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March 20, 2001

Mr. Johnny Reising
USDOE FEMP
P.O. Box 538705
Cincinnati, OH 45253-8705

RE: 2000 Annual Wetland Monitoring Report

Dear Mr. Reising,

Ohio EPA has reviewed DOE's January 26, 2001 submittal, "Transmittal of the Draft Wetland Monitoring Report for the Year 2000 in Support of Area 1, Phase 1 Wetland Mitigation Project." Attached are Ohio EPA's comments on the document.

If you have any questions, please contact me at (937) 285-6466.

Sincerely,

Thomas A. Schneider
Fernald Project Manager
Office of Federal Facilities Oversight

cc: Jim Saric, U.S. EPA
Terry Hagen, FDF
Mark Shupe, HSI GeoTrans
Francie Hodge, Tetra Tech EM Inc.
Ruth Vandergrift, ODH
Bill Kurey, USFWS

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WETLAND MONITORING REPORT FOR THE YEAR 2000

1) Commenting Organization: Ohio EPA Commentor: OFFO
Section #: General Pg #: Line #: NA Code: C
Original Comment #:
Comment: Overall, the wetland project has developed into an ongoing progressive system despite the obstacles it has had to overcome. However, this monitoring report seemed to skip over details or the specifics on why the system failed to function in certain areas. For example, a lot of plants were replaced due to deer browsing and drought conditions. But the report failed to provide the "other reasons" behind any failures, such as water in a timely manner during the drought and the emergency measure taken to provide water for the system, deer tubes being poorly placed on saplings causing them to bend and break, the repeated use of ineffective deer browsing control mechanisms, etc. If this information was included in the report, then it would reveal the substantial effort that was put into this project and the obstacles encountered.

2) Commenting Organization: Ohio EPA Commentor: DSW
Section #: 1.0 Pg #: 1-1 Line #: 10-12 Code: C
Original Comment #:
Comment: The purpose as stated in these lines is related more towards the monitoring than the report. To be more explicit, the monitoring goals as stated in the conceptual plan include providing information to answer the questions: Have the requirements of the reviewing agencies been met, have sufficiently dense wetland plant communities been established, do surface and ground water levels support wetland conditions, is the quality of the surface and ground water comparable to a healthy system, have appropriate animal populations successfully colonized the site, and have wetland soils been created. The report should summarize the answers to the above questions. It should include a summary of data collected and an analysis of that data including an overall assessment of the system that the regulatory agencies can review. The information should be of sufficient detail so that someone familiar with wetland mitigation, but not the site, could interpret the trajectory as being successful or not.

3) Commenting Organization: Ohio EPA Commentor: DSW
Section #: 2.1 Pg #: 2-1 Line #: 12-16 Code: C
Original Comment #:
Comment: The monitoring program also requires observations be made such that any problems can be detected as early as possible and corrective actions be taken immediately. Early detection and correction are stressed throughout the conceptual plan.

4) Commenting Organization: Ohio EPA Commentor: DSW
Section #: 2.2 Pg #: 2-1 Line #: 19-25 Code: C
Original Comment #:
Comment: I would recommend deleting the word "slightly" in line 20. If the soil removal was a slight modification, achieving planting success would not be so difficult (compare basin 8 and

Area 8 PII). I would also include the construction of the borrow pit in basin 4. There are no units associated with the elevations. A description of the south⇒north flow in basins 4⇒1, north⇒south flow in basins 8⇒1, and the west⇒east flow in basin 5⇒1 should be included.

5) Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 2.3 Pg #: 2-1 to 2-3 Line #: NA Code: C
Original Comment #:
Comment: Included in the basin characteristics should be the soil amendment(s) for that basin. This was not included in the construction completion report and needs to be in a permanent document. This, and subsequent reports, should include this information to assist in interpreting the progress of each basin.

6) Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 2.3 Pg #: 2-1 to 2-3 Line #: NA Code: C
Original Comment #:
Comment: Included in the basin characteristics should be all sources of hydrology inputs and outputs (e.g., perched water connections, pole drains, etc.). These are important characteristics of each basin that help explain the current status.

7) Commenting Organization: Ohio EPA Commentor: DSW/OFFO
Section #: 2.3.1 Pg #: 2-1 Line #: 29-32 Code: C
Original Comment #:
Comment: Hydrology in basin 1 also includes the two conduits connecting perched water to the surface. Referring the reader to Appendix D as well may be useful in orienting the reader. Alternatively a map of basins with surface water flow could be provided separately. As indicated above, each of the basin descriptions should include the soil amendment type.

8) Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 2.3.2 & 2.3.3 Pg #: 2-2 Line #: NA Code: E
Original Comment #:
Comment: Section numbers are incorrectly 2.2.2 and 2.2.3.

9) Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 2.3.2 & 2.3.3 Pg #: 2-2 Line #: NA Code: C
Original Comment #:
Comment: Either basin #2 or #3, receives significant surface water flow from the ditch east of the north access road and south of the basins. The erosion caused by this flow required installation of erosion matting. The appropriate basin should include a discussion of this flow.

10) Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 2.3.5 Pg #: 2-2 Line #: 29-30 Code: C
Original Comment #:
Comment: The text references Appendix A, Basin 6 illustrated in Photograph 5 and it should reference Basin 6 being found in Photograph 8. Please correct.

11) Commenting Organization: Ohio EPA Commentor: DSW
Section #: 2.3.6, 2.3.7, 2.3.8 Pg #: 2-3 Line #: 13-23 Code: C
Original Comment #:
Comment: These three basins also contain pole drains integral with clay drainage tiles (2 in basin 7, 1 or 2 in basin 8).

12) Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 2.4.1 Pg #: 2-3 Line #: NA Code: C
Original Comment #:
Comment: Actual computation was made against the design planting rate not the actual planting rate since a number of plants were not installed during the initial installation. This is important to note since it makes survival look worse than it actually was. The text should be revised to discuss this issue.

13) Commenting Organization: Ohio EPA Commentor: DSW
Section #: 2.4.2 Pg #: 2-4 Line #: 21 Code: C
Original Comment #:
Comment: Although it states here that no cover estimates were made, Appendix E does have cover estimates. It is worth keeping these estimates in this report and elaborating in the results and summary sections

14) Commenting Organization: Ohio EPA Commentor: DSW
Section #: 2.4.3 Pg #: 2-5 Line #: 1-9 Code: C
Original Comment #:
Comment: Please refer the reader to Appendix F and section 2.5.3 for results.

15) Commenting Organization: Ohio EPA Commentor: DSW
Section #: 2.4.4 Pg #: 2-5 Line #: 11-16 Code: C
Original Comment #:
Comment: Please refer the reader to Appendix G and section 2.5.4 for results.

16) Commenting Organization: Ohio EPA Commentor: DSW
Section #: 2.4.4 Pg #: 2-5 Line #: 12-14 Code: C
Original Comment #:

Comment: I am concerned that the method of collection of water sample in affecting the measurement of dissolved oxygen. The Horiba U-10 should have a long enough cable on the probe that the probe could be dropped into the water with the sampler holding the readout. This would give a much better analysis of the dissolved oxygen. The draft conceptual plan also specifies recording the presence or absence of aquatic life.

17) Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 2.4.5 Pg #: 2-5 Line #: 19-20 Code: C
Original Comment #:
Comment: The text reports the different amendments used in the wetland basins but does not mention which amendment was used in a particular basin. This is significant information in terms of a functioning system and should be included in this monitoring report.

18) Commenting Organization: Ohio EPA Commentor: DSW
Section #: 2.4.5 Pg #: 2-5 Line #: 20 Code: C
Original Comment #:
Comment: The draft conceptual plan specified that soil sampling begin in year one.

19) Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 2.4.6 Pg #: 2-5 Line #: Code: C
Original Comment #:
Comment: Under this section on "Wildlife Observations," it seems vital to include any information regarding the difficulty this project has had due to the destruction of plants from deer browsing. The deer destruction has played an enormous part in the wetlands establishment and the lessons learned could be used by others who are working on projects such as this one. This information is important to include along with the mechanisms used to prevent deer browsing and any other methods that were considered in the efforts to prevent this problem.

An additional issue the wetlands project has come across in regards to potential damage from wildlife, is Geese. Although the project has not experienced anything excessive or hardly anything defined as damage as it has from Deer but, there was one preventive measure that was implemented and not included in the report. Again, this information has been part of the project and has contributed to the wetlands establishment which should be included in the monitoring report.

20) Commenting Organization: Ohio EPA Commentor: DSW
Section #: 2.4.6 Pg #: 2-5 Line #: 27 Code: E
Original Comment #:
Comment: I believe the correct spelling of "herptefauna" is "herpetofauna".

21) Commenting Organization: Ohio EPA Commentor: DSW
Section #: 2.4.7 Pg #: 2-5 Line #: 31 Code: C
Original Comment #:
Comment: As some of the goose fence was dismantled (section 2.7.5), perhaps this line should read "...were inspected, maintained, or dismantled as warranted."

22) Commenting Organization: Ohio EPA Commentor: DSW
Section #: 2.4.8 Pg #: 2-6 Line #: Tables Code: C
Original Comment #:
Comment: Please include the Palmer Drought Severity Index in these tables, especially in the cases where you state there was a severe drought. They are available from ODNR at http://www.dnr.state.oh.us/odnr/water/pubs/newsltrs/mwirmain.html. For 1999, the indices were March -0.7, April -1.1, May -1.9, June -2.9, July -3.2, August -3.5, September -4.0, and October -3.0. The Palmer Drought Severity Index values are as follows:
Above +4 = Extreme Moist Spell; 3.0 To 3.9 = Very Moist Spell; 2.0 To 2.9 = Unusual Moist Spell; 1.0 To 1.9 = Moist Spell; 0.5 To 0.9 = Incipient Moist Spell; 0.4 To-0.4 = Near Normal; -0.5 To -0.9 = Incipient Drought; -1.0 To -1.9 = Mild Drought; -2.0 To -2.9 = Moderate Drought; -3.0 To -3.9 = Severe Drought; Below -4.0 = Extreme Drought.

23) Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 2.5.3 Pg #: 2-8 Line #: Code: C
Original Comment #:
Comment: In addition to soil quality issues, water availability is probably the most significant issue facing the wetlands. In order to better understand the impacts of water levels within the complex the following efforts should be put in place: 1) install permanent staff gauges in each basin within the channel and major ponds (based upon group visit); 2) continue monthly water level measurements; 3) report all water level measurements in MSL to standardize and allow comparisons (for groundwater this would be in addition to reporting depth below surface); 4) closely track any adjustments to hydrology of the system in terms of headwall raising, piped in water, etc.; 5) if major adjustments are needed and implemented increase water level measurements around the adjustment. Within next years report provide a detailed description of water levels within basins including but not limited to figures showing standing water coverage based upon the MSL and as-built topography.

24) Commenting Organization: Ohio EPA Commentor: DSW
Section #: 2.5.5 Pg #: 2-8 Line #: 24 Code: C
Original Comment #:
Comment: Ohio EPA/University of Dayton were able to collect soil samples during the 1999 and 2000 growing seasons. Unfortunately the soils were not compared to Munsell color charts, however several tests indicative of wetland soils were run. Perhaps, in addition to the

Munsell color chart comparison, the site could also pick some of the tests run during those years on the soils. This would provide some continuity from the early years in wetland establishment.

25) Commenting Organization: Ohio EPA Commentor: DSW
Section #: 2.5.7 Pg #: 2-9 Line #: 4-9 Code: C
Original Comment #:
Comment: Basin 4 appears to still have goose fence in it, although inundated and it is stated here that goose fence was dismantled. I seem to recall tripping over some in basin 1 as well, although this may have been removed afterwards. Specifics about which basins were flooded, and at what time of the year, how that was accomplished, etc. should be included. I thought Harold Swiger also removed some reed canary grass from basin 6 as well. It may also be beneficial to mention the removal of the purple loosestrife from the drainage ditch to the south and west of the wetlands. What about the headwall leakage, repair, and adjustment? There should be detail here about which ones were leaking, which were repaired, and which are still leaking. Which had the height adjusted to what and when. Weren't some repairs made to drainage channels as well, for example the drainage along the north access road was cutting a gulley and matting was installed to control erosion.

26) Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 2.6 Pg #:2-9 Line #: Code: C
Original Comment #:
Comment: The actual total number of required mitigation wetland acres is 16.5 as a result of the destruction of the Trap Range wetland. Additionally, until a measurement of the acreage of actual wetlands within A1P1 is conducted, it is premature to state that 6.24 acres have been mitigated.

27) Commenting Organization: Ohio EPA Commentor: DSW
Section #: 2.6 Pg #: 2-9 Line #: 26-30 Code: C
Original Comment #:
Comment: There should be more discussion of the problems with woody and herbaceous plants here. For example section 2.4.2 states that a walking survey was conducted but little or no cover of native plants occurred so cover estimates were not made. However native plants did appear, and were patchy. Some note of that needs to be made so that where they were located and the conditions could be available for future reference. There is tremendous value in noting what did and did not occur, where, what the conditions were and some analysis of the reasons why. There was more herbaceous cover in basin 8, although mostly non-native, and this is probably related to soil organic content since that basin had the most existing topsoil There is also no mention of the apparent value of bringing in donor plants and muck for the wetlands. Etc, etc, etc, in general there should be more here.

3573

28) Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 2.7 Pg #: 2-9 Line #: Code: C
Original Comment #:
Comment: Two additional problems which need to be addressed within the document and planned for during the upcoming field season:
1) Invasive species within the wetland and appropriate control measures. As stated in a previous comment at least one incidence of Phragmites invasion was found. Additional efforts to control Phragmites and Typha invasions should be detailed here and implemented as soon as practical in 2001.
2) The lack of obligate/facultative wetland vegetation coverage within the basins is significant. A discussion of efforts to remedy this problem as well as to monitor success of fixes is needed. A more quantitative approach to monitoring vegetation coverage and type within the basins is needed.

29) Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 2.8?? Pg #: Line #: Code: C
Original Comment #:
Comment: One of the more useful portions of most of the Restoration Research reports and other documents from the FF Natural Resources Group is the Lessons Learned section. Inclusion of a lessons learned section within the annual report will allow for summarization of lessons and transfer of knowledge between projects. In addition this could be a section which includes the discussion of the use of Adaptive Management in using monitoring data to make decisions regarding project management.

30) Commenting Organization: Ohio EPA Commentor: DSW
Section #: Appendix F Pg #: F-1 Line #: NA Code: C
Original Comment #:
Comment: Please include the day of the month that the measurements were taken. This will allow the reader to compare measurements with recent precipitation.

31) Commenting Organization: Ohio EPA Commentor: DSW
Section #: Appendix G Pg #: G-1, G-2 Line #: NA Code: C
Original Comment #:
Comment: Please include time of day and weather observations for each sampling event (e.g. 10:00, cloudy with intermittent rain). This will aid in interpreting the data, particularly pH and dissolved oxygen.

32) Commenting Organization: Ohio EPA Commentor: OFFO
Section #: Appendix H Pg #: Line #: Code: C
Original Comment #:

Comment: No reference is made to the wood duck boxes installed in several of the basins. Please include a discussion of the efforts to inspect/cleanout/disinfect these boxes and what nesting activity was documented.

33) Commenting Organization: Ohio EPA Commentor: OFFO
Section #: Appendix I Pg #: Line #: Code: C
Original Comment #:
Comment: Due to the problems encountered in establishing wetland conditions in a number of basins, the water monitoring should be revised as discussed above and should be conducted monthly from March through November. Additionally, a quantitative method for evaluating wetland vegetation coverage within the basins should be added.