4786

Department of Energy
Ohio Field Office
Fernald Environmental Management Project
P. O. Box 538705
Cincinnati, Ohio 45253-8705
(513) 648-3155

APR 0 1 2003

Mr. James A. Saric, Remedial Project Manager
United States Environmental Protection Agency
Region V, SR-6J
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

DOE-0260-03

Mr. Tom Schneider, Project Manager
Ohio Environmental Protection Agency
401 East 5th Street
Dayton, Ohio 45402-2911

Dear Mr. Saric and Mr. Schneider:

TRANSMITTAL OF RESPONSES TO COMMENTS AND THE FINAL NORTHERN PINES PLANTATION NATURAL RESOURCE RESTORATION DESIGN PLAN

Enclosed for your approval are responses to comments and the final Northern Pines Plantation Natural Resource Restoration Design Plan. Responses to comments from both the United States Environmental Protection Agency and Ohio Environmental Protection Agency have been incorporated into this plan.

If you have any questions or need further information, please contact Pete Yerace at (513) 648-3161.

Sincerely,

Johnny Reising

Johnny W. Reising
Fernald Remedial Action
Project Manager

FCP:Yerace

Enclosure: As Stated

cc w/enclosure:
R. J. Janke, OH/FCP
G. Stegner, OH/FCP
P. Yerace, OH/FCP
T. Schneider, OEPA-Dayton (three copies of enclosure)
G. Jablonowski, USEPA-V, SR-6J
D. Sarno, FCAB
F. Bell, ATSDR
M. Cullerton, Tetra Tech
AR Coordinator, Fluor Fernald, Inc../MS78

cc w/o enclosure:
R. Greenberg, EM-31/CLOV
E. Skintik, OH/FCP
D. Carr, Fluor Fernald, Inc./MS2
J. D. Chiou, Fluor Fernald, Inc./MS64
T. Hagen, Fluor Fernald, Inc./MS9
T. Poff, Fluor Fernald, Inc./MS65-2
H. Swiger, Fluor Fernald, Inc./MS65-2
S. Walpole, Fluor Fernald, Inc./MS76
E. Woods, Fluor Fernald, Inc./MS65-2
ECDC, Fluor Fernald, Inc./MS52-7

2

RESPONSES TO U.S. ENVIRONMENTAL PROTECTION AGENCY TECHNICAL REVIEW COMMENTS ON THE NORTHERN PINES PLANTATION NATURAL RESOURCE RESTORATION DESIGN PLAN (20911-PL-0001, REVISION A)

FERNALD CLOSURE PROJECT

GENERAL COMMENTS

Commenting Organization: U.S. EPA — Commentor: Saric
Section #: Not Applicable (NA) — Page #: NA — Line #: NA
Original General Comment #: 1

Comment: The document does not provide sufficient soil data to evaluate the suitability of the natural communities and plant species proposed for the site. The soils in the Northern Pines Plantation (NPP) should be described in terms of their physical properties (for example, texture, depth, permeability and drainage, and classification), limitations (such as winthrow hazards, rocky substrates, or fragipans), and spatial distribution. Much or all of this information should be readily available from the county soil survey.

In addition, the document does not discuss the relationship between hydrology, soil types, and proposed restoration activities. Although the document notes that tile drainage systems exist at several locations in the NPP and that "a number of wet areas exist on the property" (Section 1.1.1), it is not clear whether these areas once supported wetlands or whether the proposed wetlands and vernal pools will be artificial habitats created in an upland environment. The document should identify the extent and location of any hydric soils on the property as well as the types and permeabilities of subsurface soil materials in the areas proposed for wetlands and vernal pools.

The soil information is also needed to evaluate the potential effects of any changes in local hydrology on existing plant communities in the NPP. For example, Section 2.1 notes that (prior to harvesting) many of the pine trees in the plantation were dead or highly stressed because of disease and poor growth rates. However, Section 2.2 indicates that much of the NPP is poorly drained, a factor that also could have adversely affected the health of the pine plantation and contributed to the observed heavy mortality (that is, the pines were planted off site). Additional changes in hydrology resulting from capping the tile drainage network or altering surface drainage patterns could cause further deterioration of the remnant pine stands in the NPP.

Response: Soil Surveys for Hamilton and Butler Counties in Ohio have been consulted throughout the development of the Restoration Plans for the Fernald Closure Project (FCP). Soils in the Northern Pines Area and other undisturbed areas of the FCP are rich in topsoil and have no restrictions precluding restoration of the areas. Specific information has historically not been included in the NRRDP, but it is agreed that the information found in soil surveys is valuable information that would help a reviewer better understand the site and restoration activities proposed.

The pine plantation was planted on poorly drained soils that would have precluded the pines if the complex system of drain tiles hadn't been installed prior to establishment of the Fernald Site. The exact location of historic wetlands in the Northern Pines Project area is not known; however, it appears that a great deal of the area did contain poorly drained

areas and wetland features. The NRRDP proposed the installation of wetland and vernal pool features based on the existing hydrology of the area. The design location of wetlands and vernal pools was based on observed field conditions in the project area over a number of years. The creation of wetland and vernal pool features anywhere hydrology allows is consistent with the overall restoration goals established by the Fernald Natural Resource Trustees (NRTs) in the Natural Resource Restoration Plan. It is widely accepted that a great deal of this region once was covered with wetland ecosystems.

The poor condition of the pine plantation has been studied in the past by Miami University and is largely attributed to the presence of the Diplodia Tip Blight. A secondary problem with the pines is the overcrowding of the trees. It is anticipated that the plugging of the drain tiles carried out during the restoration work will result in more surface water entering the project area and further impacting the health of the pines over time. For example, more water will be forced onto the ground surface and will flow through and stand in the pine stands located in the southwest corner of the NPP. Some of those pines will certainly drown; leaving an opening for conversion to hardwoods. This is not an issue of concern with DOE or the Fernald NRTs.

Action: Soil survey information will be added to the text of the NRRDP.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: NA Page #: NA Line #: NA
Original General Comment #: 2

Comment: The document should provide additional information regarding future management of white-tailed deer at the NPP and proposals for "herbivore control" (Page 1-4, Line 7). The document does not contain information on the current estimated herd size in the NPP, describe diurnal and seasonal migration patterns of ungulates in the area, or discuss known problems with deer browsing of forest vegetation in the area. Additional information should also be provided to support the concept of creating "deer travel corridors" as a means to reduce herbivory in the restoration area. Creation of additional edge habitat in the NPP is likely to attract additional deer to the area, and it is not clear how deer would be contained in such travel corridors to prevent excessive browsing on the planted trees, shrubs, and herbaceous vegetation. If deer browsing is anticipated to be a severe problem at the NPP, it may be appropriate to use exclusion fencing in small areas in order to allow establishment of the new plantings and to expand use of tree shelters and other individual plant protectors. The document should also discuss whether future deer harvests or other reproductive control measures are appropriate to maintain the health of restored natural communities at the NPP.

Response: The DOE has secured a Deer Management Consultant to evaluate the white-tailed deer movement and feeding habits on site and provide recommendations on specific design approaches and overall site management strategies. Site Deer Population data has not been collected through infrared imaging or aerial counts at this time. DOE has rejected the use of infrared photography in the past due to inaccuracies with the technology. It is DOE's understanding that miscounts can occur from the identification of other heat-producing sources. Road surveys over a number of years by DOE have established the transient deer population to be approximately 80 individuals. The white-tailed deer population does not migrate like other ungulate populations, but there is significant localized movement from bedding areas to feeding areas. The deer population on the site is largely transient due to the large amount of available food in surrounding agricultural fields. Travel patterns and

feeding habits have been observed over a number of years as a result of field investigations. Most areas of the site already have a significant amount of edge habitat and deer movement is already very significant.

The deer population in the Northern Pine Plantation has been observed for more than two years and while the area does have significant deer activity, there has never been a browse line observed in the area. Any plant material that is not protected with repellants and tree tubes could be in jeopardy from rubs or browse. The use of the project area as a travel corridor has been well documented in the past. The relatively small size of the area, the presence of existing fencing, and the observed past use of the area as a travel corridor, make the establishment of well-defined travel corridors through the area feasible. Establishing travel corridors for the deer was recommended by DOE's Deer Management Consultant as a new measure to attempt to reduce damage to planted material. Other recommendations made by DOE's Deer Management Consultant include placement of plants that are not preferred by the deer on the outer edges of patches. Plants that are considered preferred species are to be placed toward the middle of a patch. Past restoration projects have designed plantings to cover an entire area with trees and shrubs and significant browse and rub damage have occurred. This design was specifically altered to concentrate plantings and allow larger corridors for movement of the deer. This is a new strategy that is being tested on this project in an attempt to further reduce deer damage. It is not anticipated that the establishment of clover in the corridors will draw more deer to the project area. As mentioned above, deer repellent is sprayed on the surface of plants several times a year and also applied to the root zone using systemic repellants.

Measures such as fencing and reduction of the deer herd through various means have been discussed for several years at the site. As documented in DOE's Deer Management Plan, there are no plans to implement any reduction in the number of deer as a fundamental component of site restoration. Discussions were held with the District Supervisor of the Ohio Department of Natural Resources in the Summer of 2002 made it clear that there was no justification for any extra deer harvests on the FCP. One area of planting in the Northern Pines (approximately 2,800 linear feet) has been enclosed with 9-foot exclusion fencing. Large-scale installation of fencing is not a suitable alternative to DOE for the management of deer damage on the FCP and further installation of fence is not considered practical at the FCP. It should be recognized that the plant material that the NRT's are installing is the most vulnerable when it comes to deer impacts. It is expected that as more restoration projects are completed, there will be less concentration of the deer herd and less damage experienced in the restored areas.

Action: Provide a copy of the FEMP Deer Management Plan for reference on this subject.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: NA Page #: NA Line #: NA
Original General Comment #: 3
Comment: In general, the goals for restoration of natural plant communities at the NPP would be better served by minimizing edge effects in forest and grassland habitats at the plantation. Although the report specifies that "more pronounced edge habitat" is a goal of the restoration design (Section 2.2), habitat fragmentation is a well-known problem affecting the health of native forest, grassland, and wetland communities in the Midwest. Fragmented habitats typically favor generalist species such as the white-tailed deer, raccoon, and blue jay over species that require large blocks of contiguous habitat for

breeding and survival. Habitat fragmentation tends to reduce overall habitat quality for many species by increasing nest parasitism and the predation rates for edge-sensitive species such as neotropical migratory songbirds. In addition, fragmented forest and grassland patches are more susceptible to invasions by non-native shrubs such as the amur honeysuckle (*Lonicera maackii*) and multiflora rose (*Rosa multiflora*), which generally require a lightly shaded environment normally found in edge habitats. Higher numbers of frugivorous birds and mammals that disperse the seeds of non-native plants may also be attracted by edge habitats.

To the extent possible, the spatial designs of habitat restoration projects at the NPP should be developed in the context of anticipated restoration activities associated with the Northern Woodlot Enhancement and Wetland Mitigation Phase II Projects. In addition to providing more interior habitat for edge-sensitive species, this approach would facilitate more effective resource management of the larger Northern Woodlot Restoration Project in the future (for example, prescribed burns could be conducted for larger prairie plantings rather than many smaller burn units). Developing the restoration design within a larger spatial context may also result in less pronounced transitions between community types, thus minimizing edge effects.

Response: Habitat fragmentation is a major consideration in the development of goals and objectives for restoration at the FCP. These goals for restoration have been established through extensive negotiation between the Fernald NRTs, who include the U.S. Fish and Wildlife Service, Ohio EPA and DOE. Conceptual restoration goals are documented in the Natural Resource Restoration Plan. Fundamental goals for restoration of the FCP include the following: the establishment of a contiguous prairie in the central, eastern and southeastern portions of the FCP; the establishment of new wetland features as part of each restoration project to the degree hydrology will permit; and the expansion of the contiguous, wooded corridor along Paddys Run Stream. There is no disagreement with the commentor's assessment of the negative aspects of edge and fragmented habitats. Extensive edge habitat and fragmented habitat is already prevalent at the FCP. The available funding for the restoration of the FCP will not permit the establishment of only forest systems on all remaining areas of the site due to the high cost of tree and shrub installation.

Remaining areas of the site (e.g., Northern Pines), that are not adjacent to the Paddys Run Stream and are not part of the contiguous prairie planned for the site, will have to be a combination of restored habitats to satisfy other goals of the plan and work within funding constraints. The priority for restoration of areas like the Northern Pines is the creation of new wetland features and expansion of existing deciduous woodlots to reduce the amount of fragmented habitat already present in perimeter areas of the site. Open areas that are seeded with native prairie grasses are designed to replace non-native grasses with native species and to create short-term habitat diversity. The goal of seeding prairie grasses in areas like the Northern Pines is not to create a prairie that will managed over the long term.

There are a number of additional site-specific considerations that went into the design for the Northern Pines. The decision to increase the density of shrub plantings along the perimeter of forest patches was in part to increase the chances that native vegetation can out-compete invasive shrubs such as Amur Honeysuckle. For example, a well-established population of turkey has been present in the NPP for many years. The NPP has many components that are favorable for them. The pines currently provide a roosting area. The

planting area provides an open area to forage and there is plenty of water where they will not feel threatened. The design for the NPP has the potential to continue to provide good habitat for the turkey.

It is not anticipated that all invasives can be removed from restored areas, but it is expected that that control of invasive species of shrubs such as bush honeysuckle and multiflora rose will allow a better chance for native plants to become established.

Action: No action.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: NA Page #: NA Line #: NA
Original General Comment #: 4

Comment: The document refers several times to the presence of field tiles that drain the site and to a plan to remove or plug these drain tiles. However, Figures 1-1 through 1-4 do not show the locations of the known drain tiles and do not identify the areas that the tiles are believed to be draining. Also, the document provides no discussion of the effects of drain tile removal, especially as they relate to the planting plan. The document should (1) identify the locations of known drain tiles and the areas believed to be drained by these tiles, (2) discuss the effects of drain tile removal on the planting plan, and (3) provide a specification for removal or plugging of drain tiles.

Response: The exact location of all drain tiles were not investigated and reported in the NRRDP. The agreement between the NRTs regarding drain tiles in restoration project areas was not to identify all pipes prior to design of the project. It was expected that field tiles would be encountered frequently during grading work carried out in perimeter areas of the FCP. Some specific locations in the NPP were known at the initiation of design and the locations of planned wetlands and vernal pools were selected based on the presence of a major tile that could be plugged. There were numerous tiles throughout the field in complex configurations. Generally, drain tiles come from multiple directions to a single location with one line then running to the next juncture as they move toward the southeast corner of the NPP. This configuration became more evident as grading work was carried out in the Fall of 2002.

The areas where grading will be carried out to create new wetland and vernal pool features will not be planted with trees and shrubs. The area of existing pines in the southwest corner of the NPP will experience more flooding due to the elimination of drain tiles and the creation of more surface flow. As discussed above, the loss of additional pines is not a matter of concern to the Fernald NRTs. The impact of the loss of additional pines will result in these remnant stands becoming less of a monoculture over time and gradually moving towards a native population. Planting plans were designed so that the Beech-Maple components were located in areas that have more poorly drained soil conditions. The Oak-Hickory components were designed in areas that were better drained.

It was estimated that there would be at least one drain tile found at each of the excavation sites for the wetlands and pools. Plans were to plug any outlet drains encountered during excavation by mechanical crushing and soil compaction. In a limited number of cases in the past, concrete has been used to plug drain tiles. The exact method was to be decided in the field. Both methods of plugging have proved effective in past restoration projects at the site.

Action: Revise text to clarify approach to plugging drain tile when they are encountered.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: NA Page #: NA Line #: NA
Original General Comment #: 5

Comment: The document described a plan for creation of vernal pools with side slopes of 3H: 1V (see Section 3.2, Page 3-1, Lines 24 and 25). These slopes are very steep, even steeper than the typical side slopes of residential area detention ponds. Therefore, the proposed design of vernal pools with such steep side slopes is questionable. Wetland designs typically include very shallow slopes for wet areas to promote diversity of plant life. Steep slopes do not provide a sufficiently gentle hydrologic gradient for establishment of a wide variety of plant life. The document should propose development of vernal pools with shallower slopes or should provide justification for development of pools with steep sloes. In addition, it appears that the vernal pools will be constructed in natural drainage swales. One option would be to create the pools by constructing a series of checks across the swales similar to the checks that beavers create when they build their dams. The earth needed could be obtained by creating an excavation area just upstream of the checks.

Response: The reference to 3H:1V is in error in the text. The correct slope is 5H:1V and is provided in the detailed drawings provided in the design. The slope would be a more gradual down gradient. The planned location of each pool was identified in the field after observation of site hydrology over a number of years. The locations were selected at known surface flow areas as observed during rain events. Additionally, there was a need to provide drainage for water coming off the On-Site Disposal Facility (OSDF). Ponds 4, 5, and 6 collect not only surface water from the NPP, but also water from OSDF drainage ditch. These pools were formed as indicated in your comment by cutting soil and creating swales and check berms. The pools will allow any sediment to settle out and the water to be filtered in shallow grass areas.

Action: Correct slope values in Section 3.2 of the NRRDP.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: NA Page #: NA Line #: NA
Original General Comment #: 6

Comment: Although the document discusses mulching and follow-up monitoring of seedlings and saplings, it does not indicate whether any measures are necessary to control competing vegetation (particularly grasses) in order to ensure adequate establishment of the planting stock. Follow-on herbicide applications are discussed for control of invasive shrubs; however, the document does not discuss site preparation activities (mechanical preparation or use of herbicide) for areas to be seeded or planted with bare-root seedlings. The document should provide a more complete discussion of follow-on activities, including any measures necessary to control competing vegetation and the site preparation activities for areas to be seeded or planted with bare-root seedlings.

Response: Bare root seedlings are overplanted in anticipation of higher mortality due to competition. There is no mulching or follow-up monitoring of seedlings after they are planted. The project area was prepared in the spring of 2002 by disking. Soil conditions present after clearing of the pine plantation did not require mulching of the soil prior to seeding. The seed mix for upland and wetland areas was installed using a seed drill in the Spring 2002 and areas disturbed during grading were seeded in the late Fall 2002. Selective herbicide

6

is used routinely in restored areas as needed to control vegetation that may compete with native grasses. This has been a general practice on-site for restoration areas and will be applied in Spring 2003 as needed.

The potential for the cover crop of rye grasses to provide competition with the planted shrubs was considered in the early stages of the development of the NRRP, but it was believed that the shrubs would become established before the grasses became fully established. This has proven to be true in areas of the site where deer pressure and/or drought have not severely inhibited shrub growth (e.g., Area 8, Phase I Restoration Park). Some areas of the site have demonstrated that shrubs are not out-competing native grasses. Upcoming discussions between the NRTs will focus on the possible conflicting endpoints of the prairie grasses and shrub patches. This issue will continue to be discussed in early 2003 as a revision of the site wide seeding specification is considered.

Action: The grass cover will be addressed by the Natural Resource Trustees and any changes will be addressed in updates to the site-wide seeding specification and future NRRDPs.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: NA Page #: NA Line #: NA
Original General Comment #: 7

Comment: The document frequently refers to various activities such as plantings or vernal pond development that were scheduled for (and possibly completed in) summer and fall 2002. Given that the document is dated October 2002, it is not clear whether these activities have already been completed or will be completed in accordance with the proposed schedule. The dates identified for restoration activities should be checked and revised as necessary.

Response: The cutting of the pines and seeding of areas considered uplands were completed in the Spring of 2002. A separate drawing for the clearing the Pine Plantation, was approved by the NRTs in late 2001. The grading of the ponds was scheduled for the Fall of 2002. The design drawings for the grading work were issued and approved by the NRTs prior to the initiation of grading work and the issuance of the complete NRRDP. The grading work was done in October 2002 with the exception of the small amount of grading required to install the drainage swale crossings. So the dates provided in the NRRDP are correct.

Action: No action.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: NA Page #: NA Line #: NA
Original General Comment #: 8

Comment: The document contains various tables presented in particular sections and appendixes. Some of these tables include blank cells. The meaning of these blank cells is not clear. For example, Table 2-3 and tables in Appendix C contain a column titled "Placement." Cells in this column either contain the term "edge" or "wet" or are blank. It is not clear where species for which no placement is specified will be planted. Therefore, all blank cells in table columns titled "Placement" should be explained. This could be done using a series of footnotes.

Similarly, in the same tables, columns titled with a series of dates (such as "2002 Fall") contain blank cells. It is assumed that a blank cell in such a column means that a particular species will not be planted during the time period indicated. However, for clarity, blank

cells in such columns should be explained. Again, this could be accomplished using footnotes.

Response: Agreed. The column contained information that was used in planning the field implementation of the project, but was not required for the NRRDP. The placement column should be removed from the table. The other tables were taken from larger tables and the blanks helped to maintain a consistency that aided in transfers of data. The tables could be modified or footnoted to make them more readable.

Action: Modify tables in Section 2 and Appendix C to make more readable in the NRRDP.

SPECIFIC COMMENTS

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 1.1.2 Page #: 1-2 Line #: 21 and 30
Original Specific Comment #: 1
Comment: The text should be revised to clarify whether the "rows" of specific pine species are or were composed of several rows (that is, a strip) or randomly planted "clumps." The text should also be revised to specify whether the remaining patches of unharvested pines have been thinned to improve their growth rates and, if so, what stand density was achieved.

Response: Agreed. Wording can be adjusted to reflect that there are alternating strips of pine rows that are 50 to 70 feet in width. The remaining pine clumps were not thinned. No additional timber stand improvement was accomplished at this time.

Action: Adjust the text to say: "The pine plantation consisted of alternating strips of Austrian pines (*Pinus nigra)* and white pines (*Pinus strobus*). Each 'strip' is approximately 50 to 75 feet in width and is composed of several densely planted straight rows of the same pine species." Text will also be added to identify that only the areas cleared for planting were cut.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 1.1.2/1.2 Page #: 1-3 Line #: 4 to 6 and 19 to 20
Original Specific Comment #: 2
Comment: The text should be revised to clarify where the deciduous trees and shrubs will be planted. Section 1.1.2 states that all pine areas cleared during the early 2002 harvest will be (or have been) planted with native grasses. However, Section 1.2 states that "native deciduous trees and shrubs will be planted among remnant patches of Pines." It is not clear whether this means that the deciduous trees and shrubs are to be planted in the understory of the pine stands or in the areas that were clear-cut. If the latter is the case, the text should be revised to discuss the potential effects of competition with native grasses on the growth and survival of the trees and shrubs.

Response: The intention was not to imply that plantings would be made inside the pine stands (in the understory); but rather, the plantings would create new hardwood stands between the pine stands. The term "among" as referenced above is not intended to mean under the pines, but rather between the remaining clumps of pines. All areas that are planted in trees and shrubs will also be seeded with native grasses. As referenced above, the increased shrub plantings on the perimeter of the remaining pines are intended to provide competition for

invasive shrubs that will invade this type of edge habitat. The issue of planting native grasses and shrubs is discussed in the response to U.S. EPA General Comment No. 6.

Action: Change wording from "among" to "between" in Section 1.2.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 1.2 Page #: 1-3 Line #: 23
Original Specific Comment #: 3

Comment: Wild grape (*Vitis spp.*), although it is an invader of disturbed areas, is generally not considered to be an invasive species in the same context as amur honeysuckle, multiflora rose, or garlic mustard. It may be desirable to control grapevines as part of the establishment of a new forest stand or if grapevines have caused excessive damage to mature trees at a given location. However, its complete "extirpation" (Page 5-2, Lines 23 and 24) from the NPP is not necessary and would in fact eliminate a valuable source of soft mast for many wildlife species.

Response: Wild grape (*Vitis spp.*) is on the noxious weed list in Ohio. The NRTs have identified Wild grape as a species that should be controlled to the degree practical on the FCP. Grapevine had taken over large areas of the Austrian pines and is choking out large sections of the deciduous forest adjacent to the pine plantation. Complete extirpation may have been too strong a word for the text. Our intention is not to totally eliminate the presence of the specie on the site, but rather to bring it under control.

Action: Change wording to reflect that control of the aggressive as determined practical is the intent of the actions.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 1-3 and 1-4 Page #: NA Line #: NA
Original Specific Comment #: 4

Comment: Figures 1-3 and 1-4 present the restoration design plan for ponds 1 and 2 and for ponds 3 through 7, respectively. Both figures contain too much detailed information to be clearly presented on an 11- by 8.5-inch page. For example, it is difficult to determine where the two main community types (oak-hickory and beech-maple forests) are currently located and where additional trees are to be planted. Figures 1-3 and 1-4 should be reprinted on C- or D-size sheets.

Response: These drawings were inserted as 8.5 by 11-inch only for ease of packaging in the formal submittal. Scaled construction drawings were also produced and can be made available to U.S. EPA.

Action: Copies of the scaled construction drawings of Figures 1-3 and 1-4 will be provided to U.S. EPA.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 2.0 Page #: 2-1 Line #: 3 and 8
Original Specific Comment #: 5

Comment: The text refers to a "reduction of mono-culture acreage." For clarity, the text should be revised to specify that the "mono-culture acreage" referred to is pine. The phrase could be rewritten as "mono-culture (pine) acreage." Also, the text does not identify the acreages of the pine patches remaining after the reduction of pine acreage, the acreages of the hardwood patches to be planted, or the prairie planting acreages. This acreage information should be presented to allow evaluation of the proposed habitats for wildlife and other conservation goals.

Response: The text can be clarified to ensure that the reference to monoculture acreage is referring to the Pines. The NPP covered approximately 43 acres prior to clearing. Approximately 19 acres of pines were cleared. Because not all of the area was covered in pine trees, it is estimated that approximately 25 acres was left open after clearing equating to approximately 18 acres remaining in standing pines. Planting will cover 18 acres in trees and shrubs, leaving approximately 7 acres to be converted to wetland or vernal pool or planted in prairie grass.

Action: Revise text to clarify reference to monoculture and provide the acreage discussed above.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 2.1 Page #: 2-1 Line #: 11 to 14
Original Specific Comment #: 6

Comment: The text states that the Natural Resource Trustees (NRT) agreed to (1) a cutting design for the NPP and (2) the presence of "several islands of pines that were not cleared." However, the text does not cite any references for the agreements. Section 2.1 should be revised to cite references for these agreements.

Response: Agreed.

Action: Add text referencing the NRT approval on the plan for clearing in the NPP.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 2.1 Page #: 2-1 Line #: 24 to 34
Original Specific Comment #: 7

Comment: The text discusses Figure 2-1 with regard to the presence of pines "in four distinct groupings" at the NPP. However, Figure 2-1 does not clearly identify the four distinct groupings of pines referred to in the text. Figure 2-1 should be revised to clearly identify these pine groupings. In addition, for added clarity, Figure 2-1 should be revised to add a north arrow and the dates (month and year) associated with the "before" and "after" portions of the figure.

Response: The four remaining groupings of pines are all present on the after photo presented in Figure 2-1. The fourth clump of remaining pines is adjacent to the existing deciduous woodlot on the north side of the project area. Figure 2-1 is looking from the northeast towards the southwest. The figure will be revised to include the direction in which the photo was taken.

Action: Add text to Figure 2-1 to identify direction (looking south to southwest).

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 2.2 Page #: 2-2 Line #: 10 and 11
Original Specific Comment #: 8

Comment: The text states that "the topography for the site is gently sloping." However, as shown in Figure 1-2 (which is referenced in the text) and as discussed elsewhere in the text, the northern part of the NPP is very steep. The text is Section 2.2 should be revised accordingly.

Response: It is true that the hill drains down onto the footprint of the pine plantation, but the area where work is to be accomplished is comprised of gently sloping topography. Section 1.1.1 of the NRRDP describes the topography of the project area and does refer to the steeply sloped area in the northern part of the NPP.

Action: No action.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 2.2 Page #: 2-2 Line #: 16 to 21
Original Specific Comment #: 9

Comment: The text discusses various drainage paths and swales in the NPP and refers to Figure 1-2. However, Figure 1-2 does not clearly present the drainage paths and swales referred to in the text. Figure 1-2 or the text should be revised to resolve this apparent inconsistency. Preferably, Figure 1-2 should be revised to clearly identify the drainage paths and swales.

Response: Agreed. Figure 1-2, though used as a reference of the area of discussion, does not contain any information other than slight changes in the topographic lines to indicate the location of drainage swales.

Action: Remove the reference to Figure 1-2.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 2.3 Page #: 2-2 and 2-3 Line #: 28 to 34 and 1 to 7
Original Specific Comment #: 10

Comment: The document states that trees and shrubs will be planted in "more densely grouped" patches to minimize deer browsing. The document also indicates that the density of the plantings will not deviate from that used in past projects (650 plants per acre or roughly an 8- by 8-foot spacing between plants). The text should be revised to discuss the proposed spatial arrangement and density of plants in these clusters of patches in terms of how they will affect stand growth and the time required to achieve full canopy closure.

Response: The number of trees and shrubs used in forest restoration work at the FCP was established with the original intent to cover the entire area cleared with the exception of the wetland and vernal pool features and the access paths. The decision was made in development of the NRRDP to concentrate the same number into tighter groupings to leave large travel corridors for deer between the patches. So the number overall is the same but the density within each planting has increased. The restoration design agreed to by the NRTs includes the use of 650 trees per acre and is based on 160 saplings, 90 understory and 400 seedlings per acre. Based on site experience, mortality of the seedlings is expected to be approximately 50 percent. Canopy closure is expected to take at least 20 years, but may require less time in the NPP due to the more concentrated planting in this area. The

competition between the trees to achieve a place in the canopy will increase growth once the canopy begins to close.

Action: The text will be clarified as noted in the response.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 2.3 Page #: 2-5 Line #: 2 to 5
Original Specific Comment #: 11
Comment: The text should be revised to clarify whether the intent of the restoration design is to establish oak-sugar maple forest types or oak-hickory forest types. Based on the numbers of *Acer saccharum* seedlings or trees identified in Appendix C for planting in each "patch," it appears that sugar maple will be a dominant or co-dominant species in the stands.

Response: The FCP lies in a transition zone between the oak-hickory and beech-maple forest types. Therefore, planting lists are adjusted to account for this transition. *Acer saccharum* is a component of all local forest types, but are more concentrated in the beech-sugar maple forest type. *Acer saccharum* is present in the oak-hickory forest type, but does not define that forest type as a dominant species in the same way oaks and hickories do. Our forest components were developed after review of other stands on site and the local area and after review of the literature available regarding forest types historically present in this region. The NPP will contain some areas of both forest types. The goal of restoration is to mimic the early stages of these stands, to reflect the components of our reference site.

Action: No action.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 2.3.1 Page #: 2-7 Line #: 4
Original Specific Comment #: 12
Comment: Table 2-1 presents the "upland mesic prairie seed mix" proposed for use as part of the restoration. The table has a column titled "CW," which refers to the "coefficient of wetness." However, Table 2-1 does not define this term or explain how the species-specific CW values relate to specific planting locations. Table 2-1 and the text of Section 2.3.1 should be revised to present this information.

Response: The coefficient of wetness was used in developing the site specification for prairie seed mixes, but was not a factor in determining specific areas for seeding within the NPP. The area for mesic and wetland grasses was determined solely by the presence or absence of standing water during rain events or if a water structure was to be installed within that footprint. The information is not critical with respect to the location of specific seeding activities and should be removed from the table.

Action: Revise table to remove information regarding CW values.

Commenting Organization: U.S. EPA — Commentor: Saric
Section #: 2.3.1 — Page #: 2-7 and 2-8 — Line #: NA
Original Specific Comment #: 13

Comment: Based on the stated CWs, a number of species appear to be placed in inappropriate planting mixes. For example, *Aster novae-anliae silphium perfolatium* and *Verbena hastate* in Table 2-1 are typically wet mesic prairie species, and *Monardia fistulosa, Ratibida pinnata,* and *Rudeckia hirta* in Table 2-2 are upland mesic to dry mesic prairie species. Tables 2-1 and 2-2 as well as the document in general should be reviewed and revised as necessary to assign species to appropriate planting mixes.

Response: The seed mixes presented in the NRRDP were developed through consultation by the NRTs to take into account that most of the areas covered within a planting area are not homogeneous. The water will not stand in 100 percent of the area nor will 100 percent of the area be totally dry. There will be pockets of differing habitat within the same area. Past performance has shown success with various forbs in other restored areas. The NRTs have already begun to review the existing seed mixes to facilitate a revision of the sitewide seeding specification. There is consideration being given to the elimination of certain forbs due to poor performance in a number of restored areas.

Action: Seed mixes being reviewed by NRTs and changes to the site wide seeding specification will be made accordingly. Consider comments in evaluation of seed mixes.

Commenting Organization: U.S. EPA — Commentor: Saric
Section #: 2.3.3.1 and 2.3.3.2 — Page #: 2-9 to 2-12 — Line #: NA
Original Specific Comment #: 14

Comment: The total numbers of individuals identified for the plantings do not match the values given in the Appendix C tables. For example, in Table 2-3, 250 sugar maple individuals are proposed for planting over a 3-year period (2002 through 2004). However, in Appendix C, 960 sugar maple seedlings are proposed for planting over the same 3-year period. To eliminate confusion, the planting numbers should be deleted from Tables 2-3 and 2-4, and the correct numbers should be presented in Appendix C. The tables in Appendix C should also be clearly labeled to indicate whether the numbers presented pertain to containerized/ ball and burlap plants or bare-root seedlings.

Response: The numbers for the saplings and shrubs do agree between the tables; however, Tables 2-3 and 2-4 do not contain the seedlings.

Action: Add text to identify Tables 2-3 and 2-4 as saplings and shrubs only.

Commenting Organization: U.S. EPA — Commentor: Saric
Section #: 3.2 — Page #: 3-1 — Line #: 21 to 28
Original Specific Comment #: 15

Comment: Section 3.2 discusses two vernal pools that "will be constructed along the remaining stand of pines trees in the northern portion of the NPP." Section 4.2 (Page 4-1, Lines 26 to 33) refers to two vernal pools that were "constructed during late Summer 2002." It is not clear whether the two sets of vernal pools are the same or different. Sections 3.2 and 4.2 should be revised to clarify this matter.

Response: Section 4.2 should be revised. These pools were not constructed until after the submission of the plan.

Action: Change text in Section 4.2 to: "Two vernal pools to be constructed during the fall of 2002."

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 4.1 Page #: 4-1 Line #: 7 to 23
Original Specific Comment #: 16
Comment: Section 4.1 discusses the proposed planting and patch design. The locations and arrangements of the different planting patches and planting plots are difficult to visualize. The discussion refers to "patch pages" presented in Appendix C, but this reference does not clearly indicate that Appendix C contains a figure showing the proposed planting patch and plot locations. Section 4.1 should be revised to specifically cite the figure presented at the end of Appendix C that shows the proposed planting patch and plot locations.

Response: Agreed.

Action: The text will be revised to refer to the figure presented in Appendix C.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 4.2 Page #: 4-1 Line #: 29 to 33
Original Specific Comment #: 17
Comment: The text should be revised to clarify whether the plugs will be planted on the margins of the vernal pools or throughout the basins of the pools. If the pools hold water to their anticipated depth (3 feet), plug planting throughout their basins could result in excessive mortality of species more suited to wetland margins.

Response: Agreed. The plugs will be planted along the edge of the water and on banks above the water line. All of the plugs are not adaptive to large amounts of standing water. Care will be taken to plant the forbs, rushes, and grasses in appropriate areas around the pond and in the swales.

Action: Change the text to address the plug placement.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 4.3.1 Page #: 4-2 Line #: 10 to 13
Original Specific Comment #: 18
Comment: Fall planting of bare-root seedlings in waterlogged soils or soils prone to frost heave is generally not recommended. These soils should be planted during spring or periods of drier conditions. Section 4.3.1 should be revised accordingly.

Response: Planting of bare root seedlings after they go dormant has been a longtime practice of the Forest Service. The bulk of their planting is done in February. The success rate of their plantings has generally been in the eighty percentiles. There is no indication that the soils of this area are prone to frost heave. The areas being planted do contain some grass coverage that will help prevent movement of soils during frost.

Action: No action.

Commenting Organization: U.S. EPA | Commentor: Saric
Section #: 4.3.3 | Page #: 4-2 and 4-3 | Line #: 34 and 1 to 3
Original Specific Comment #: 19

Comment: Section 4.3.3 discusses the potential availability of specific plants and the procedures that will be followed to find an appropriate replacement if a specific plant is not available. Specifically, the text states that "each tree and shrub species has been assigned a substitution category that any substitution must meet in order to fulfill the same habitat role as the original species." However, specific substitution categories are not identified in the text. The document should be revised to identify the specific substitution category that each plant has been assigned. Also, each of the substitution categories should be summarized and referenced.

Response: Early tables for development of the forest components contained a column identifying the category for each species, but the column was deleted in later versions. On past restoration projects, substitutions have been coordinated by the restoration ecologist without consultation of the NRTs as long as a one for one substitution with a species of the same function is being made. Function is provided in Tables 1-3 and 1-4. Substitutions that are not one for one or involve different functions are discussed by the NRTs on a case-by-case basis.

Action: Clarification on the substitution process will be provided in the text.

Commenting Organization: U.S. EPA | Commentor: Saric
Section #: 4.3.4 | Page #: 4-3 | Line #: 6 to 9
Original Specific Comment #: 20

Comment: The text indicates that specific planting locations for species will be determined by the restoration ecologist and then adjusted according to site-specific hydrologic and topographic conditions. However, Section 4.1 specifies that trees and shrubs will be located in planting plots "without the identification of a specific planting location for individual plants." Section 4.3.4 also indicates that seedlings will be randomly placed in the plots under the supervision of the restoration ecologist. The text should be revised to clarify whether the planting locations will be randomly or systematically chosen. The text should also discuss how the approach to be used would affect the planting densities discussed in other sections.

Response: Within a large planting patch, the restoration ecologist will identify a smaller area where planting will occur on a given day. Planting will be under direct supervision of the restoration ecologist. Patch boundaries are flagged. Plants are then placed within the identified planting area for that day. The restoration ecologist will designate a particular grouping of plants to be installed in a designated area with guidance on spacing. Individual plant locations are not designated within a patch. In some cases, adjustments may be directed by the restoration ecologist given a specific field condition (e.g., physical barrier, hydrology); however, this is generally considered before a planting area is planned on a given day.

Seedlings are planted randomly. Laborers are given the number of each species of trees to be planted within an area. The seedlings are mixed together in a planting bag. The laborers are not able to distinguish between seedlings and therefore plant the seedlings randomly as they pull them from the bag. They are planted at a given density and within a given area. The trees are selected for the area but the plantings are random.

Action: The text will be revised as needed to clarify the planting approach as discussed above.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 5.1 Page #: 5-1 Line #: 14 to 17
Original Specific Comment #: 21
Comment: Given the stated planting densities, the anticipated seedling mortality rate of 50 percent would appear to conflict with the goal of developing a forest canopy within a 5-year period (Page 5-2, Lines 29 to 34). A planting density of 160 saplings per acre will result in a closed forest canopy much more slowly, particularly if plantings are clumped as proposed in the document. If the anticipated mortality rate for seedlings cannot be reduced through site preparation, planting techniques, or protection from herbivory (deer and rabbit browsing), an increase in the planting density for bare-root tree seedlings should be considered. Interplantings of nuts could also be used to increase the density of seedlings and decrease the overall effects of browsing and seedling mortality.

Response: It has never been a goal of the restoration work at Fernald to establish a forest canopy within a 5-year period. The NRTs have agreed that it will be more than 20 years before any closed canopy occurs. The number of stems in the restoration design does not reflect a density that will produce a closed canopy quickly. The design of these plantings is to jump start succession. The numbers are not the numbers that would be found in a developing forest; they are the numbers of stems per acre found in a mature forest. The high number of seedlings are meant to augment that number, but will not provide the density needed to close the canopy quickly. The anticipated mortality rate is based on site-specific information.

Action: No action.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 5.1.1.2 Page #: 5-2 Line #: 10 to 11
Original Specific Comment #: 22
Comment: The text states that at least 50 percent of the area will have native grass cover at the end of the first growing season. This is an aggressive goal and may not be appropriate for the long-term mix of native grasses. Typically, a heavy mixture of annual native grass would be planted at the expense of perennial native grasses. The restoration ecologist should identify a mixture of annual and perennial native grasses that is appropriate for the local ecosystem, and the text should be revised to reflect the expected coverage of native grasses after the first growing season.

Similarly, the text calling for "90 percent coverage of grasses at the end of the first growing season" appears to be unrealistic. Such a goal could be achieved only by overseeding, and overseeding generally results in less than optimal growing space for newly germinated seedlings and slower establishment of native perennials. The text should be revised to explain how the goal will be met without introducing these potential problems.

Response: The text should state the goal as having 50 percent native cover at the end of the monitoring period. As stated in the text, the first year's growth will be cover crop. The requirement for 90 percent cover is targeted towards the cover crop to ensure that the amount of bare soil prone to erosion is minimized. The cover crop will provide the initial ground cover and the second and third year should result in the establishment of the prairie

grasses. Although the prairie grasses do not usually become obvious until the third year, their presence can be detected in year one and two with close inspection. The native grasses should be able to crowd out the ryes and become dominant. This process has been observed in a number of restored areas on site.

The seed mixes have been developed through consultation with the NRTs and with input from outside expertise in this area. There is no concern about the appropriateness of the native grasses in the mix. Although, the cover crop has been adjusted in the past, it also appears to be working well in our restored areas. The number of forbs currently in the seed mix is under review and may be reduced given the results of seeding efforts on the site.

Action: The text will be revised to state that 50 percent native cover is the goal at the end of the monitoring period. The NRTs will continue to evaluate the seed mix in early 2003 leading to revision in the site-wide seeding specification later in the year.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 5.1.2 Page #: 5-2 and 5-3 Line #: 29 to 34 and 1 to 3
Original Specific Comment #: 23

Comment: Although periodic monitoring of individual plants for survival and growth may be used to assess the short-term success of a restoration planting, stand establishment is better evaluated on the community level. This is particularly true for trees such as oaks, which may show low growth rates for individual plants during the first 5 to 10 years of stand establishment. The percentage of forest canopy cover and the time required to develop a closed overstory canopy are better indicators of community productivity and forest health for a newly established stand. It may also be useful to monitor the numbers and percentage cover of invading (that is, not planted) tree and shrub species at a location to determine whether the desired community composition is being maintained over time.

Response: The initial "Implementation Phase" of monitoring is to ensure that the design has been implemented appropriately. The survival requirement for trees and shrubs is really to ensure that plant material has survived the initial shock of transplantation. The second phase of monitoring is the "Functional Phase" and is closer to the evaluation of stand establishment on a community level as discussed in the comment. During Functional Monitoring, each community type (e.g., wetland, forest, and prairie) is evaluated and compared to both the Baseline Condition and a Reference Site. This monitoring process is designed to look at the overall function of the community over time. The general monitoring process applied to restored areas of the FCP is described in Section 5.1. The details of the monitoring approach were outlined in the 2001 Consolidated Monitoring Report for Restored Areas at the Fernald Environmental Management Project (FEMP). The 2002 Consolidated Monitoring Report for Restored Areas at the FCP discusses the current strategy for monitoring and includes both the Baseline and Reference Site data collected over the last year. The 2002 Consolidated Monitoring Report will be issued in April 2003.

Action: No action.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 5.1.2.2 Page #: 5-2 Line #: 20
Original Specific Comment #: 24
Comment: Section 5.1.2.2 should be renumbered as Section 5.1.1.3.

Response: Agreed

Action: The text will be renumbered as noted in the comment.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 5.1.2.2 Page #: 5-3 Line #: 5
Original Specific Comment #: 25
Comment: Section 5.1.2.2 should be renumbered as Section 5.1.2.1.

Response: Agreed.

Action: The text will be renumbered as noted in the comment.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: References Page #: R-1 Line #: 11
Original Specific Comment #: 26
Comment: The reference cited as "Brewer 2002" lacks various particulars. Specifically, this reference should be revised to identify Mr. Brewer's title and organization and to provide the date (month and day) when the statements attributed to Mr. Brewer were made.

Response: Agreed.

Action: The reference will be expanded to include the appropriate detail.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: References Page #: R-1 Line #: 11
Original Specific Comment #: 27
Comment: The references beginning with "U.S. DOE 1998a" and continuing through the end of the reference section do not specify a month or date for the reports listed. To the extent possible, each of these references should be revised to specify the date (month and day) when each report was issued.

Response: Document formatting does not usually include referencing the month and date of these documents, but focuses more on the revisions, which are listed as draft or final.

Action: No action.

Commenting Organization: U.S. EPA Commentor: Saric
Appendix #: A-3.2.A Page #: 5 of 9 Line #: NA
Original Specific Comment #: 28
Comment: The specification states that stabilization of disturbed areas... shall be performed... within 7 calendar days of knowing a disturbed area will be idle for more than 45 calendar days. This specification does not provide protection for lands that will be disturbed for less than 45 days. The appendix should be revised to set specifications for protection of idle land that will be left in a disturbed condition for more than 7 days.

Response: The action required in this section depends upon the amount of time that an area will be idle. It recognizes that there are events that will throw a schedule off. Taking that into account, it requires stabilization within seven days of knowing that a given area will become idle. This may not be apparent until the 44th day. It is designed to prevent an area from being bare for an extended time and doesn't address short-term exposure. There are no requirements for the stabilization of soil related to a short-term duration (i.e., less than 45 days).

Action: No action.

Commenting Organization: U.S. EPA Commentor: Saric
Appendix #: A-3.2.E Page #: 5 of 9 Line #: NA
Original Specific Comment #: 29
Comment: The specification states that soil preparation shall be performed by tilling or cultivating soil to a depth of 2 inches. In areas where heavy equipment has been used, 2 inches of tilling will not eliminate the compaction. The appendix should be revised to specify a greater depth of tilling or ripping for areas with heavy compaction; for example, a depth of 9 inches might be suitable.

Response: The NPP area was forested until the spring of 2002. The amount of traffic on the area to harvest the trees was not enough to cause heavy compaction. The equipment used in the construction of the ponds should not have caused serious compaction. It was determined that the disking performed on the area and tilling of the seed drill was appropriate for the area.

Action: No action.

Commenting Organization: U.S. EPA Commentor: Saric
Appendix #: B-3.3.A Page #: 3 of 4 Line #: NA
Original Specific Comment #: 30
Comment: The specification states that bare-root plants that require overnight storage shall have their root balls covered completely with hardwood mulch. The phrase "and be covered completely with hardwood mulch. The phrase "and be kept moist with periodic watering" (the phrase used in Section 3.1.E) should be added to the specification. Alternatively, because mulch will still allow desiccation of the roots, particularly if the storage location is exposed to wind or sun, Appendix B should be revised to specify that to wind or sun, Appendix B could be revised to specify that bare-root plants that require overnight storage shall be "heeled-in," particularly if the plants are to be stored for several days.

Response: It is agreed that roots do need to be kept moist. This is done as a matter of course on restoration projects at the FCP.

Action: Add "moist" to description of hardwood mulch.

RESPONSES TO OHIO ENVIRONMENTAL PROTECTION AGENCY COMMENTS ON THE DRAFT NORTHERN PINES PLANTATION NATURAL RESOURCE RESTORATION DESIGN PLAN (20911-PL-0001, REVISION A)

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

GENERAL COMMENT

Commenting Organization: Ohio EPA — Commentator: OFFO
Section #: General Comment — Pg. #: — Line #: — Code: C
Original Comment #: 1

Comment: The document has not been revised to incorporate changes discussed in the September 19, 2002 nor the October 30, 2002 Natural Resource Trustee (NRT) meetings. The document should be revised to address the issues presented in those meetings and resubmitted for review.

Response: Meeting notes were issued after the September 19, 2002 NRT meeting in which the following action items were listed related to the Northern Pines Plantation (NPP) Restoration Design after detailed review of the construction drawings for the project: 1) The bottom elevation of Basin #1 would be raised to 611 feet mean sea level (msl); 2) The spillway elevation of Basin #5 would be raised to 601 feet msl; 3) The specification for riprap in each spillway would be changed to erosion matting; 4) Further clarification of the shrub densities would be included in the NRRDP; and 5) The exact number of shrubs to be planted in the project would be issued to the NRTs via e-mail following the meeting. All of these action items were completed prior to issuance of the NRRDP on October 10, 2002.

A walkdown of the project area with the NRTs occurred on October 30, 2002 during construction of the basins. During the walkdown it was agreed that the elevation of the berm on the south side of Pond #1 would be checked to ensure it was being constructed at design elevation. The elevations were checked after the meeting and it was confirmed that the elevations were consistent with the design elevations. It was also agree that the water quality in Basins #1 and #2 at a minimum would be checked during the 2003 restored area monitoring work to ensure salt from State Route 126 is not adversely impacting the basins. This will be done in the Spring 2003.

DOE is aware the additional issues discussed during the October 16, 2002 teleconference regarding the installation of erosion matting and the alternate seed mix proposed for the access corridors. Although not referenced in the comment, these issues are addressed in the following responses. DOE is aware of no other action items that have raised related to the NPP Project.

Action: No Action.

SPECIFIC COMMENTS

Commenting Organization: Ohio EPA — Commentator: DSW/OFFO
Section #: 2.3 — Pg. #: 2-3 — Line #: 9-10 — Code: C
Original Comment #: 2

Comment: This section states that: "Corridors of prairie grass would be planted at locations where deer movement has been observed historically or is anticipated to occur in the future." However, discussions have indicated the desire by DOE to plant non-native vegetation in these corridors. We are not in favor of the use of alien species in these corridors. Additionally, Executive Order 13112 states in part that: Section 2, Federal Agency Duties (a) Each Federal agency whose actions may affect the status of invasive species shall, to the extent practicable and permitted by law, (3) not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless, pursuant to guidelines that it has prescribed, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions.

We therefore believe it is in DOE's best interest to plant these corridors as indicated in this section, that is, with native vegetation. Alternatively, Ohio EPA provided a proposed mix of native forbs/grasses that we believe would achieve DOE's goal of deer feeding and still maintain the ecological integrity of the project. This proposed mix was provided to DOE in early October.

Response: DOE does not believe that the use of Crimson Clover is inconsistent with Executive Order 1312. Crimson Clover is a non-native species, but is not considered an invasive species. The seed mix proposed by DOE for the corridors in the Northern Pines reflects DOE's belief that the impact of deer damage far outweighs any risks presented by the spread of the grass species proposed. DOE would also suggest that the seeding of 10 to 20 pounds per acre of Crimson Clover in the corridors through the Northern Pines can have no greater impact than the 40 to 50 percent of the site that currently contain non-native fescues and clovers. In comparison, these small areas in the Northern Pines seem insignificant if they will serve to lessen the deer impact on the material planted in the Northern Pines.

Action: The text will be revised to reflect the proposed change in seed mix in the corridors.

Commenting Organization: Ohio EPA — Commentator: DSW/OFFO
Section #: 2.3.2 — Pg. #: 2-3 — Line #: 26-34 — Code: C
Original Comment #: 3

Comment: This section and Appendix A (Specification 02930) describe the use of coir matting. However, Figure 1-3 specifies in the notes a product C-350, which is matting containing plastic netting. Obviously the document contradicts itself and standard procedure for site activities. Additionally, no engineering basis is presented to support the need for such drastic erosion protection on basins, which should be designed as vernal pools.

We believe the use of plastic netting in erosion control matting to be unacceptable. There are many suitable materials for any design flows expected that have all natural materials. Reference the studies made by Texas DOT and comparisons have already been made. We believe the current specifications in the existing document should be followed

(Section 2.3.2 and Specification 02930). Plastic reinforced matting has not be used on the site for a number of years due to inherent problems with material. This is for construction projects as well as restoration projects. No other on-site restoration project has employed such matting. The last construction project to use similar material clearly demonstrates the problems with the material. Simply inspecting the western side of the outfall stream from the Borrow Area Sedimentation Basin shows long strands of plastic covering the banks where the fabric has decomposed and all that remains is plastic.

Response: Calculated flow velocities of 2 to 4 feet per second concentrated through the constructed spillways will result in erosion problems if the spillways are not protected. All basins in the Northern Pines have overflowed several times since their installation in the Fall 2002. Spillways not covered in erosion matting have started to erode. The use of coir matting has resulted in erosion problems in other restoration projects (e.g., A1PI Wetland, SWU). DOE has put additional focus on engineering the spillways to minimize the need for future maintenance after several spillways installed with coir matting required costly repairs in the summer of 2002. The use of C-350 will also provide protection over a longer term if vegetation is lost in the future.

Action: The specification will be revised in the NRRDP to reflect the use of coir matting or equivalent.

Commenting Organization: Ohio EPA Commentator: DSW
Section #: 3.2 Pg. #: 3-1 Line #: 24-26 Code: C
Original Comment #: 4
Comment: This section states that: The vernal pool features consist of a shallow depression approximately 50 feet in diameter and approximately 3 feet deep... The vernal pools will be constructed with at least 3:1 side slopes to ensure the safety of anyone in the area. From the observation of such excavations, we believe the pools should be made more shallow (1 to 1.5 feet) with a much more shallow slope to the side slopes (5:1 to 10:1).

Response: The vernal pools in the Northern Pines were constructed with 1V:5H side slopes as presented in the detailed construction drawings included in the NRRDP. The reference to 3:1 side slopes in Section 3 of the NRRDP is in error.

Action: Section 3 of the NRRDP will be revised to state that side slopes will be 1V:5H in the vernal pools.

Commenting Organization: Ohio EPA Commentator: OFFO
Section #: 5.0 Pg. #: 5-1 Line #: Code: C
Original Comment #: 5
Comment: This section is inconsistent with previous NRRDPs with regard to monitoring and previous agreements regarding monitoring. Additionally, it does not incorporate changes discussed in recent NRT meetings. The section should be revised to be consistent with prior NRRDPs and recent NRT meetings.

Response: DOE believes that the approach for monitoring presented in the NRRDP is consistent with agreements between the NRTs for two years of Implementation Monitoring and the implementation of Functional Monitoring in 2003. These agreements are consistent with the approach proposed in the 2001 Consolidated Monitoring Report for Restored Areas at the Fernald Environmental Management Project. The establishment of a goal of at least

50 percent native cover by the end of the Implementation Monitoring period is consistent with the recent discussions between the NRTs. There is a typographical error in Section 5.1.1 of the NRRDP because the first monitoring report on the Northern Pines will not be issued until December 2004.

Action: Text will be revised in Section 5.1.1 to correct the error as discussed above.