



Department of Energy  
Office of Legacy Management

April 21, 2008

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

Mr. Thomas A. Schneider  
Ohio Environmental Protection Agency  
401 East 5th Street  
Dayton, Ohio 45402

Dear Mr. Fischer and Mr. Schneider:

**SUBJECT: Transmittal of Response to Comments on Bio-Wetland 90% Design Drawings**

Reference: E-mail from Tom Schenider, OEPA to Frank Johnston, "Treatment Wetland Comments," dated March 28, 2008

This letter transmits Response to Comments on the Fernald Visitors Center Bio-Wetland 90% Design Drawings.

If you have any questions or require any additional information, please call me at (513) 648-3148.

Sincerely,

Jane Powell,  
Fernald Site Manager  
DOE-LM-20.1

Enclosure

2597 B 3/4 Road, Grand Junction, CO 81503

626 Cochran Mill Road, P.O. Box 10940, Pittsburgh, PA 15236

11025 Dover St., Suite 1000, Westminster, CO 80021

955 Mound Road, Miamisburg, OH 45342

REPLY TO: Harrison Office

3600 Collins Ferry Road, Morgantown, WV 26505

1000 Independence Ave., S.W., Washington, DC 20585

10995 Hamilton-Cleves Highway, Harrison, OH 45030

232 Energy Way, N. Las Vegas, NV 89030

Mr. Tim Fischer  
Mr. Tom Schneider  
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cc w/enclosure:

M. Cullerton, Tetra Tech.  
D. DePinho, Stoller  
S. Helmer, ODH  
C. Jacobson, Stoller  
M. Lutz, Stoller  
M. Murphy, USEPA-V, A-18J  
T. Pauling, DOE-LM-20.1 (electronic)  
J. Reising, DOE-EM  
T. Schneider, OEPA (three copies of enclosure)  
M. Shupe, HSI GeoTrans  
Project Record File FER030.10(A) (thru W. Sumner)  
Administrative Records (thru W. Sumner)

cc w/o enclosure: (electronic)

K. Broberg, Stoller  
B. Hertel, Stoller  
J. Homer, Stoller  
F. Johnston, Stoller  
G. Lupton, Stoller  
L. McHenry, Stoller  
M. Sizemore, Stoller  
K. Voisard, Stoller  
S. Walpole, Stoller  
C. White, Stoller

**Response to Comments  
on the  
Fernald Preserve Visitors Center  
Bio-Treatment Wetland 90 Percent Design Package  
April 2008**

1. **Comment:** Compile the 3 packages (drawings, 90% and 30% designs) into one design package. There are inconsistencies between the three.

**Response:** Agree. The final design package will resolve any inconsistencies in earlier versions of the design.

**Action:** Resolve any inconsistencies in the design and submit the final design package.

2. **Comment:** Replace channel from SSF wetland to the SF wetland with an underground pipe. Utilize a diffuser pipe to release water along the width of the first SF cell. If not replacing the channel, redesign to at least 3:1 slopes with U not V shape. Additionally, remove the side channel shown on figure C400.

**Response:** Agree in part. The channel will be replaced with a subsurface pipe. This will require some re-design. We do not believe that it is necessary to include a diffuser pipe along the width of the surface flow (SF) wetland to release water along the width of the first wetland cell. However, a tee will be installed to dissipate the incoming velocity. In addition, the installation of the 6- and 8-inch cross berms will help to accomplish this goal.

**Action:** Revise the design to replace the SF wetland inlet channel with a subsurface pipe and install a tee at the end of the pipe to dissipate the incoming velocity.

3. **Comment:** Revise berm to encircle the SF wetland to prevent surface water runoff into the SF wetland basin. The goal is to only have effluent from the SSF wetland entering the basin. This berm could in turn be used as an access path for viewing the wetland. Alternatively berm the south side with a drainage ditch on the north side. The south berm would encourage walking to the wetland.

**Response:** Agree. Excess cut material will be utilized to create a berm along the southern and western perimeter of the SF wetland. In addition, a berm will be cut into the northern bank of the SF wetland with a ditch on the northern side to intercept run-on water and prevent it from entering the SF wetland. The combination of berms will encircle the SF wetland to prevent surface water runoff into the SF wetland basin. The goal will be to only have effluent from the SSF wetland entering the basin.

**Action:** Revise the design to ensure that runoff into the SF wetland is limited to subsurface flow (SSF) effluent.

4. **Comment:** There should be a provision for the public to view the SSF as well as the SF wetland with appropriate signage.

**Response:** Agree. A footpath trail, interpretive sign, and caution/access restriction signage will be installed as part of the public use amenities associated with the Fernald Preserve Visitors Center (FPVC). However, this work is outside the scope of the bio-wetland contract and will be installed by the site at a later time.

**Action:** Prepare signage noted after completion of bio-wetland construction.

5. **Comment:** The % drop from the existing 4" lines to the first septic tank should be 2% with no high or low spots to maintain a cleaning velocity. Figure C200 references 1% and should be revised.

**Response:** Comment acknowledged. The 6-inch section of piping from the intersection of the two 4-inch lines has already been installed (the 4-inch tee was removed and was replaced with 4-inch x 6-inch reducers and a 6-inch tee). A timely installation of this piping was required to facilitate installation of a gravel roadway behind the FPVC building to provide access for installation of the new electrical substation and to provide access to the rear door of the building for installation of planned displays. The piping was installed per the building code which requires a minimum slope of 1% (>one-eighth unit vertical in 12 units horizontal) for diameters of 4-inches (102 mm) or more. Note that cleanouts are installed on the mains that can be utilized in the event that a plugging of the lines should occur.

**Action:** Identify field installation on as-built drawings.

6. **Comment:** On Figure C100, the berms within the SF wetland reference a height of 6" to 8". This range is not acceptable. A topographic elevation should be provided for both berms and the berms should be consistent across the width at that elevation to ensure consistent water level across the cell. Otherwise it is possible for water to short-circuit in the basin to the outlet thus reducing evapotranspiration potential. It may be preferable to make the first berm elevation at 6" above the bottom elevation and the second berm to be 8" above the bottom elevation.

**Response:** Agree. The top elevation of the berms will be added to the drawings. This elevation will be consistent across the top of the berm to prevent short circuiting. As suggested, the first berm will be at 6 inches above the bottom elevation and the second berm will be at 8 inches.

**Action:** Revise the design as stated in the response.

7. **Comment:** Figure C100, the emergency spillway should be protected from erosion either with a heavy coir matt or imbedded rock.

**Response:** Agree. Erosion protection for the emergency spillway will be added to the design. Stone is the preferred method of protection.

**Action:** Revise the design as stated in the response.

8. **Comment:** On Figure C301 additional detail should be provided regarding the interface of pipe and HDPE liner. Will boots be used to prevent leakage?

**Response:** Agree. Boots will be utilized as needed to prevent leakage around the pipes. Additional detail will be added to the drawing to clarify.

**Action:** Revise the design as stated in the response.

9. **Comment:** The specifications and drawings list both mulch and topsoil as cover on the SSF wetland. It would seem that topsoil would have a high likelihood of migrating downward into the pea gravel and impacting flow and is not recommended. Additionally, it is unclear where available topsoil could be readily found at Fernald for use on these. Mulch is probably the most appropriate cover for the gravel bed in the SSF.

**Response:** Agree. Mulch will be specified as suggested. The specification will be revised to clarify the mulch layer requirements.

**Action:** Revise the design as stated in the response.

10. **Comment:** Figure C400, based upon previous experience at Fernald, seeding of the SF wetland is unlikely to provide sufficient vegetative cover for a number of years. Some degree of plugging or root stock planting is needed to expedite vegetative cover of this wetland. Any planting should include some topsoil and water retaining gel in the planting hole to facilitate early growth of planted/plugged stock.

**Response:** Comment acknowledged. The installation of the planned willow cuttings will help to expedite establishment of the vegetative cover. With the addition of sufficient topsoil or organic matter (see Response to Comment No. 11 below), seeding and self-colonizing of the SF should be adequate. DOE will evaluate the extent of vegetative cover in the SF wetland following one growing season. Additional plugging and planting of root stock may be conducted in the spring of 2009.

**Action:** Revise the design as stated in the response and commit to re-vegetation requirements in the forthcoming Operations and Maintenance (O&M) Manual (see Response to Comment No. 14 below).

11. **Comment:** Figure C400, the SF basin should have mulch added on the bottom to provide some level of organic material for vegetation to get established. Establishing vegetation on the clay bottom of that basin will be extremely difficult without additional organic matter. Tilling mulch into the bottom should aid in vegetation establishment, water treatment and infiltration. It would seem advantageous to incorporate the mulch/compost into 4"-6" of the existing soil to bring up the organic content in the germination and early growth zone of the plants. A 1' incorporation depth should probably have 8"-12" of mulch/compost to start with. A shallow incorporation depth (with rototiller rather than disc) is recommended. Incorporation of the amendment into the soil is critical, for soil integration, most soils will require at least 2-passes with a rototiller to adequately integrate and prepare the subsoil for amendment uptake. No number of passes with the rototiller, disk, or harrow is specified. (source: [http://www.lid-stormwater.net/soilamend/soilamend\\_construct.htm](http://www.lid-stormwater.net/soilamend/soilamend_construct.htm))

For soils we recommend that once the topsoils they be tested using a simple agronomic test to determine whether average values of the following soil chemistry parameters are equaled or exceeded:

Soil parameter	greater than or equal to
% Nitrogen	0.50%
% Carbon	6%
% Total Organic Matter*	13.5%
Bulk Density**	0.5

\* calculated from value for %Carbon

\*\* equals 75<sup>th</sup> percentile of values for natural wetlands; all others equal to 25<sup>th</sup> percentile

This test can be done just once after construction. If values fall below these amendments should be applied.

**Response:** Four to six inches of organic matter will be applied to the SF wetland. This will be tilled eight to 10 inches deep, in order to expedite establishment of the vegetative cover.

**Action:** Revise the design as stated in the response.

12. **Comment:** Figure C400, include a water level indicator within the deep pool portion of the SF wetland.

**Response:** Agree.

**Action:** Revise the design as stated in the response.

13. **Comment:** A set of parameters must be established to determine when the system will be converted from a holding tank operation to the treatment wetland operation. Some minimal vegetative cover would seem to be needed to initiate operation of the wetland.

**Response:** By design, the treatment function for this wastewater treatment system will be provided by the SSF wetland. After installation, the septic tanks will be filled with clean water to ensure that they do not inadvertently float. After installation of the specified plantings in the SSF wetland, The SSF wetland will also be filled with "clean" water for two weeks, as the first step in an acclimation period. On-site ponds in the vicinity of the FPVC will be targeted as the source of this clean water. The water level in the SSF wetland will be maintained throughout the two week time period by providing additional clean water to the system. During this two week period, no wastewater will be allowed to enter the system. After the two-week clean water period, wastewater will be allowed to enter the system. As the wastewater is diluted by mixing with the clean water in the septic tanks, the concentration of Biochemical Oxygen Demand (BOD) discharged from the septic tanks will slowly increase. The septic effluent will provide nutrients for the plants, and ensure that they are acclimated to the wastewater stream. If

signs of stressed vegetation appear, the volume of septic tank effluent will be reduced [by trucking a portion of the wastewater to a Publicly Owned Treatment Works (POTW)] until the system can acclimate to higher BOD levels. Trucking of wastewater will be reduced until the SSF wetland is accepting 100% of the wastewater from the septic tanks.

Upon startup of the system, the discharge valve from the recirculation manhole (i.e., discharge from the SSF wetland) will be locked shut. During the first growing season, water entering the recirculation manhole from the SSF wetland will be tested weekly for Carbonaceous BOD (CBOD). If the effluent exceeds 15 mg/l (the final daily effluent limit of 15 mg/l for CBOD set in Ohio EPA Permit No: 5PGS0002 (General Permit Authorization to Discharge Wastewater from Sewage Treatment Systems Designed to Treat an Average Flow of 25,000 Gallons per Day or Less) for systems with a design flow of less than 1,500 gallons per day that do not discharge directly to the Ohio River) the water will not be permitted to discharge to the surface flow wetland. When testing demonstrates that a concentration of 15mg/l or less is achieved, the lock on the recirculation manhole will be removed and the valve will be opened to allow the wastewater to discharge to the SF wetland. Details of this process will be provided in the O&M manual for the system.

**Action:** Revise the design (add a discharge valve from the recirculation manhole to the SF wetland and eliminate alarm in 2<sup>nd</sup> septic tank) and associated O&M Manual as stated in the response.

14. **Comment:** Throughout the “specifications” package, there is reference to an “O & M manual for vegetation establishment procedures”. A copy of this manual should be included in the next submittal package.

**Response:** An O&M Manual will be prepared and submitted for review and approval. The O&M Manual will be considered part of the final design package, but will be submitted at a later date, given the timing of design and field implementation.

**Action:** Prepare an Operations and Maintenance (O&M Manual) for the Bio-wetland.

15. **Comment:** Ohio EPA’s January email regarding the biowetland stressed the importance of implementing Canada geese mitigation strategies. Though the revised 30% design references the concern, no commitment to the implementation of such strategies is provided in the submittal. The O&M manual probably addresses this issue, if not it should be addressed within some portion of the design submittal.

**Response:** Agree. Goose control measures will be included within the O&M Manual.

**Action:** Revise the design and associated O&M Manual as stated in the response.

16. **Comment:** The design should include examples of signs that will be used to either educate the public about the treatment wetlands or at a minimum warn them that the wetlands are for waste water treatment and they should not be in contact with the water.

**Response:** See Response to Comment No. 4 above.

**Action:** See Action to Comment No. 4 above.

17. **Comment:** Figure C302, additional detail or specifications are needed regarding the compaction around the outlet pipe to ensure leakage doesn't occur.

**Response:** Agree. An anti-seep collar(s) will be installed on the outlet pipe.

**Action:** Revise the design as stated in the response.

18. **Comment:** Figure C302, it would be preferable to install the outlet point at a lower depth in the deep pool of the SF wetland. This will aid in complete drawdown of the wetland if needed for maintenance or repair.

**Response:** The invert of the discharge is designed to allow the wetland to drain and provide appropriate hydraulic control. If possible, the outlet may be lowered to a maximum of 12 inches below the level of the deep pool to increase the hydraulic head and expedite drainage. If necessary to drain the deep pool, a portable pump could be used.

**Action:** Revise the design as stated in the response.

19. **Comment:** "Erosion and Sediment Control Measures" – This specification is substantially lacking in detail and provides insufficient detail to ensure proper storm water controls are in place prior to construction. Additional details regarding specific control measures and location are needed. DOE might want to consider utilizing mulch berms instead of silt fence as one way to address the LEED requirements. The material is renewable and can be recycled by simply dispersing as soil amendment following the end of the need for storm water control.

**Response:** Comment acknowledged. The bio-wetland project sits within the footprint of the FPVC Leadership in Energy and Environmental Design (LEED) project area submittal, and will therefore utilize the existing ESC plan developed for LEED submittal. LEED only requires that an Erosion and Sedimentation Control plan be developed and implemented and does not specify what methods are to be used. The erosion and sediment control measures were based on guidance provided in the Ohio Rainwater and Land Development Manual. Filter berms are an acceptable sediment control within this manual.

**Action:** Evaluate the feasibility of mulch filter berms in place of silt fence.

20. **Comment:** "Earthwork specification" - Bullet #7 the bullet discusses adding water to ensure "proper soil compaction" though no definition or criteria are provided in any of the documents for determining "proper soil compaction."

**Response:** As outlined on item #6 of the Earthwork specifications, a minimum of four passes per lift with an 84-in. sheep foot roller will be required. Following the four passes, the acceptability of compaction will be determined based on visual inspection (e.g., no sloppy portions due to excess water in soil).

**Action:** None required.

21. **Comment:** "Earthwork specification" - Bullet #9 references the creation of stockpiles. Figures should provide approximate location for such stockpiles and appropriate erosion control measures.

**Response:** Bullet #9 states that soils from the excavation of the SSF and SF wetlands will be stockpiled for berm construction. The location of these stockpiles will be determined in the field and appropriate erosion control measures put in place.

**Action:** None required.

22. **Comment:** "Earthwork specification" - Bullet #10 references islands. It is unclear from the drawings where any islands are planned. Please clarify.

**Response:** Bullet #10 was intended to reference the 6- and 8-inch cross berms. This reference will be clarified.

**Action:** Revise the design as stated in the response.

23. **Comment:** "Geomembrane specification" - Bullet #2 requires the subgrade contain no rocks greater than 0.472 inch in diameter. Based upon site experiences at the OSDF with a more generous diameter it is unlikely this spec can be achieved without significant screening and picking. It is probably best to default to the geotextile.

**Response:** Agree.

**Action:** Revise the design as stated in the response.

24. **Comment:** "Geomembrane specification" - The spec repeatedly references compliance with the manufacturer or fabricators specifications but provides none of these. It is unclear how the workers will know what these specs are or how the appropriate QA oversight will ensure they are followed. The liner type should be selected and the requirements for installation and protection clearly defined.

**Response:** Manufacturer's specifications will be provided in the final design package. These specifications provide sufficient detail for installation and quality assurance. In addition, the selected installer is a "Manufacturer Certified Installer."

**Action:** Provide liner Manufacturer's specifications in final design package.

25. **Comment:** "Construction of SSF Wetland specification" - Bullet #9 requires topsoil stockpiled from the excavation to be used for topping the pea gravel. It is unlikely that any topsoil exists within the foot print of the basin to stockpile. All areas proposed for this project reside on top of previously excavated soils leaving low organic content clay soils to work with. As stated in previous comments consideration should be given for using mulch as the top coating.

**Response:** See Response to Comment No. 9 above.

**Action:** See Action to Comment No. 9 above.

26. **Comment:** "Construction of SSF Wetland specification" - Bullet #9 suggest spraying of Roundup over the topsoil of the wetland. Even though this is supposed to be a subsurface flow wetland it is not appropriate to use Roundup. It is inconsistent with the labeling restrictions to use Roundup over water or where it can easily enter water. Use only herbicides labeled for use on or around water for vegetation control e.g. Rodeo.

**Response:** Agree. The intent was to use Roundup while the material is stockpiled and before placement, not following installation. Weed free mulch will be specified.

**Action:** Revise the design as stated in the response.

27. **Comment:** "Construction of SF Wetland specification" – It will be very difficult to establish vegetation on the SF Wetland if no organic amendment is used and no plugging occurs. The current basin has been there for 2 years after seeding and yet no wetland plants have been established. This should clearly demonstrate the difficulty that will be encountered establishing vegetation on the area. Additional measures are needed to ensure reasonable vegetative cover will be established on the SF wetland in a timely manner. Criteria should be given for how much cover should be established in what time frame.

**Response:** See response to Comment No. 11 above. In addition, please note that the depth of the pond is currently such that wetland plants would not colonize this area. By designing pond depth to 6 to 12 inches, the likelihood of colonization of this area by wetland species greatly increases.

**Action:** Revise the design as stated in the response.

28. **Comment:** "SSF Wetland Planting specification" – Bullets 4, 5, & 6 the planting lists are inconsistent with those in the revised 30% design. The 30% design lists are more diverse and comprehensive; Ohio EPA recommends the use of that list. Due to the unpredictable flow regime of this wetland it is best to have a diverse planting that can adjust itself to the actual flows versus the predicted flows. It is unclear why you would list 5 plant species but only require 3 to be used. Additionally no reason is provide for the "at least 60%" *Scirpus atrovirens*. This restriction should be justified or removed.

**Response:** The list provided in the 30% design was "potential" species, and was intended to provide a variety of acceptable plants from which to choose. Given the unpredictability of the flow regime, plant species are selected for hardiness rather than diversity. The plants specified were selected based on their ability to quickly establish themselves, as well as their ability to tolerate and treat pollutant loads. The SSF wetland is not meant to create habitat, and it is best served by fewer species which are less likely to attract wildlife. Five plants are provided in the event that not all species are available. The 60% *Scirpus atrovirens* was specified as this plant is intended to be the work horse of the system, and is reputed to be particularly hardy and resilient.

DOE will evaluate the survivability of the selected vegetation in the SSF wetland following one growing season.

**Action:** DOE will address survivability criteria in the forthcoming Operations and Maintenance (O&M) Manual.

29. **Comment:** "SSF Wetland Planting specification" – Bullets 9 – The description of what is expected of the rootstock seems inconsistent with our experiences with *Scirpus* spp. It will likely be a brown, root wad that is neither a tuber nor a rhizome.

**Response:** Agreed. The specification will be revised to indicate that Duck Potato rootstock will be in the form of tubers at least 5/8-inch in diameter. Blue Flag Iris rootstock in the form of rhizomes shall be at least 2 inches long. Green Bulrush, River Bulrush, and Prairie Cordgrass shall be in the form of root wads. Bodies and shoots associated with rootstock shall be rigid to the touch. The Engineer shall reject bodies and shoots that are soft, mushy and appear rotten or decomposed. Established root stock shall contain roots that are rigid to the touch. Tubers and rhizomes shall be white in appearance.

**Action:** Revise the design as stated in the response.

30. **Comment:** "SSF Wetland Planting specification" – Bullets 11 – Are fertilizers necessary? It would seem they would add the same nutrients you are trying to design the system to eliminate. If necessary the application should be limited to the minimum amount possible.

**Response:** Fertilizer will be removed from the SSF planting specification.

**Action:** Revise the design as stated in the response.

31. **Comment:** "SSF Wetland Planting specification" – Bullets 13 – Based upon prior experience at Fernald the optimum planting dates start closer to May 15. Planting in June has often led to drought impacts. The earlier planting can start on this project the better. Since most of the planting material is root stock or seed, frost damage is not an issue.

**Response:** Agree. See response to Comment No. 13 above for details regarding acclimation following installation.

**Action:** Revise the design as stated in the response.

32. **Comment:** "SF Wetland Planting specification" – See previous comments regarding organic amendment of SF wetland soils, planting dates, and recommendation for plugging vegetation. Also the seeding mix listed in the 30% design should be used.

**Response:** See Response to Comment Nos. 11 and 28 above.

**Action:** See Action to Comment Nos. 11 and 28.

33. **Comment:** "Berms and Ditches Planting specification" – Bullet 8 – all of the listed species should be included in the seed mix not just 3.

**Response:** See Response to Comment No. 28 above.

**Action:** None required.

34. **Comment:** The submission appears to have several minor errors which indicate lack of attention to detail. Examples include “trust block” v “thrust block” (C200), “exiting” v “existing” (C302), 2 rows of black willows in notes, one in drawing (C400), and inconsistency between various drawings of the SF wetland contour.

**Response:** Agree. These items will be corrected in the final design.

**Action:** Revise the design as stated in the response.

35. **Comment:** Mulch (straw and wood cellulose) should meet the site specifications 02930.

**Response:** Specification 02930 was used during the Closure Contract and is not applicable to the bio-wetland design. The material requirements for mulch will be included in the design.

**Action:** Revise the design as stated in the response.

36. **Comment:** Cover crop for upland areas should be Canada Wild Rye (C400).

**Response:** Canada wild rye will be included in reseeded of upland areas beyond berms and ditches. Slope stabilization is the primary objective for seeding of berms and ditches, thus “quicker” to establish cover crops will be specified for these areas.

**Action:** Revise the design as stated in the response.

37. **Comment:** We are concerned about the possibility of producing mosquito breeding areas in the manholes for distribution and equalization and that this will be attributed to the wetlands. For example it appears as though the flow distribution manhole will have a residual of stagnant water with an open aluminum grate cover. What provisions will be made to prevent mosquito breeding areas from forming or becoming an issue.

**Response:** Because of the inclusion of the recirculation pump, the system will not remain stagnant for a sufficient amount of time for mosquitoes to hatch (as this generally requires 48 hours). The system may actually serve as a mosquito sink by allowing eggs to be laid on the surface and discharging that water prior to the mosquitoes hatching.

**Action:** None required.

38. **Comment:** For Black Willow planting, if cuttings are used at least 60% of the cutting must be below ground.

**Response:** Agree.

**Action:** Revise the design as stated in the response.

***The remaining comments are on the 30% design.***

39. **Comment:** The 30% Design Description of Proposed Bio-Treatment Wetland System: This section states that in the event of a discharge the NPDES permit will require modification. The NPDES permit for Fernald is currently up for renewal and the renewal application has been submitted to the Ohio EPA. This possible discharge should be added to the renewal application. Please resubmit the renewal application.

**Response:** Agree.

**Action:** Submit an addendum to the NPDES permit application after design is finalized and before the bio-wetland system is operational.

40. **Comment:** The 30% Design Description of Proposed Bio-Treatment Wetland System: - This section states that in the event of an emergency discharge that a monitoring regime will be proposed to Ohio EPA and implemented. The regime should be part of the submittal, so it is prepared and ready in the event of a discharge.

**Response:** See response to Comment No. 39 above. A monitoring regime will be included in the revised permit application.

**Action:** None required.

41. **Comment:** The 30% Design Description of Proposed Bio-Treatment Wetland System states that the septic tanks will be pumped and treated offsite until the wetland system is operational. The plans should specify it will be pumped and "*taken to a POTW for treatment*".

**Response:** See Response to Comment No. 13 above.

**Action:** See Action to Comment No. 13 above.

42. **Comment:** The flows cited upon which the design is based are inconsistent with OAC 3745-42-05. 25 gpd was used in the calculations for the 7 employees, but the rules state that 35 gpd is should be used as there are showers onsite.

**Response:** OAC 3745-42-05 allows 15 gpd per employee for employees of either an assembly hall or a day park. Per OAC 3745-42-05, showers were addressed by adding 10 gpd per employee, resulting in 25 gpd per employee.

**Action:** None required.

43. **Comment:** The Ohio EPA SSF Constructed Wetlands with Soil Dispersal System guidance states that 0.1 lbs/units/day of BOD should be used for calculations or deviations from that number should be discussed with Ohio EPA. Justify the BOD loading rates used in the design.

**Response:** The average value of BOD provided in OAC 3745-42-05 for day camps and assembly halls was used. A range of 200 to 280 mg/l is provided in the regulations. The value used in the design is 240 mg/l. Average septic tank effluent is 200 mg/l. BOD at this facility is expected to be lower, since the Visitors Center will generally have day use only.

**Action:** None required.

44. **Comment:** There had been a previous discussion on using a certified soil scientist to take site specific samples to use in support of this design. Please submit the information, including a soil boring location map, to support that this was done.

**Response:** Agree.

**Action:** Submit a report providing the requested information.