives and rocket netting materials; or

(3) Lack of proficiency, as demonstrated by the following:

(a) Involvement in an accident related to explosives or rocket netting materials. The Project Leader/Facility Manager/supervisor may reinstate the rocket netter's authorization after the Regional Safety Manager investigates the accident and the Project Leader/Facility Manager/supervisor believes reinstatement is warranted; or

(b) Unsatisfactory performance relating to handling, storage, use, or recordkeeping of explosives or rocket netting material.

TRAINING

3.9 What are the requirements for initial rocket net training? You must contact your respective Regional Division of Migratory Birds or your Regional Safety Manager for course offerings. Following are the requirements:

A. Initial rocket net training must consist of in-person classroom training and a written test covering the use, storage, and transportation of explosives and rocket netting materials, and a practical field exercise with a live, hands-on test of proficiency.

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B. The instructor-led course must cover:

- (1) Service policy for storage, transportation, and handling of explosives;
- (2) Service policy for rocket netting; and
- (3) Proper methods for setting up rocket net equipment.

3.10 What are the requirements for rocket net refresher training? Rocket net refresher courses must consist of classroom or online Service-approved training that covers the use, storage, and transportation of explosives and rocket netting materials. An authorized Service rocket net instructor or an instructor approved by the appropriate Regional Safety Manager must conduct any classroom training.

3.11 What are the requirements for instructors who teach the refresher rocket net training courses? Instructors must:

- A.** Have completed a Service rocket net train-the-trainer course or a similar course that is acceptable to their respective Regional Safety Manager;
- B.** Hold a current rocket net instructor authorization (see FWS Form 3-2403) that is signed by their supervisor;
- C.** Have demonstrated competence in all areas of rocket netting and instructing (i.e., practical application of rocket net use, handling, transportation, and storage of low explosives and rocket net charges); and
- D.** Have instructed at least one rocket net course within 4 years of attaining rocket net instructor status, and instruct at least one course every 4 years after that to maintain instructor status.

PLANNING AND OPERATIONS

3.12 What types of planning tools does the Service require for rocket netting? Before each rocket netting operation, the authorized rocket netter, in coordination with the Project Leader/Facility Manager/supervisor, must develop a rocket netting plan (see Exhibit 1). They must keep a copy of the plan at the station office and at the rocket netting site. The rocket netting plan must be site-specific and, at a minimum, include the following:

- A.** A rocket netter-in-charge that the Project Leader/Facility Manager/supervisor designates. This person must be an authorized rocket netter. He/she has authority over all actions and operations related to rocket netting for the particular operation.
- B.** The names, qualifications (authorizations), and responsibilities of all personnel involved with the rocket netting or who are responsible for transporting, handling, or storing the explosives. Also list the names of other personnel authorized to be within the rocket net area during operations.

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(1) In addition to the rocket netter-in-charge, at least one other member of the rocket net team should have a current certificate in CPR and in first aid and be identified on the rocket netting plan.

(2) No one is allowed in the rocket net site or onto the rocket net area unless they are listed in the rocket netting plan or are approved for entry by the rocket netter-in-charge.

(3) All personnel must receive a safety briefing before entering the rocket net area.

(4) The rocket netter-in-charge must maintain a roster of all personnel within the rocket net area.

C. Proposed dates and possible locations where rocket netting will occur based on wildlife activity.

D. Means of transporting explosives and provisions for storing and securing explosives on site.

E. Type and quantity of explosives and initiating devices that will be used for the operation. The rocket netter-in-charge must maintain an inventory of explosives that are transported to or from the rocket net site and any explosives that may remain overnight at the site in accordance with section 3.13E(1)(p).

F. A statement that the Project Leader/Facility Manager/supervisor has obtained applicable permits and licenses (e.g., State banding licenses/permits, endangered species permits).

G. Minimum acceptable weather and static conditions and considerations for stray radio frequency energy and electrical currents where electricity will be used to ignite the rocket.

H. Required personal protective equipment, including, but not limited to, hearing, head, and eye protection. The Rocket Netting Job Hazard Assessment (see Exhibit 2 for a sample) should also describe the personal protective equipment and when and how to use it.

I. Minimum standoff distance and the means for clearing and controlling access to rocket net areas.

J. Procedures for handling misfires and other unusual occurrences.

K. Emergency action plan, including the following:

(1) Phone numbers of local emergency response organizations (i.e., rescue, ambulance, fire department, police),

(2) Location and phone number of nearest medical services facility,

(3) Actions to take if someone is injured, and

(4) A Safety Data Sheet (SDS) for each explosive or other hazardous material that may be used.

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3.13 What are the Service requirements for using explosives during rocket netting operations?

A. Rocket charge classification for storage and transportation.

(1) For storage purposes, rocket net charges are classified as low explosives and must comply with station explosives storage requirements (see 244 FW 1, section 1.8) for storage requirements). Rocket charges must be stored in a Type 1 outdoor magazine, Type 2 outdoor magazine, Type 2 indoor magazine, or Type 4 outdoor magazine.

(2) For transportation purposes, rocket net charges are classified as a hazardous material Division 1.3C explosive (see 244 FW 1, section 1.11 for transportation requirements). During transit, lock rocket charges in a Type 3 magazine/day-box or in a compartment or portable container that meets Institute of Makers of Explosives, Safety Publication Library (IME SLP)-22 standards. Temporarily or permanently secure the Type 3 day-box or IME SLP-22 portable container to the vehicle (with direct access from outside of the vehicle) or secure them within the cargo-carrying space of the vehicle so that it is readily accessible.

B. Temporary overnight vehicle storage. When necessary, you may store rocket net charges overnight in a locked vehicle under the following conditions:

(1) When they are in use on an assigned project and it is not practical to return them to their regular magazine storage.

(2) You must:

(a) Lock them inside an unmarked (for security reasons) Type 3 day-box or IME SLP-22 container.

(b) Place the Type 3 day-box or IME SLP-22 container out of sight inside the locked vehicle, affixed and locked camper shell, or locked truck box.

(3) You must also include the justification for overnight storage and method of overnight storage in the rocket netting plan, which must be signed by the rocket netter-in-charge and the Project Leader/Facility Manager/supervisor.

C. Transporting or carrying explosives by non-motorized means. When transporting explosives by non-motorized means, you must meet the requirements in 244 FW 1, section 1.11B.

D. Transporting explosives by watercraft. When transporting explosives by watercraft, you must meet the requirements in 244 FW 1, section 1.11C.

E. Rocket netting operations.

(1) *Safety precautions:*

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- (a)** Never perform rocket netting operations alone.
- (b)** Store and transport all charges with the lead wires in the shunted position.
- (c)** Transport only the number of charges necessary to perform the work to the site.
- (d)** When handling explosives, wear cotton clothing to reduce the build-up of static electricity and subsequent sparking. If open (un-shunted) lead wires are brushed against synthetic fiber clothes, especially in cold air, residual static electricity could fire the charges.
- (e)** Turn off two-way radios and cellular phones when working with or directly handling rocket net charges and when un-shunted wires are present.
- (f)** Choose rocket net sites to avoid the potential of a disconnected rocket hitting an object downrange (e.g., houses, vehicles, people, roads) and so that the explosives do not start a fire in the immediate area of the discharge. Clear the rocket discharge area of fire hazards and ensure that fire suppression equipment is available.
- (g)** Rocket net sites using remote controlled firing devices (RFDs) should be at least ½ mile from live circuits. Variables, including nearby wattage outputs and weather conditions, make it difficult to establish minimum safe ranges where a rocket net site using RFDs will not be affected. For all types of rocket net sites, never be in a position that would put you or others in danger if an accidental firing caused by radio frequencies or other variables were to occur. Under certain conditions, low flying aircraft and high voltage transmission lines can also emit enough energy to trigger electrical explosive devices.
- (h)** Before every initial and subsequent shot, thoroughly inspect the anchoring system, rocket supports, links, restraining ropes, and all rope connections for damage, fraying, untying, etc. Design rocket supports so they are stable and reliable. Do not use “make-shift” materials such as logs or rocks to angle the rockets.
- (i)** The person arming the rockets must carry any portable blasting machine or firing source at all times before setting them up to connect them. Never connect the electrical/blasting mechanism to the lead wire or spool until immediately before the planned discharge.
- (j)** When arming, loading, or unloading rockets, always work from the rear quarter location to the rocket. Never stand in front of, or directly behind, a rocket when testing circuit continuity, net arrangement, or when a rocket is being armed or after it is loaded. For re-baiting operations, disconnect the rocket charges or take other precautions to prevent ignition and being struck by a projectile.
- (k)** Firing lines should always remain shunted until the area is cleared of people. Maintain shunting at the lead wires of the cartridge and the ends of the firing cable until ready to fire or when you're attaching a remote control. Immediately after firing, shunt the ends of the firing cable.

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(l) To check for electrical continuity, only use a blasting galvanometer that is approved for use with explosives.

(m) Only use a firing device that is approved for explosives.

(n) Never expose explosive device cartridges to unnecessary heat, moisture, or abuse.

(o) Do not handle charges or operate a rocket net during an electrical or dust storm.

(p) Discharge rockets and rocket nets during daylight hours if possible. To meet the needs of the mission, it is acceptable to rocket net during twilight or at night (under a full moon, if possible). It also may be necessary to set up the area in advance or the day before for a sunrise shot. If the charges are left overnight, you must:

(i) Take adequate measures to ensure security of the charges and safety of people and wildlife. Clearly describe these measures in the rocket netting plan, which is signed by the rocket netter-in-charge and the Project Leader/Facility Manager/supervisor;

(ii) Post the area and ensure it is away from trails and other areas that visitors may use; and

(iii) Inspect the setup in the morning to ensure conditions have not changed and circuitry is intact.

(2) Loading the rocket:

(a) Check all charges for the expiration date before beginning. The specific rocket model you use (see Exhibit 3) must match the type of rocket charge you use. Do not use rockets or rocket charges if you cannot identify the rocket model or type of rocket charge. For example, only use Winn-Star charges with Winn-Star rockets and only use Wildlife Materials, Inc. (WMI) charges with WMI rockets.

(b) Unscrew the nozzle from the rocket body.

(c) Before placing charges in rockets, unscrew the breech cap and clean any debris from inside the rocket body and rocket nozzles. Be certain rocket nozzles are clear. Periodically clean the threads on the nozzle of the rocket body with a steel brush and always lightly grease them before storage. This prevents rust and makes it easier to remove the cap.

(d) Insert the rocket charge into the rocket body.

(e) Pass the lead wire through one of the nozzle holes and take up slack lead wire.

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(f) Replace the nozzle on the rocket body and tighten securely (a minimum of three complete turns).

(g) Inspect the connection with the net.

(3) Hookup to power supply and firing:

(a) Before unfolding ignition/charge wires, check to be sure the two wires are shunted (twisted together).

(b) To prevent electrical shock, keep clear of the firing wire leads when initiating the explosives for firing the net.

(c) To have all charges ignite simultaneously, wire the charges in series, not parallel (see Exhibit 4).

(d) Check electrical continuity with a blasting galvanometer after hookup is complete. Recheck electrical continuity before each trapping attempt.

(4) Misfires:

(a) The rocket netter-in-charge must be prepared to handle misfires and ensure people stay safely away from the charge for at least 30 minutes.

(b) Only authorized rocket netters who are trained and experienced in the properties of explosives and their uses in rocket netting operations may handle misfires.

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