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Department of Energy

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4363

JUL 17 2002

Mr. James A. Saric, Remedial Project Manager
United States Environmental Protection Agency
Region V-SRF-5J
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

DOE-0563-02

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

Mr. Bill Kurey
United States Fish & Wildlife Service, Suite H
6950 American Parkway
Reynoldsburg, OH 43068

Dear Mr. Saric, Mr. Schneider, and Mr. Bill Kurey:

**TRANSMITTAL OF RESPONSES TO THE UNITED STATES ENVIRONMENTAL
PROTECTION AGENCY AND OHIO ENVIRONMENTAL PROTECTION AGENCY COMMENTS
AND THE FINAL 2001 CONSOLIDATED MONITORING REPORT FOR RESTORED AREAS
AT THE FERNALD ENVIRONMENTAL MANAGEMENT PROJECT**

- References:
1. Letter, T. Schneider to J. Reising, "Comments – 2001 Consolidated Monitoring Report," dated January 22, 2002
 2. Letter, J. Saric to J. Reising, "Restored Areas Consolidated Monitoring Report Year 2001," dated January 31, 2002

Enclosed for your approval are responses to the United States Environmental Protection Agency (USEPA) and Ohio Environmental Protection Agency (OEPA) comments and the Final 2001 Consolidated Monitoring Report for Restored Areas at the Fernald Environment Management Project (FEMP). This report has been revised to include the comment responses from the references listed above. This report addresses implementation phase monitoring for the Area 1, Phase I Wetland Mitigation Project and Area 8, Phase II Forest

Mr. James A. Saric
Mr. Tom Schneider
Mr. Bill Kurey

-2-

DOE-0563

Demonstration Project. Also included are the interim results of the site Baseline Ecological Characterization in support of functional phase monitoring and the sapling survival data for the Area 8, Phase I Revegetation Research Plots.

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

Sincerely,



Johnny W. Reising
Fernald Remedial Action
Project Manager

FEMP:Yerace

Enclosures: As Stated

JUL 17 2002

Mr. James A. Saric
Mr. Tom Schneider
Mr. Bill Kurey

-3-

DOE-0563-02

4363

cc w/enclosures:

R. J. Janke, OH/FEMP
D. Pfister, OH/FEMP
G. Stegner, OH/FEMP
P. Yerace, OH/FEMP
T. Schneider, OEPA-Dayton (three copies of enclosure)
G. Jablonowski, USEPA-V, SRF-5J
D. Bidwell, FCAB
D. Sarno, FCAB
F. Bell, ATSDR
M. Shupe, HIS GeoTrans
R. Vandegrift, ODH
M. C. Wojciechowski, Tetra Tech
AR Coordinator, Fluor Fernald, Inc./MS78

cc w/o enclosures:

R. Greenberg, EM-31/CLOV
N. Hallein, EM-31/CLOV
K. Nickel, OH/FEMP
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A. Tanner, OH/FEMP
D. Carr, Fluor Fernald, Inc./MS2
J. D. Chiou, Fluor Fernald, Inc./MS64
J. Foster, Fluor Fernald, Inc./MS52-5
T. Hagen, Fluor Fernald, Inc./MS9
J. Homer, Fluor Fernald, Inc./MS65-2
L. Ludwick, Fluor Fernald, Inc./MS65-2
F. Miller, Fluor Fernald, Inc./MS64
T. Patton, Fluor Fernald, Inc./MS76
T. Poff, Fluor Fernald, Inc./MS65-2
J. Shoemaker, Fluor Fernald, Inc./MS90
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

RESPONSES TO U.S. ENVIRONMENTAL PROTECTION AGENCY
TECHNICAL REVIEW COMMENTS ON THE
DRAFT 2001 CONSOLIDATED MONITORING REPORT FOR RESTORED AREAS
AT THE FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
(20900-RP-0016, REVISION A)

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

GENERAL COMMENTS

Commenting Organization: U.S. EPA
Section #: Not Applicable (NA) Page #: NA
Original General Comment #: 1
Comment: The document should be revised to provide a brief summary of monitoring results and findings for previous years.

Commentor: Saric
Line #: NA

Response: Agree.

Action: Add an executive summary that briefly describes 2001 monitoring results and findings.

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

Commentor: Saric
Line #: NA

Comment: The document should be revised to more clearly discuss unexpected results and potential corrective actions. For example, the document indicates that Basin 5 has the lowest plant survival rate and acts as a sediment trap for road runoff (acts as a mud flat) and that Basin 8 does not contain any areas favorable to wetland plant species. These two basins do not appear to be meeting the expected restoration goals and results. The document should either more clearly present proposed corrective actions or be revised to alter restoration functions and goals for when unexpected results are obtained.

Response: DOE has agreed with the other Natural Resource Trustee representatives (Ohio EPA and the U.S. Fish and Wildlife Service) to revise the functions and goals for Basins 5 and 8. Basin 5 was planted with herbaceous plugs in Spring 2001. Therefore, the area will be left alone in 2002 and evaluated to determine the effectiveness of the 2001 planting effort. For Basin 8, it has not retained sufficient water within the basin for extended periods to support a wetland system. Therefore, the area will be allowed to develop into an upland system. Upland forbs will be planted within Basin 8 in Spring 2002, in order to enhance the aesthetics of the northern end of the wetland mitigation project.

Action: Revise Section 2.1.3 to describe the planting of upland forbs within Basin 8.

Commenting Organization: U.S. EPA
Section #: NA Page #: NA
Original General Comment #: 3

Commentor: Saric
Line #: NA

Comment: Several tables include information such as "Patches" or "Addresses." The document should include figures indicating where the patches and addresses are located. In addition, several tables list a value for "Cover Classes" and include an asterisk, but the classes and asterisks are not explained in footnotes to the tables. The document should be revised to address these issues.

Response: Agree. Tables will be revised to provide more clarity. Figures will be added to Appendices A and B, showing the location of specific planting patches.

Action: Revise text accordingly.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: NA

Page #: NA

Line #: NA

Original General Comment #: 4

Comment: The document includes Tables C-1, C-2, C-3, C-4, and C-5, which show project area species lists. These tables do not separate woody from herbaceous species; however, the "Baseline Ecological Monitoring Interim Data Summary," (Table 3-1) separates information into a herbaceous data table and a woody data table. Tables C-1 through C-5 should present information in a manner similar to Table 3-1.

Response: Agree.

Action: Revise Tables C-1 through C-5 accordingly.

SPECIFIC COMMENTS

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.1.1.2

Page #: 2-2

Lines #: 15 through 20

Original Specific Comment #: 1

Comment: The text indicates that randomized quadrats will be used to determine basin-specific cover estimates and refers to Appendix E, "Ecological Restoration Functional Phase Monitoring Plan," and Figure 2-1. Appendix E discusses the use of quadrats along transects placed longitudinally through the study area, and Figure 2-1 shows quadrat locations and soil sampling locations. The text fails to discuss quadrat transect placement or locations, and Figure 2-1 does not show these transects. The text should be revised to discuss transect locations and placement rationale. In addition, a figure should be included that depicts the transects.

Response: The reference to Appendix E pertains to estimating cover classes within quadrats instead of random quadrat placements. Transects were not used to determine quadrat locations within the basins. Instead, locations were randomly determined within each basin.

Action: Revise text to clarify quadrat placement and the use of cover class estimates.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.1.3

Page #: 2-8

Lines #: 1 through 14

Original Specific Comment #: 2

Comment: The text indicates that Spring 2002 replanting will be limited to portions of Basins 2, 4, and 7 because these areas have a low percentage of native cover and contain areas not previously planted with wetland plugs. The text refers to Table 2-7 and Figure 2-1. The text, table, and figure lack specific information regarding these portions of the basins and the proposed plantings. The table simply lists the total number of plugs for each species, and the figure fails to indicate which portions of the basins will be replanted. The text, table, and figure should be revised to provide a more specific breakdown of which species will be planted, where, and the rationale behind each planting.

Response: Specific planting locations have not been determined at this time. The distribution of species and individuals within each basin will be determined in the field, as conditions warrant. Native species were chosen based on their wetland indicator status and by their demonstrated success in the wetland mitigation project.

Action: Revise text and Table 2-7 to provide a basis for the selection of specific species for replanting.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.1.3

Page #: 2-8

Lines #: 11 and 12

Original Specific Comment #: 3

Comment: The text indicates that Basin 8 "does not contain any areas that are favorable for wetland species" and that "surface water runoff in this basin is faster than was planned; therefore soils are too well drained." These statements are confusing and appear to be inaccurate. If runoff in the basin is faster than planned, the soils may be poorly drained rather than well drained. (Clay soils are often characterized by high runoff rates.) The mitigation plan indicates that a clay liner is present beneath Basin 8, and Table 2-5 indicates that a soil sample collected from Basin 8 had a clay texture. The text should be revised to clearly explain why Basin 8 lacks the hydrological characteristics needed to support a wetland. In addition, the text should more clearly propose a strategy to address the Basin 8 hydrological and vegetative shortcomings.

Response: Agree. As discussed in the response to General Comment No. 2, the Natural Resource Trustees have agreed to revise the goals for Basin 8.

Action: Revise text to discuss the hydrological conditions of Basin 8.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.1.3

Page #: 2-8

Lines #: 21 through 25

Original Specific Comment #: 4

Comment: The text indicates that a radium hot spot area was seeded and inoculated with donor soil and clumps of bur reed but that large portions remain sparsely vegetated. The text also indicates that a planting strategy has been developed to expand the vegetation coverage and that this area will be developed as a plant source for future restoration projects. The text fails to explain the cause of the sparse vegetation (such as poor soil, poor seedstock or plant material, or absence of necessary hydrological conditions). The replanting strategy should address expected causes of vegetative mortality and incorporate schemes to counter these causes. The text should be revised to provide additional detail regarding this issue.

Response: Revegetation efforts within the Radium Hot Spot have been successful. Native grasses and forbs have been established, and bur reed has successfully colonized the eastern edge of the basin. The text should be revised to state that woody vegetation (which was not originally planted in the Radium Hot Spot) is sparse.

Action: Revise text to state that woody vegetation is sparse.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.2.1.2

Page #: 2-11

Lines #: 15 and 16

Original Specific Comment #: 5

Comment: The text indicates that the cover estimates were calculated based on the results of the functional-phase monitoring discussed in Appendix E. The text fails to discuss transect placement or location, and transects are not shown in any figures. The text should be revised to discuss transect location and placement rationale. In addition, a figure should be included that depicts the transects.

Response: See response to Specific Comment No. 1 above.

Action: See action for Specific Comment No. 1 above.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.2.2.2

Page #: 2-12

Line #: 21

Original Specific Comment #: 6

Comment: The text reads, "Cover class 5 represents a percent cover of 75 to 100 percent." the text should be revised to read "75 to 100 percent."

Response: Agree.

Action: Revise text accordingly.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.2.3

Page #: 2-14

Lines #: 14 and 16

Original Specific Comment #: 7

Comment: The text indicates that the planting of shrubs will aid in keeping the density of tree species low in the savanna area. The text refers to the replant table, which lists, among other shrubs, smooth sumac (*Rhus glabra*) and black raspberry (*Rubus occidentalis*). Both species can form large, uniform colonies. The text should briefly describe if any measures will be taken to limit various species from becoming overly aggressive.

Response: Based on comments from Ohio EPA, the species list has been revised to include New Jersey tea (*Ceanothus americanus*), American plum (*Prunus americana*), and leadplant (*Amorpha canescens*). These species are not expected to become overly aggressive.

Action: Revise Table 2-11 accordingly.

Commenting Organization: U.S. EPA

Commentor: Saric

Figure #: 2-2

Page #: NA

Line #: NA

Original Specific Comment #: 8

Comment: This figure shows the wetland mitigation project replant strategy. However, it is unclear if the area shown in the figure is the radium hot spot area mentioned on Page 2-8. The figure should be revised to indicate which area it shows and to provide a more detailed legend.

Response: Agree.

Action: Revise Figure 2-2 accordingly.

Commenting Organization: U.S. EPA

Commentor: Saric

Appendix #: E

Page #: E-2

Lines #: 19 and 20

Original Specific Comment #: 9

Comment: The text indicates that a permanent transect approximating the study area's longitudinal axis should be established to locate sampling quadrats. The text fails to discuss how features such as topography and water bodies may affect transect locations. The text should be revised to discuss this issue.

Response: Agree. DOE has contracted with the University of Dayton to conduct functional monitoring field work in 2002, and the sampling methodology is being revised in conjunction with the Natural Resource Trustees. The updated sampling methodology will address land features. The revised sampling methodology will be described in the 2002 Consolidated Monitoring Report.

Action: Revise text accordingly.

Commenting Organization: U.S. EPA

Commentor: Saric

Appendix #: E

Page #: E-3

Lines #: 24 and 25

Original Specific Comment #: 10

Comment: The text indicates that care should be taken not to trample herbaceous vegetation when establishing quadrats and sampling woody vegetation. To minimize potential herbaceous vegetation trampling, the herbaceous vegetation should be sampled immediately after the woody vegetation quadrat is established.

Response: Agree. See response to Specific Comment No. 9 above.

Action: Revise text accordingly.

Commenting Organization: U.S. EPA

Commentor: Saric

Appendix #: E

Page #: E-6

Lines #: 17 through 20

Original Specific Comment #: 11

Comment: The text indicates the formula for calculating the floristic quality assessment index (FQAI). This calculation typically involves multiplying the mean coefficient of conservatism by the square root of the total number of species. In the formula ($FQAI = C n$), n should be replaced with the square root of n , where n is the total number of species recorded. The text should be revised to reflect this change. In addition, Swink and Wilhelm (*Plants of the Chicago Region*, 1994) entirely exclude introduced species from the floristic quality assessment based on the rationale that the presence and proportion of conservative native species define the natural area and not necessarily the presence or abundance of weeds. Although introduced species should be excluded from the floristic quality assessment, this change would apparently not significantly change the FQAI values presented.

Response: The FQAI formula is correct in the electronic file, but the mathematical symbols did not print correctly. The Natural Resource Trustees have discussed the use of FQAI and decided to use the modified approach described by Fennessy (*A Functional Assessment of Mitigation Wetlands in Ohio: Comparisons with Natural Systems*, 1997). The modified FQAI includes non-native species with Coefficient of Conservatism values of zero. In some communities (particularly the on-property baseline areas), the majority of species encountered are non-native.

Action: Revise text to correctly display formulas.

**RESPONSES TO OHIO ENVIRONMENTAL PROTECTION AGENCY COMMENTS
ON THE DRAFT 2001 CONSOLIDATED MONITORING REPORT FOR RESTORED AREAS
AT THE FERNALD ENVIRONMENT MANAGEMENT PROJECT
(20900-RP-0016, REVISION A)**

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

SPECIFIC COMMENTS

Commenting Organization: Ohio EPA
Section #: 2.1.2 Pg. #: 2-32 Lines #: 25-28 Commentator: DSW
Original Comment #: 1 Code: C

Comment: It is stated that distinct communities would be discussed (Section 2.1, Lines 19-20, Page 2-1), however results are reported by basin and by patch. Although this information is useful and appreciated, results should also be reported by community and success of implementation monitoring judged by community. Although the percentage survival is important to report, since it was stated previously that the implementation monitoring is a pass/fail result, a summary of pass/fail by community should also be presented.

Response: The term "communities" was not intended to reference ecological systems, but rather distinct sub-areas within the project area. Community-specific information can be provided for woody vegetation in Appendix A. However, herbaceous data were not collected in a way that community-level information can be presented.

Action: Replace "communities" with "areas" in Section 2.1. Revise the last sentence to state that "patch-specific and community-specific information will be included in Appendix A." Revise Appendix A accordingly.

Commenting Organization: Ohio EPA
Section #: 2.1.2.2 Pg. #: 2-5 Lines #: 27-31 Commentator: OFFO
Original Comment #: 2 Code: C

Comment: The text incorrectly states the percent cover goal as 80% rather than 90%. It was never the intent of the Trustees to allow weeds to be counted in attainment of the % cover goal. This cover requirement was developed from the construction seeding spec that required the contractor to get 90% coverage of the area with the specified seed. Therefore we do not believe the % cover requirement was met for any basin. However, we understand that 90% cover is a lofty goal and believe that adaptive management actions within A1P1 as well as the % native cover trend are positive and appropriate. The text should be revised to state the % cover requirement has not been met.

Response: DOE contends that an alternative goal for evaluating native herbaceous cover is required. Ninety percent native cover is unachievable following the first growing season. A 90 percent cover goal should be maintained to ensure erosion does not occur. An alternative goal for percent native cover needs to be negotiated.

Action: Discuss alternative percent native cover goals at a future NRT meeting.

Commenting Organization: Ohio EPA

Commentator: OFFO

Section #: 2.1.2.2

Pg. #: 2-6

Lines #: 6-7

Code: C

Original Comment #: 3

Comment: Though Ohio EPA agrees the amount of hydrophytic vegetation has improved, we are unclear what is meant by the statement "Basins 1, 4, and 6 met the hydrophytic vegetation requirements established by COE (1987)." Is this to suggest the basin meets the COE requirement or just one sample location within the basin? A later sentence in the same paragraph, states "the extent of data collection was too limited to characterize the entire basin." It would seem the conclusions in this paragraph need revision to more clearly state what is supported by the data collected. At present it is confusing.

Response: The intent of the statement was to demonstrate that the Corp of Engineers hydrophytic vegetation requirement (i.e., greater than 50 percent of the dominant plant species hydric) was attained for the quadrats sampled within Basins 1, 4 and 6, not the basins themselves. DOE recognizes that the limited number of samples is not sufficient to characterize the extent of hydrophytic vegetation within each basin. A systematic wetland delineation will be conducted in the last year of monitoring.

Action: Revise the second sentence of the second paragraph of Section 2.1.2.2 to state: "Table 2-2 shows that the quadrats sampled in Basins 1, 4, and 6 met..." Add the following statement: "A systematic wetland delineation will be conducted at the end of the wetland mitigation monitoring period. At that time, the extent of hydrophytic vegetation across the project area will be characterized."

Commenting Organization: Ohio EPA

Commentator: DSW

Section #: 2.1.2.3

Pg. #: 2-6

Lines #: 31-33

Code: C

Original Comment #: 4

Comment: Dissolved oxygen levels below 5 mg/L are generally considered very low. Your data shows some low levels of dissolved oxygen (e.g., Basins 5 and 6). How do these results compare with prior years and can you speculate on the cause of the low results?

Response: The dissolved oxygen measurements are driven by temperature. In every basin, dissolved oxygen concentrations were lower during the May sampling event, when water temperatures were much higher. Similar trends were observed in 2000. The low warm-water dissolved oxygen concentrations also might suggest the development of anoxic conditions needed for the development of hydric soils. Water quality monitoring will continue as scheduled in the wetland mitigation design, and the 2002 Consolidated Monitoring Report will evaluate any trends that develop.

Action: Add the following text to Section 2.1.2.3: "Dissolved oxygen concentrations appear driven by temperature and the development of hydric soils, rather than environmental degradation."

Commenting Organization: Ohio EPA

Commentator: OFFO

Section #: 2.1.2.4

Pg. #: 2-7

Lines #: 6-7

Code: C

Original Comment #: 5

Comment: Based upon the Mack (2001) visit, it appeared quite obvious that limited creation of hydric soils was occurring. Hydric soils appeared to only be found in or near standing water within the basins. The actual extent of hydric soils within the basins is unlikely to be any larger than the areas of normal standing water at this point. In the end, this limited generation of hydric soils will likely affect the actual mitigated area. This again points to the need to better manage water levels within the basins to maximize the area meeting the wetland delineation requirements.

Response: Agree.

Action: Add the following text to Section 2.1.2.4: "...soils within inundated portions of each basin. It should be noted that in several basins, the extent of inundation is limited to swales and deep depressions.

Commenting Organization: Ohio EPA

Commentator: OFFO

Section #: 2.1.3

Pg. #: 2-7

Lines #: 26-32

Code: C

Original Comment #: 6

Comment: Include within the justification for not planting additional woody material, the potential to damage established woody and herbaceous material during installation of replacements. This is a primary concern for Ohio EPA in our consideration of replanting.

Response: Agree.

Action: Add the following text to Section 2.1.3: "Second, because of limited access and the density of existing vegetation, there is a potential to damage woody and herbaceous plant material during installation of replacements."

Commenting Organization: Ohio EPA

Commentator: OFFO/DSW

Section #: 2.1.3

Pg. #: 2-8

Lines #: 11-12

Code: C

Original Comment #: 7

Comment: Abandonment of restoration actions within Basin 8 does not seem appropriate. Herbaceous cover in Basin 8 could be greatly improved by the planting of plugs of prairie forbs and grasses. This basin is the basin most visible from the public roadway and an effort in improving the native cover should be made in it as well.

Response: Agree.

Action: Adjust the herbaceous plant list to include upland grasses and forbs for Basin 8. Revise Section 2.1.3 to state "wetland" before "planting" in the third paragraph. Add the following paragraph after the fourth paragraph: "Upland grasses and forbs will be planted in Basin 8 in an attempt to increase native cover. The plant list for Basin 8 is also included on Table 2-7." Revise Table 2-7 accordingly.

Commenting Organization: Ohio EPA

Commentator: OFFO

Section #: 2.1.3

Pg. #: 2-8

Lines #: 27-33

Code: C

Original Comment #: 8

Comment: During the late 2001 NRT meeting, DOE recommended the installation of an electric fence around the Radium Hotspot nursery planting. The other NRTs concurred with this concept do to the importance and fragility of the nursery, small area, the opportunity to evaluate an additional control mechanism, and the close proximity to a power supply. Ohio EPA believes DOE should install the electric fence to control deer impacts on this important resource for future activities.

Response: DOE contracted with a local expert for consultation on deer control strategies at the FEMP. The use of electric fencing around the Radium Hot Spot was evaluated. Electric fencing was determined not to be the most effective or feasible method of deer control, and will not be utilized at the Radium Hot Spot.

Action: No action on electric fencing.

Commenting Organization: Ohio EPA

Commentator: OFFO

Section #: 2.1.3

Pg. #: 2-9

Lines #: 1-3

Code: C

Original Comment #: 9

Comment: More information should be provided on the proposed fertilizer/systemic repellent tablets. Manufacturer's info would be useful. Additionally are these tablets approved for use in or near water? Does the systemic repellent affect other wildlife uses?

Response: Agree. The tablets are not to be used in areas of standing water. The fertilizer could stimulate the growth of algae in the water. Use in areas adjacent to water should not be a problem, but care should be taken to prevent the inadvertent spillage of tablets into water.

The manufacturer (Gro-Power) indicated that other mammals browsing on foliage would find the plants distasteful. As long as there is a more palatable food source in the vicinity, animals should leave the Repellex vegetation alone. The manufacture has made inquiries into the effect on bird populations. Repellex does not change the chemical composition or genetics, so it should not have an effect on fruit production. The taste of the fruit would be effected, but birds taste differently from mammals, so bird consumption should not be effected. The manufacturer did not have any data regarding the effects of Repellex on insect pollination. They did recognize that pollinating insects are very selective and may avoid Repellex vegetation.

In general, the production of fruit is not essential for the establishment of woody vegetation. Repellex tablets will be used twice over the next three years to prevent browse and allow for plant establishment. Repellex should be completely removed from the plant two years after the last application. Use of Repellex will be limited to woody vegetation. Herbaceous plants that require earlier pollination may be adversely effected by the use of Repellex.

Repellex tablets are no longer planned for use in the Radium Hot Spot. However, tablets were applied to several shrub patches in the wetland mitigation project (WS6, US13, and WS23). Therefore, the discussion regarding Repellex will be moved to Section 2.1.4, Maintenance and Management Summary.

Action: Revise Section 2.1.4 to include the above discussion.

Commenting Organization: Ohio EPA
 Section #: 2.1.4 Pg. #: 2-9 Line #: NA Commentator: OFFO/DSW
 Code: C
 Original Comment #: 10

Comment: Include detail on maintenance such as type of herbicide used and in which basins, numbers and type of fish stocked, etc. Additional detail on maintenance activities will assist in better understanding the impacts of such impacts. Including copies of logbook notes on maintenance activities as an appendix would be useful.

Response: Agree. Field logbooks detailing maintenance activities are maintained for all certified and restored areas at the FEMP and are available upon request.

Action: Revise text accordingly.

Commenting Organization: Ohio EPA
 Section #: 2.2 Pg. #: 2-10 Line #: NA Commentator: DSW
 Code: C
 Original Comment #: 11

Comment: Is there any report on monitoring for the research as outlined in Appendix C of the NRRDP (see response to comment 6 in letter from DOE dated June 19, 2000). I believe this included planting for deer browsing strategies, densities, volunteer recruitment, etc.

Response: The research in A8PII was discontinued once the NRTs negotiated shrub densities for future restoration projects.

Action: None required.

Commenting Organization: Ohio EPA
 Section #: 2.2.5 Pg. #: 2-15 Line #: NA Commentator: OFFO
 Code: C
 Original Comment #: 12

Comment: A discussion should be included addressing possible reasons for the low germination/success rate with native vegetation within the savanna area.

Response: Agree. It is suspected that three factors contributed to the limited success within the savanna. First, the savanna was given only a single application of herbicide before it was seeded. This application appeared insufficient to kill all existing grasses within the former pasture. Second, the savanna was seeded prior to vegetation installation. These steps were sequenced so that the seed drill could negotiate through the field unimpeded. Consequently, the savanna experienced a high amount of disturbance from heavy equipment, materials, and personnel. Lastly, the mowing frequency of the savanna was not optimal. The access path adjacent to the savanna was mowed more frequently than the savanna in 2000, when open access was needed. In 2001, access was much less frequent, so the access path was not mowed as often (twice in 2001). As a result, native grasses grew aggressively along the access in the second half of 2001.

Action: Revise Section 2.2.5 accordingly.

Commenting Organization: Ohio EPA
 Section #: 2.2.5 Pg. #: 2-15 Line #: NA Commentator: OFFO
 Original Comment #: 13 Code: C

Comment: Planting of the shrubs in patches of similar species might be more beneficial to the plants as well as making maintenance and monitoring easier. This would probably be how they would be found in a natural system, clumps of similar shrubs in association with each other or with a tree.

Response: Agree.

Action: Add the following text to the fourth paragraph of Section 2.2.3: "Shrubs will generally be planted in single-species clumps, in order to mimic natural dispersion patterns."

Commenting Organization: Ohio EPA
 Section #: Table 2-8 Pg. #: 2-22 Line #: NA Commentator: OFFO
 Original Comment #: 14 Code: C

Comment: "Propigation (sic) method" column is confusing. Is this the type of material to be planted or the method of propagation for future projects?

Response: "Propagation Method" refers to the type of vegetation DOE expects to harvest from the species-specific planting patches. All plants installed will be at least 1 foot in size.

Action: Revise Table 2-8 as follows: Note the intent of "Propagation Method." Add a column listing plant sizes for installation.

Commenting Organization: Ohio EPA
 Section #: Table 2-11 Pg. #: 2-24 Line #: NA Commentator: OFFO
 Original Comment #: 15 Code: C

Comment: The selection of shrubs proposed for Replant Area 3 is inconsistent with the original NRRDP and not consistent with what would be expected in a savanna. Remove the following species from the list: choke cherry, smooth sumac, black raspberry. Add the following species: new jersey tea, st. john wort, lead plant.

Response: Agree. Per personal communication with Ohio EPA, American plum (*Prunus americana*) should be added as well.

Action: Revise Table 2-11 to include the above species.

Commenting Organization: Ohio EPA
 Section #: 3.0 Pg. #: 3-1 Lines #: 17-26 Commentator: DSW
 Original Comment #: 16 Code: C

Comment: The concept of open water habitat should not include species found out of water. Only emergent, and submergent aquatic vegetation should be included in this habitat. This would limit your list to cattail and be more accurate of the habitat. Then this can be compared to constructed open water habitats such as the water filled areas of A1PI and A8PII, which contain a much more diverse aquatic plant community. This comparison more accurately reflects what we see.

Response: Quadrats were placed so that 50 percent of the quadrat was in water. Such a placement allows for variations in water levels. In several instances, species not normally associated with emergent conditions were observed in standing water, because of fluctuating water levels.

Action: None required.

Commenting Organization: Ohio EPA
 Section #: Table 3-1 Pg. #: 3-3 Line #: NA Commentator: OFFO
 Code: C
 Original Comment #: 17

Comment: This table as well as subsequent ones are confusing and assume the reader understands the acronyms used. Reference to the monitoring plan or brief footnotes would make it more understandable. However, Total Cover not even defined in the monitoring plan.

Response: Agree.

Action: Revise table accordingly.

Commenting Organization: Ohio EPA
 Section #: Appendix C Pg. #: C1-5 Line #: NA Commentator: OFFO/DSW
 Code: C
 Original Comment #: 18

Comment: Several species are listed as "na" for a CC value (e.g., *Schizachyrium scoparius* and *Viola sororia* in Table C-1), why aren't they given a CC value? Also, these tables could use some explanation, for example we assume that the CC refers to coefficient of conservatism and not cover class, but it is not stated anywhere. We are unclear on what Avg. Cover refers to.

Some of the identifications are in question, for example *Smilax tannoides* is found along the Atlantic coast from Delaware to Georgia according to Gleason and Cronquist, but shows up in your list of plants in Table C-2, as does *Schizachyrium scoparius* which we suspect may be *Andropogon virginicus*. Also, please use Gleason and Cronquist for names of plants, as it contains the generally accepted nomenclature (e.g., we had trouble with your name for wingstem, *Actinomeris alternifolia* rather than *Verbesina alternifolia* and *Agrostis alba* instead of *A. gigantea* etc.). Using this nomenclature will aid in finding appropriate CC values for plants.

It has been our experience, that if we can't find a CC value for it, then it is either some strange weed or we mis-identified the plant. We'd be glad to assist in anyway with plant identification. Our knowledge comes from our mistakes more than our successes. In most cases, we've found that if it seems too good to be true (e.g., Little Bluestem in a pasture) it probably is. We can also forward plant specimens to our folks in Columbus for verification if you would like.

The tables should be revised to replace incorrect nomenclature, add CC values and re-evaluate questionable species. Then a recalculation of values and conclusions completed.

Response: Agree. Gleason and Cronquist will be used as the standard for taxonomic nomenclature at the FEMP. CC values will be adjusted. However, it should be noted that the CC values being used are specific to northern Ohio. When the statewide list of CC values is published, FEMP species' CC values and FQAI calculations will be re-adjusted. Vouchers for questionable species will be re-evaluated.

Action: Revise Tables C-1 to C-5 accordingly.

Commenting Organization: Ohio EPA

Commentator: OFFO

Section #: Table C-5

Pg. #: C-5

Line #: NA

Code: C

Original Comment #: 19

Comment: What do the asterisks signify within the table?

Response: The asterisks do not signify anything and should be removed.

Action: Revise Table C-5 accordingly.

Commenting Organization: Ohio EPA

Commentator: OFFO

Section #: E.3.2

Pg. #: E-5

Line #: NA

Code: C

Original Comment #: 20

Comment: Voucher specimens should be collected for both native and non-native species. We've found that non-natives can be some of the most challenging to identify. Having a voucher specimen to reference can be quite helpful.

Response: Agree.

Action: Collect non-native vouchers in addition to native vouchers. Remove "native" from the fifth paragraph of Section 3.2.

Commenting Organization: Ohio EPA

Commentator: OFFO

Section #: E.3.2

Pg. #: E-5

Line #: NA

Code: C

Original Comment #: 21

Comment: In reading this section it is unclear at what point the species specific cover classes are documented. It may have been left out of this section.

Response: Species-specific cover is described in the fifth paragraph of Section 3.2.

Action: None required.

Commenting Organization: Ohio EPA

Commentator: OFFO

Section #: E.3.3

Pg. #: E-5

Line #: NA

Code: C

Original Comment #: 22

Comment: Is there a technical reference for the method used to calculate MSI for herbaceous species? The lumping of cover classes may overweight the value for a single specimen of a species thus taking it from a 5% value to a 25% cover value. Additionally the actual calculation of cover classes is rather confusing. How is the number 30 selected for dividing? Some discussion at a future meeting is warranted to help us better understand the calculation of this metric.

Response: DOE agrees that more discussion is necessary regarding the application of cover estimates and modified Simpson's diversity. It may make more sense to simply limit the calculation of vegetation indices to FQAI. Summed cover classes are divided by 30 because that is the total number of quadrats sampled within a given area.

Action: Discuss the application of modified Simpson's index at a future NRT meeting.

Commenting Organization: Ohio EPA

Commentator: OFFO

Section #: E.3

Pg. #: E-5

Line #: NA

Code: C

Original Comment #: 23

Comment: Should the area calculation be $A = \pi r^2$?

Response: Mathematical symbols are present on the electronic copy of the document but do not print. Symbols are also missing from the printed versions of Pages E-6 and E-7.

Action: Determine how to get mathematical symbols to print.