# FINAL RESTORATION PLAN

## BREWSTER WELL FIELD SUPERFUND SITE
## BREWSTER, PUTNAM COUNTY, NEW YORK

November 2008

*Prepared by:*

**United States Fish and Wildlife Service**

on behalf of the

**Department of the Interior**

**and**

**New York State Department of Environmental Conservation**

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## A. INTRODUCTION

In August 1996, the United States Fish and Wildlife Service (USFWS), on behalf of the United States Department of the Interior (DOI), and the New York State Department of Environmental Conservation (NYSDEC), on behalf of the State of New York, collectively referred to as the "Trustees," settled a natural resource damage claim with the Responsible Parties (RPs) for the Brewster Well Field Superfund Site (the Site) located in the Village of Brewster (Village), Town of Southeast, Putnam County, New York.

The Trustees sought this settlement as compensation for injuries to natural resources due to release of environmental contaminants from the Site. We are required to use settlement funds to compensate for those injuries by restoring natural resources, supporting habitat, and/or services provided by the injured resources. The Comprehensive Environmental Compensation and Liability Act (CERCLA), 42 U.S.C. §9601, *et seq*., which designates natural resource trustees, requires that before settlement monies can be used for such activities, we must develop and adopt a Restoration Plan, and that in doing so, there must be adequate public notice and opportunity for hearing and consideration of all public comment.

Accordingly, we prepared a Draft Restoration Plan and sought comments on it. We published a Notice of Availability of the Draft Restoration Plan in the newspaper, *Journal News*, a paper that serves Putnam, Westchester, and Rockland Counties on July 8, 2008. The Draft Restoration Plan was also placed on our website http://www.fws.gov/northeast/nyfo/. No comments were received on the Draft Restoration Plan.

## B. BACKGROUND

The Brewster Well Field Superfund Site is located on the northern bank of the East Branch of the Croton River in the Village of Brewster, Town of Southeast, Putnam County, New York (Figure 1). The well field, originally developed in 1954, is the source of the Village's water supply. In 1978, evidence of volatile halogenated organic (VHO) contamination from an unidentified source first appeared in the Village water supply. Concentrations of certain VHOs violated New York State Department of Health guidelines. The VHOs detected in 1978 were tetrachloroethylene (PCE) at 166 and 174 parts per billion (ppb) and trichloroethylene (TCE) at 5 and 220 ppb (GHR Engineering 1986a).

In an effort to deal with the impaired water quality, alternative water supply sources were added to the Village water system and a packed column air stripping system was constructed to treat the entire Village water supply. The Site was placed on the National Priorities List in December 1982. Remedial work at the Site was addressed within two operable units (OUs). The two OUs are: OU1 – management of the migration of contamination through the groundwater, and OU2 – control of the contamination source. The source of the contamination was found to be a drywell adjacent to Alben Cleaners where dry cleaning fluids were discharged to a floor drain until 1983.

Alben Cleaners is located on the south bank of the East Branch of the Croton River, south of the Brewster Well Field Site.

Principal contaminants of concern were VHOs, specifically PCE, TCE, and 1,2 dichloroethylene (DCE). The primary medium contaminated was groundwater. Contaminant concentrations in groundwater were up to 5,600 ppb PCE, 550 ppb TCE, and 950 ppb DCE (GHR Engineering 1986a). There was a secondary pathway of contamination to surface water. However, surface water samples taken in the vicinity of the well field, both upstream and downstream of the contaminated area, showed very little VHO contamination.

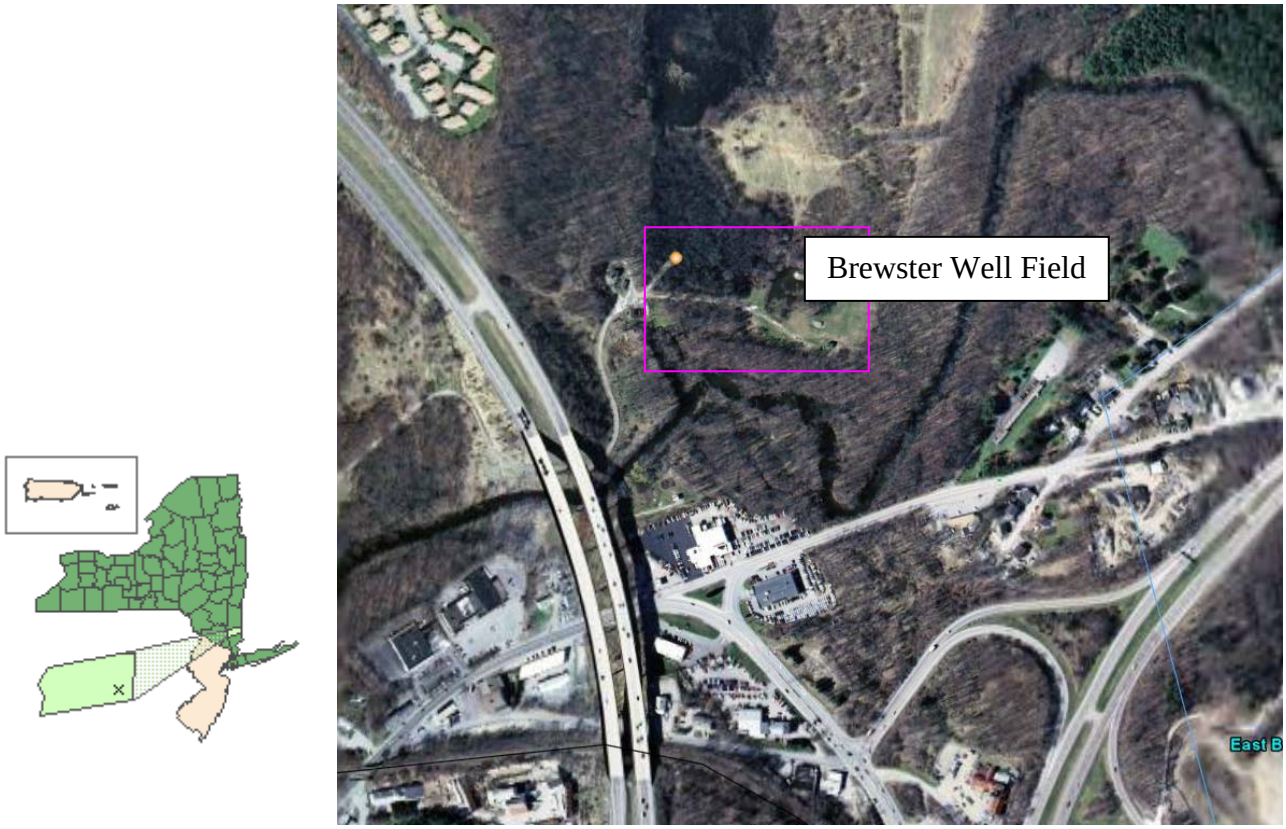


**Figure 1. Brewster Well Field Location**

Records of Decision (RODs) have been issued for the two OUs at the site. The September 30, 1986, ROD for OU1 called for continued operation of the existing on-site packed column air stripping system at the Village well field, as well as the design and construction of a groundwater management system to consist of extraction wells, treatment of the extracted water by an additional off-site air stripper, and reinjection of the treated groundwater. These actions were to contain the contaminant plume and restore groundwater quality. The September 29, 1988, ROD for OU2 addressed the treatment and disposal of the Alben Cleaners drywell, sediments, sludge, and soils contaminated with VHOs (GHR Engineering 1986a, 1986b).

The source of the contamination at the well field, the dry well, has been excavated and removed from the site. The Village's groundwater treatment system continues to treat groundwater for distribution to the public, eliminating the risk of ingesting contaminated water. The groundwater management system, which has been in operation since 1996, has treated approximately 251 million gallons of contaminated water (http://www.epa.gov/Region2/superfund/npl/0202153c.pdf.)

In April 2002, EPA issued a Five Year Review report, which concluded that the response actions implemented at the site are in accordance with the remedy selected by the U.S. Environmental Protection Agency (USEPA) and that the remedy was protective of human health and the environment. Surface water samples collected in the East Branch of the Croton River upstream and downstream of the Site did not identify any contaminants of concern (USEPA 2002). In April 2007, the USEPA issued a second Five Year Review report, which concluded that additional data are needed before a protectiveness determination can be made. To evaluate ecological protectiveness, surface water monitoring in the East Branch of the Croton River is needed to ensure the protection of aquatic life. Monitoring data are currently being collected (http://www.epa.gov/Region2/superfund/npl/0202153c.pdf).

## C. NATURAL RESOURCES AND IMPACTS TO THOSE RESOURCES

The East Branch of the Croton River flows adjacent to the Site. This river is a significant New York State trout fishery, supporting stocked rainbow trout (*Oncorhynchus mykiss*) and brown trout (*Salmo trutta*). Other fish species present include red-breasted sunfish (*Lepomis auritus*), bluegill (*L. macrochirus*), pumpkinseed (*L. gibbosus*), largemouth bass (*Micropterus salmoides*), smallmouth bass (*M. dolomieu*), longnose dace (*Rhinichthys cataractae*), and rock bass (*Ambloplites rupestris*) (GHR Engineering 1986b). Just over ½ mile to the east of the Site, the Croton River is impounded to form the East Branch Reservoir, part of New York City's Croton Reservoir system. Approximately ½ mile to the northeast, Bog Brook, a tributary to the East Branch of the Croton River, is impounded to form the Bog Brook Reservoir, also part of the New York City water supply system. A New York State-designated wetland (BR-21) exists in the vicinity of the Site, extending northward from the East Branch of the Croton River. Additional wetlands exist adjacent to the river on both the north and south banks.

A portion of the OU1 remedial construction occurred in shrub-scrub wetland at the Site. Specific impacts from the remedial construction included clearing of vegetation, construction of an access road, and installation of groundwater reinjection wells. Approximately 0.2 acre of wetland was directly impacted. The Trustees determined that the potential responsible parties should compensate for the adverse impacts to wetlands and allow for restoration of the ecological services provided by those wetlands. To scale our restoration goal, we performed a Habitat Equivalency Analysis (HEA) using the methodology described by Unsworth and Bishop (1994). The HEA model was used to estimate the acreage of wetland needed as compensation for the 0.2 acre of wetland lost as a consequence of remedial activities. Inputs to the model included the wetland acreage lost, as well as an assumption that restored or created wetlands would take about

5 years to reach maximum function, and that the productivity of created/restored wetland would be about one-half that of the natural wetland. The model calculated that 0.5 acre of wetland should be created or restored as compensation. The Trustees agreed to accept $20,000 to fund the creation or restoration of approximately 0.5 acre of wetland and reimbursement for Trustee assessment costs.

The original remedy called for the reinjection of treated groundwater so as not to adversely impact area wetlands and floodplains. Due to operational difficulties related to reinjecting the treated effluent, a surface water discharge system was installed. The USEPA is currently monitoring groundwater elevations to determine any potential effects on wetlands and floodplains. This evaluation, which consists of water level monitoring, data compilation, and, if necessary, an evaluation of soil, vegetation, and hydrology will be conducted according to the Long Term Remedial Action Plan. Any future impacts to wetlands as a result of groundwater removal (without reinjection) may be subject to additional claims under the natural resource damage assessment and restoration provisions of CERCLA.

## D. NATURAL RESOURCE DAMAGE SETTLEMENT

A Consent Decree was filed on August 21, 1996, with respect to the Brewster Well Field Superfund Site. The United States of America and State of New York recovered costs pertinent to response actions and natural resource damages. Pursuant to the Consent Decree, $20,000 was awarded for damages to natural resources under the trusteeship of the DOI (as represented by the USFWS) and State (as represented by the NYSDEC). The Consent Decree stated that since the jurisdiction and trusteeships of the DOI/USFWS and NYSDEC overlap, monies shall be held by the DOI in an interest bearing account in its Natural Resource Damage Assessment and Restoration Fund. Said monies shall only be spent for restoration and to reimburse past trustee assessment costs in conformity with the provisions and procedures set forth in a Memorandum of Agreement to be entered into between the Department of the Interior and the State of New York.

The USFWS has allocated $5,000 for restoration planning and restoration oversight costs. With accrual of interest, $18,000 is available for restoration activities.

## E. PROPOSED RESTORATION

### 1. Goals of the Restoration Project(s)

The primary goal of the restoration project(s) is to compensate for natural resources injured as a result of remedial activities at the Brewster Well Field Site. Restoration includes returning an injured resource to its prior condition, as well as acquisition of other resources to compensate for those which were injured.

We are required to assess a reasonable number of possible restoration projects. A project may consist of a single action or a set of actions to be undertaken. We requested potential

projects from within the two Trust agencies – USFWS and NYSDEC. We also solicited restoration proposals from Environmental Defense, a non-profit organization involved in bog turtle restoration in the vicinity of the Site, the U.S. Army Corps of Engineers, and the New York State Wetlands Forum Board of Directors. We identified the following as desired project characteristics and potential projects to meet our restoration goals:

- Similarity of the restored resource to the injured resource.
- Proximity of the alternative to the injured resource; priority will be given to projects located in Putnam or adjacent counties.
- Relative compensation to loss ratio.
- Long-term or perpetual benefits to fish and wildlife resources.
- Little or no potential for adverse effects on human health and public safety.
- Projects that provide the greatest environmental benefit for the least cost.
- A restoration site that is protected from future development activities will be favored over one where future land use is unrestricted or may potentially adversely affect the restoration project.
- Projects that do not comply with applicable Federal, State, Tribal, and local laws and policies will not be considered.

## 2. Specific Projects Considered

a. Bog Brook Unique Area Restoration

Bog turtle (*Clemmys [=Glyptemys] muhlenbergii*) and spotted turtle (*C. guttata*) habitat restoration would be achieved in the Bog Brook Unique Area (Figure 2) by treating *Phragmites* with the herbicide Rodeo®. Removal of *Phragmites* would facilitate the restoration of native vegetation (Figure 2).

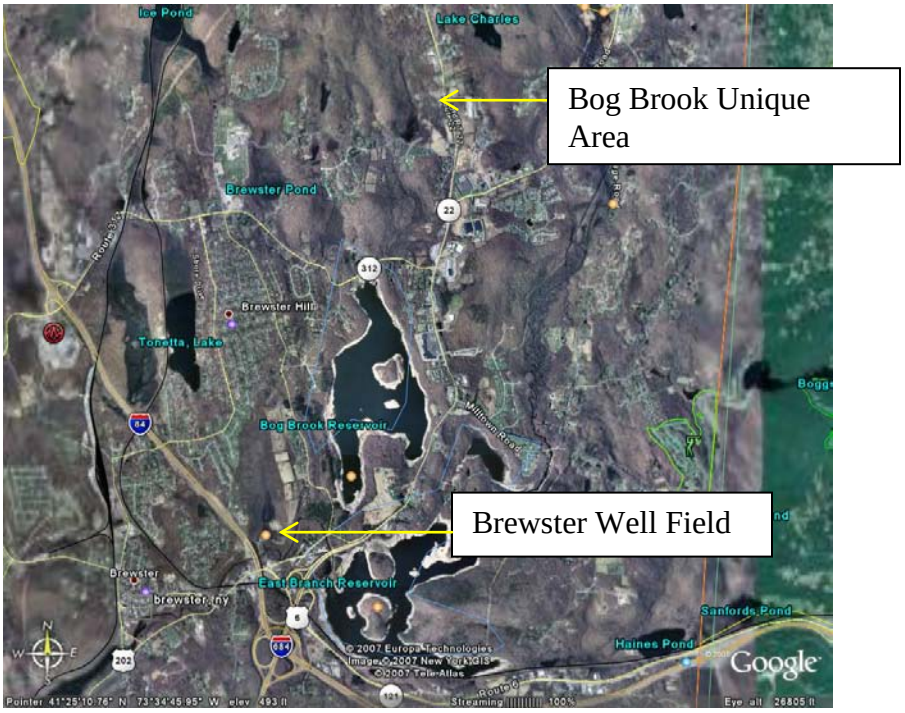


**Figure 2. Bog Brook Unique Area Restoration Project**

Currently, a large portion of the central part of the Bog Brook Unique Area has been converted from a mosaic of rich graminoid fen, emergent marsh, and rich shrub fen to a *Phragmites* monoculture. The native fen and marsh vegetation provides better habitat for most wildlife, including bog turtle (Federally-listed as threatened and State-listed as endangered) and the spotted turtle (State-listed as special concern). *Phragmites* treatment would occur at the end of summer and consist of the application of Rodeo® via syringe or wick to cut *Phragmites* stems by a licensed commercial pesticide applicator certified to work in aquatic environments. Once *Phragmites* is removed from the wetland, it is anticipated that native plant species present in other parts of the wetland would recolonize the area and the hummocky-hollow microtopography that is characteristic of graminoid fens would begin to reform.

This project is part of a larger project to restore 3.8 acres of *Phragmites* dominated wetland to a native wetland community. The total cost of treatment of 3.8 acres would total approximately $46,000 ($12,000 per acre). The *Phragmites* control project is part of a larger wetland restoration plan being implemented by the NYSDEC at Bog Brook Unique Area. Post-restoration monitoring would be conducted by NYSDEC Region 3 Bureau of Wildlife staff. The Bog Brook

Unique Area is owned and managed by the NYSDEC and the habitat would be protected in perpetuity.

b. <u>Bog Turtle Early Successional Wetland Habitat Restoration</u>

Restoration of bog turtle habitat is proposed to be performed in Putnam and Dutchess Counties in partnership between Environmental Defense and the USFWS. Projects would involve activities designed to maintain early successional wetland habitat through a variety of means, including vegetation control and installation of fencing to allow livestock to selectively graze on vegetation that negatively affects wetland quality. Most of the funds requested are for the purchase of supplies and equipment and labor for fence installation. Environmental Defense would perform planning and monitoring activities using other funds.

Two potential projects have been proposed as examples of the type of bog turtle habitat restoration work to be performed. These projects may be the projects funded, although the Trustees have the option of funding similar projects that meet our restoration objectives. Both projects are located within 20 miles of the Brewster Well Field Site (Figure 3).

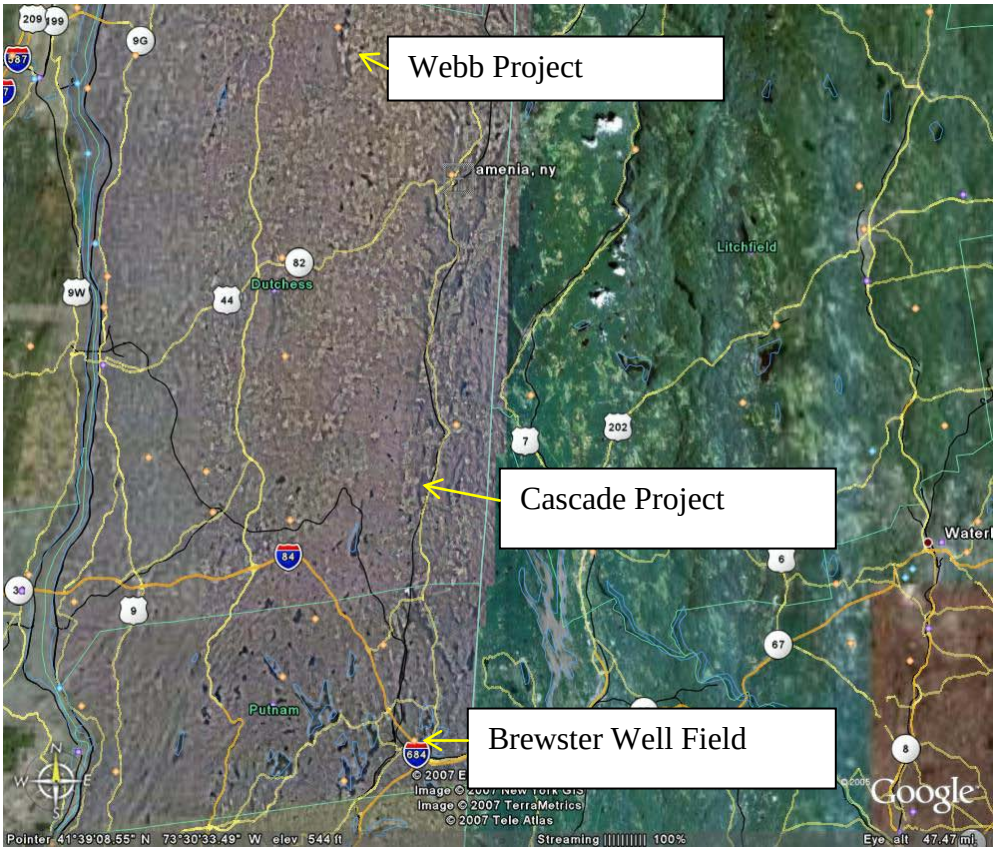


**Figure 3. Potential Environmental Defense Bog Turtle Projects**

- Cascade Project: Prescribed livestock (sheep and goats) grazing would be used at this 5-acre location in the Town of Patterson, Putnam County, to control woody vegetation and purple loosestrife. The project includes installation of woven wire fence, grazing for three seasons, and monitoring of restoration success. Once the desired level of woody/invasive plant control is achieved, as determined by Environmental Defense, livestock grazing would be switched to maintenance levels. Bog turtle nesting areas would be identified and excluded from grazing. As part of the larger restoration project, Environmental Defense would perform vegetation monitoring and bog turtle surveys. Approximate Cost: $2,000.

- Webb Project: This project, located in the Town of Amenia, Dutchess County, consists of the establishment of a rotational livestock grazing system within 10 acres of existing wet dairy pasture to reduce over-grazing impacts in portions of fen (suitable bog turtle habitat) and to encourage grazing to control invasive plant species in other less-grazed areas. The project entails installation of partition fences within the enclosure to allow rotational grazing of livestock. Bog turtles have not been documented on-site, but occur within a short distance of the site and are assumed present. This project would restore natural fen habitat, thereby encouraging colonization by bog turtles. As part of the larger restoration project at the site, Environmental Defense would perform vegetation monitoring and bog turtle surveys. This property is currently held under easement by the Dutchess Land Conservancy. Approximate Cost: $5,000.

  Habitat would be restored on properties where willing private parties sign a habitat restoration agreement for a minimum period of 10 years and shall be consistent with USFWS policy and guidance.

## 3. Evaluation and Comparison of Feasible Project Alternatives

As natural resource trustees, we are required to evaluate each of the possible restoration projects based on all relevant considerations, including the following factors: technical feasibility; the relationship of expected costs of the proposed actions to the expected benefits; cost-effectiveness; the results of any actual or planned response actions; the potential for additional injury resulting from the proposed actions, including long-term and indirect impacts; the natural recovery period of the injured resources; the ability of the resources to recover with or without alternative actions; the potential effects of the action on human health and safety; consistency with relevant Federal, State, and Tribal

policies; and compliance with applicable Federal, State, and Tribal laws. We must also consider the feasibility to secure future environmental protection of the restoration site.

## 4. Preferred Project for Implementation

Either the Bog Brook Unique Area Restoration Project or Bog Turtle Early Successional Wetland Habitat Restoration Project will restore natural resources and make the environment and public "whole" from the loss of such resources due to the release of environmental contaminants and subsequent remedial activities at the Brewster Well Field Site. Both projects are located in proximity (within 20 miles) of the injured resources and will enhance wetland habitat to benefit rare turtle species. Funds provided will be used in conjunction with funds from other sources, making these projects cost-effective. Project benefits exceed losses associated with remedial activities at the Site. We are proposing to fund the Bog Brook Unique Area Restoration Project at $11,000 and the Bog Turtle Early Successional Wetland Habitat Restoration Project at $7,000. Combined, these projects will enhance 1-16 acres of wetland habitat to increase its value for the bog turtle and spotted turtle. The restoration and protection of 15 acres of bog turtle and potential bog turtle habitat for 10 years, as proposed for the Environmental Defense projects, in conjunction with the 1 acre of habitat restoration with in perpetuity protection at the Bog Brook Unique Area, more than compensates for the 0.5 acre of wetland loss at the Brewster Well Field Site.

Section 7 Consultation

Three proposed restoration site plans associated with the Brewster Well Field Superfund Site were evaluated for potential impacts to Federally-listed species. Two species may be affected by the proposed projects – the Federally-listed (threatened) bog turtle and (endangered) Indiana bat (*Myotis sodalis*). While the USFWS understood that only part of each plan would be funded as part of the Brewster Well Field restoration program, we reviewed the plans in their entirety for potential impacts. First, the USFWS determined that the proposed projects may affect, but are not likely to adversely affect, the Indiana bat because any unavoidable effects on the Indiana bat are expected to be discountable or insignificant or completely beneficial. Beneficial effects are contemporaneous positive effects without any adverse effects to the species, and based on best judgment, a person would not be able to meaningfully measure, detect, or evaluate insignificant effects or expect discountable effects to occur.

With respect to bog turtles, the USFWS agrees that each project is likely to result in overall and long-term beneficial impacts; however, some adverse effects may occur during implementation of restoration activities at two of the three sites. The restoration activities proposed at the Cascade Project may affect, but are not likely to adversely affect, the bog turtle because any effects on the bog turtle at this site are expected to be discountable or insignificant or completely beneficial. However, at the Bog Brook Unique Area and Webb site, some of the proposed activities associated with the restoration projects are likely to adversely affect the bog turtle.

The USFWS has evaluated the effects of bog turtle habitat restoration activities including installation of fencing, herbicide application, cutting and removal of vegetation, and combinations of such techniques, and has determined programmatically that such actions are not likely to jeopardize the continued existence of the species. This determination was made in an Intra-Service Biological Opinion (BO) on Bog Turtle Habitat Restoration Practices, dated March 10, 2006, and amended on March 29, 2006. Because the USFWS is actively involved in the development, funding, and implementation of these projects, any incidental take that may occur as a result of these projects has already been anticipated and evaluated in this BO and incidental take authorized in the attached incidental take statement. This finding requires full adherence to the conservation measures and terms and conditions described in the BO (attached).

No effects are anticipated to any other Federally-listed species. In addition, no habitat in the project impact area is currently designated or proposed "critical habitat" in accordance with provisions of the Endangered Species Act. Should project plans change, or if additional information on listed or proposed species or critical habitat becomes available, additional consultation with the USFWS may be warranted. The Indiana bat and bog turtle are listed as endangered by the State of New York and any changes in project plans should also be coordinated with the NYSDEC.

## F. COMPLIANCE WITH THE NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

The Final Revised Procedures for the USFWS for implementing NEPA, published in the Federal Register on January 16, 1997, provide a categorical exclusion for natural resource damage assessment restoration plans prepared under CERCLA when only minor or negligible change in the use of the affected areas is planned. Categorical exclusions are classes of actions which do not individually or cumulatively have a significant effect on the human environment.

The projects described above will result in only a minor change in the use of the affected area. Accordingly, this Restoration Plan qualifies for a categorical exclusion under NEPA.

## G. RESPONSE TO PUBLIC COMMENTS RECEIVED

No comments were received from the public during the comment period of July 10, 2008-August 11, 2008.

**FINAL RESTORATION PLAN**

**BREWSTER WELL FIELD SUPERFUND SITE**
**BREWSTER, PUTNAM COUNTY, NEW YORK**

The Final Brewster Well Field Superfund Site Restoration Plan is approved.

| | |
|---|---|
| _____s/Acting RD_____ | 11-19-08 |
| Regional Director / DOI designated Authorized Official | Date |

## LITERATURE CITED

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**APPENDIX A**

**UNITED STATES FISH & WILDLIFE SERVICE**
**ENVIRONMENTAL ACTION STATEMENT**
**Restoration Plan for the Brewster Well Field Superfund Site**

Within the spirit and intent of the Council on Environmental Quality's regulations for implementing the National Environmental Policy Act (NEPA) and other statutes, orders, and policies that protect fish and wildlife resources, I have established the following administrative record and have determined that the action of the Restoration Plan for the Brewster Well Field Superfund Site, Brewster, Putnam County, New York:

_XX_ is a categorical exclusion as provided by 516 DM 6 Appendix 1 and 516 DM 6, Appendix 1. No further documentation will therefore be made.

____ is found not to have significant environmental effects as determined by the attached Environmental Assessment and Finding of No Significant Impact.

____ is found to have significant effects, and therefore further consideration of this action will require a notice of intent to be published in the Federal Register announcing the decision to prepare an EIS.

____ is not approved because of unacceptable environmental damage, or violation of Fish and Wildlife Service mandates, policy, regulations, or procedures.

____ is an emergency action within the context of 40 CFR 1506.11. Only those actions necessary to control the immediate impacts of the emergency will be taken. Other related actions remain subject to NEPA review.

Other supporting documents (list):

Final Restoration Plan including public comments.

_____ _____
Region 5 NRDAR Coordinator Date

_____ _____
Region 5 NEPA Coordinator Date

_____ _____

Regional Director / DOI designated Authorized Official Date