

### Permanent Electric Bear Fence Guidance

#### Purpose

In addition to the intent of Purpose statement found in the Fence Practice Standard 382, Permanent Electric Bear Fence (PEBF) has some special considerations. Most fences in general have design features emphasizing containment of livestock or other subjects/ elements *inside* the fenced area; features to prevent escape from within. Permanent electric bear fences should be principally designed and operated to deter entry by bears or other creatures to the containment area. As such, these fence designs incorporate somewhat different implementations of fencing construction and operating concepts.

The strategic purpose of permanent electric bear fence is to reduce the potential for bears to interact with humans and/ or their attractants or activities, whatever those attractants or activities may be. Generally a bear's only real interest in those attractants or activities is to determine what they are and if they present an opportunistic feeding situation. Bears (most) don't intentionally go looking for trouble. Curious bears, starving bears or bears conditioned by previously successful experiences in seeking food at human controlled locations are at risk of causing problems for people and themselves. Often, if not always, these human-conditioned bear behaviors result in the bear's death. And tragically, the health and safety of people and their property is often at great or fatal risk.

#### General

An important feature of permanent electric bear fences is the visual recognition education which the AK NRCS PEBF presents (nine lines of highly visible ¼" woven poly-wire, six inches apart). Once a bear has experienced the shock from a properly erected fence, it learns to associate that structure with an undesirable experience. In the future the bear will visually recognize the situation and its memory will provide the negative reminder. The fence may not deter all bears in all cases, but the vast majority of bears will come to associate the highly recognizable visual appearance of the fence with the previous shock they should have received. Fences are to be "signed" with warnings of the presence of the fence.

PEBF's which are programmatically funded;

"Require an operation and maintenance plan for the care and upkeep of the fence materials for the life of the contract period (minimum 5 years). Fence vendor required items also include a materials list, hardware specifications (energizer specifications, line and post spec's, etc.), installation instruction manual, and guidance for vegetation control in the area of the fence to promote full-power fence function. These items shall be provided by the fence manufacturer and may be supplemented by other NRCS requirements (documentation must be provided to NRCs by landowner)." (source, PEBF scenario NRCS WHIP payment schedule) Note these items are to be provided by the fence vendor.

In most cases “kit fences” from manufacturers supplying *all* materials as well as the installation, operation and maintenance items required are the best sources of acquisition. The only general exception might be where a local vendor can supply all materials as required by the Fence, PEBF, 382 General Specifications. NRCS design, requirements or recommendations may supplement the Manufacturer’s material or guidance where it is determined that the Manufacturer’s items do not meet the planning or Specifications needs.

### Installation

Shall be according to Manufacturer’s recommendations and written guidance, except where NRCS recommendations/specifications call for more stringent parameters, construction materials or layout. See AK-NRCS Practice Standard 382 Fence Specifications and Standard Drawings for PEBF, for application conditions, materials and installation instructions.

### Operation

For sites with strong bear attracting elements or site activities, there is only one thing worse than having a site which is not electrically fenced. And that is a site, where an electric fence is in place but not working. This situation can condition a bear to not respect or to believe they can ignore, the visual presence of an electric fence.

Power to the site fence should be turned off in the fall/ winter when it is determined bears have become inactive for the winter seasonal period or weather conditions make the fence useless to operate. Energizer units may/ should be removed if convenient, to indoor locations to avoid unnecessary exposure to winter conditions. To be most effective, power to the fence should be turned on in spring at the site at least two weeks earlier than the anticipated average spring bear emergence date. This date is usually variable or may be inaccurate for several reasons including local/ regional weather conditions and individual bear biology and energetic’s. Where possible it is important to anticipate when bear’s may start roaming nearby and to have fences functioning and powered to deter hungry and inquisitive bears from attractive site conditions. If bears discover a non-functioning fence at an attractant site and are successful in obtaining a meal or do not experience any negative effects, they are most likely to return and all could suffer the consequences.

By use of a voltmeter, insure at least 7,000 volts is maintained on all hot lines. If a voltmeter reading drops below this minimum expected voltage inspect the fence for shorts, unwanted grounding or other system disruptions/ complications/ failures. Because fence post material is not electrically conductive (see specifications), line wires not attached to the positive side of the energizer must be grounded. Simply connecting these “negative lines” to the negative side of the Energizer and the grounding rods will insure the fence provides the necessary shock, when contact between two line wires are made.

Where severe weather can produce debris or breakages/ disruption due to vegetation, lightning, ice or snow deposition or other problematic features, inspect the site to insure the fence is fully functioning after the event. Bridging between fence lines, or lines and the earth, by rain, snow or ice can be a problem in some winter or spring conditions. A manual cut-off switch should be installed on the bottom hot line of the fence, at the energizer/ fence locale. This will allow the operator to manually remove power from that line due to snow accumulation or other temporary conditions which result in potentially shorting out the fence line in proximity to ground level.

An obstruction, interference and vegetation free zone is required in the area of the powered fence and energizer. Where possible/ practicable, position the energizer and all electronics within the fence enclosure. Insure a 12'-20' wide corridor is free of any material, structure, vegetation, overhang, existing fence or any reach-through accessible item. Vegetation and overhang must be cleared at least 10' from the outside of the fence. Do not allow props or climbable items outside the fence to provide encouragement to bears for jumping, climbing or as launch platforms. No accessible site feature or item over 24" tall can be within 4' of the inside of the fence structure; *Except*, that an existing fence may be within 24" to the inside of the newly erected PEBF. It is best to keep any/ all structures, items or contained site features as far to the interior and centrally located as possible within the fence enclosure. An ideal goal is to be able to visually inspect the entire fence perimeter from a single location. Or better still, from any location within the containment area, though this will often not be possible. Accomplish this goal to the degree possible.

#### Maintenance

Inspect the fence perimeter after storm events or weekly at a minimum. Insure operating conditions as identified in the Operation section above, are present. Depending on existing site vegetation growth/ regrowth, cut/ remove vegetation through mechanical or chemical (according to manufacturer's label recommendation) control means to prevent grounding of the fence inducing failure or unreliable operation.

PEBF is not a high line tension structure. Tension on lines should be enough to insure light debris, wind, ice and/ or snow does not cause line material to touch or come within three inches of each other, causing arcing and potentially rendering the fence inoperable. Corner braces should be checked and tightened at the top to provide levels of line tension necessary for the line material used. Follow fence system manufacturer's recommendations for your environmental and site conditions. *Fence line tension must be high enough that a bear pushing against the fence will transfer the lines past the fur to their skin and not ground out against each other.*

Inspect connections at all junctures for material wear, connectivity and spacing requirements. Insure power lines to AC powered energizers are well insulated and are not exposed to conditions, where wearing or damage of the line can occur.

Where possible and the design allows, energizers should be removed and stored in a cool dry location for the winter non-use period. Whatever type of energizer used, inspect weekly at a minimum to determine clean uninterrupted (24 hour/ day) power flowing to the fence at all times.

Insure Warning Signs (see specifications) are clean, visible and readable from at least 50' perpendicular to the fence line. Signs should not cause line sag or distortion which may result in inconsistent fence line power functioning.

#### Potential Fence System Vendors

High Country Enterprise  
PO Box 2737  
Palmer, AK 99645  
907-232-9758  
[www.electrobearguard.com](http://www.electrobearguard.com)

Alaska Power Fence  
35250 Schade Drive  
Homer, Alaska 99603  
907-235-8949  
[ris@xyz.net](mailto:ris@xyz.net)

McGregor's Fence Company  
93 Route 6A, Suite B2  
Sandwich, MA 02563  
508-888-8305 (urgent queries only)  
[sales@mcgregorfence.com](mailto:sales@mcgregorfence.com)  
<http://www.topdogfences.com/index.htm>

Margo Supplies Ltd.  
PO Box 5400  
High River, Alberta.  
Canada T1V 1M5  
403-652-1932  
[margo@wldl-cntrl.com](mailto:margo@wldl-cntrl.com)  
<http://www.margosupplies.com>

Nasco On-line Catalogs  
4825 Stoddard Road  
P.O. Box 3837  
Modesto, Cal. 95352-3837  
800-558-9595  
<http://www.enasco.com>

ElectroBraid Fence Limited  
236 Water Street, Box 19  
Yarmouth, Nova Scotia  
Canada, B5A 4P8  
888 430-3330  
[info@electrobraid.com](mailto:info@electrobraid.com)  
[www.electrobraid.com](http://www.electrobraid.com)

Premier 1 Supplies  
2031 300th Street  
Washington, IA. 52353  
800-282-6631  
<http://www.premier1supplies.com>

Gallagher Power Fence Inc  
P.O. Box 7506  
North Kansas City, MO 64116  
800-531-5908  
[www.gallagherusa.com](http://www.gallagherusa.com)

Dillingham Electric Fence  
Bill Carland,  
907-842-2715  
907-842-5808.

Natural Resources Conservation Service, Alaska

Permanent Electric Bear Fence Job Sheet – AK NRCS 382-PEBF

Client \_\_\_\_\_ Date \_\_\_\_\_

Address, Farm #/ Tract \_\_\_\_\_  
\_\_\_\_\_

On-Site Fence Location(s) \_\_\_\_\_  
\_\_\_\_\_

Priority location area ? \_\_\_\_\_ Where ? \_\_\_\_\_

Program Participant ? \_\_\_\_\_ Contract Number \_\_\_\_\_

Field Office \_\_\_\_\_ Assisted By \_\_\_\_\_

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Number of PEBF locations on property \_\_\_\_\_

Attractant (s)/ Activity type fenced \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Total fenced length (s) \_\_\_\_\_ Contained area size (s) \_\_\_\_\_

Top line height (s) \_\_\_\_\_ Gate type (s)/ Number \_\_\_\_\_

Inside distance from fence to nearest object \_\_\_\_\_ Item \_\_\_\_\_

Inside distance from fence to main attractant \_\_\_\_\_

Charger type, Manufacturer, Power Rating (including joules) \_\_\_\_\_  
\_\_\_\_\_

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Fence Manufacturer/ Vendor Information Name \_\_\_\_\_

Kit ? \_\_\_\_\_ Other ? \_\_\_\_\_

Part List, Specifications, Installation, Operation, Maintenance, Contact Info. Provided as required \_\_\_\_\_

Design Approval

SITE Questionnaire Attached ? \_\_\_\_\_ Site Management Plan Attached ? \_\_\_\_\_

Planner Job Approval Class (Fence-382) \_\_\_\_\_ Job Title \_\_\_\_\_

Design Approved by /s/ \_\_\_\_\_ Date \_\_\_\_\_

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Client Acknowledgement Statement:

- I have received a copy of the specifications, Job Sheet and Site Management Plan and understand the contents and requirements.
- It is my responsibility to obtain all necessary permits/ rights/ permissions to comply with any ordinances or laws pertaining to this project.

Accepted by /s/ \_\_\_\_\_ Date \_\_\_\_\_

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Certification

I have completed a review of the project installation and information provided by the client and certify this practice has been applied and in compliance with all specifications and requirements.

Certification by \s\ \_\_\_\_\_ Date \_\_\_\_\_

Job title \_\_\_\_\_

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DESIGN SKETCH