

STATE CONSTRUCTION PERMIT
Permit Number: AR0052451C


TO:	Consulting Engineer:
Peco Foods, Inc.	Chas. N. Clark Assoc., Ltd.
Pocahontas	Consulting Engineers
P.O. Box 1760	714 Hillcrest Drive
Tuscaloosa, AL 35403	Laurel, MS 39440

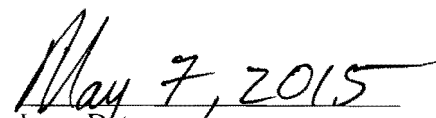
This permit is your authority to construct the wastewater treatment system in accordance with the permit application and plans and specifications which were received on 9/25/2014 with all additional information received by 3/5/2015 under authority of the Arkansas Water and Air Pollution Control Act (Arkansas Code Annotated §8-4-101 et seq. and Arkansas Code Annotated §8-4-201 et seq.) and the following terms and conditions.

1. The treatment system shall be constructed in accordance with the final plans and specifications as approved by the Arkansas Department of Environmental Quality (ADEQ). In case any statement or representation in the aforementioned documents is found to be incorrect, this approval may be revoked.
2. There should be no deviation from the approved plans and specifications unless the revisions have been submitted for review and written approval is received.
3. Within thirty (30) days of completion of construction, a Professional Engineer (PE) registered in Arkansas shall submit written certification to the Department (Permits Branch of the Water Division) that the facility has been constructed or modified in accordance with the approved plans and specifications.
4. This permit is issued in reliance upon the statements and representations made in the application and the plans and specifications. Issuance of a State Construction Permit does not guarantee satisfactory operation of the treatment system. The permittee shall ensure that water quality standards are not violated. Any modifications to the treatment facility necessary to meet water quality standards are the responsibility of the permittee and would require a modification to this State Construction Permit.
5. A State Construction Permit for a new wastewater treatment facility does not constitute an NPDES permit. Issuance of a State Construction Permit for construction of a treatment system in no way guarantees or assumes that an application for an NPDES permit to operate the system will be approved or an NPDES permit will be issued.
6. The two backwash holding lagoons, stormwater retention lagoon, process water and stormwater anaerobic lagoon, anaerobic lagoon, emergency holding lagoon, and activated sludge plant waste holding lagoon must have a pond bottom liner with a permeability of less than 1×10^{-7} cm/sec and a thickness of 18 inches or equivalent before the start of operation in accordance with Sheet C4.5 of the plans and specifications.

7. A complete "Operations and Maintenance (O&M) Manual" of the wastewater treatment system shall be developed by the engineering consultant for the operator's use before the plant is in operation. This manual must include a detailed sludge removal plan to ensure that pond liners are not damaged during the removal process. The sludge removal plan must be submitted to the Department for review and approval prior to operation of the wastewater treatment system. The permittee will be required to submit a written certification by the Arkansas Professional Engineer (P.E.) 180 days prior to the expiration of the NPDES permit that the liner continues to meet the design parameters and 10 State Standards.
8. If the construction site will disturb in excess of one (1) acre, the permittee must comply with the terms of the Stormwater Construction General Permit Number ARR150000 prior to the start of construction. Best Management Practices (BMPs) must be implemented regardless of the size.
9. This facility is located as follows: Latitude: 36° 12' 51.1" Longitude: 90° 57' 27"; in Randolph County, Arkansas.
10. The receiving waters named: Black River, thence to the White River in Segment 4G of the White River Basin. The outfall is located at the following coordinates: Outfall 001: Latitude: 36° 12' 30.51"; Longitude: 90° 59' 30.54".
11. The construction will include two 0.4 million gallon backwash holding lagoons, one 2.125 million gallon stormwater retention lagoon, one 12 million gallon process water and stormwater anaerobic lagoon, one 4 million gallon anaerobic lagoon, one 11.6 million gallon emergency holding lagoon, and one 4 million gallon activated sludge plant waste holding lagoon. The levels in the lagoons will be measured using transducers which will give real time digital readings. Proposed construction will also include two anoxic basins (diameters = 100 feet, sidewater depth = 16 feet), one aeration basin (diameter = 184 feet, sidewater depth = 16 feet), deaeration basin (diameter = 20 feet, sidewater depth = 16 feet), one clarifier (diameter = 85 feet, sidewater depth = 16 feet), UV disinfection, and parshall flume. The design flow of the wastewater treatment plant is 1.66 MGD.
12. Failure to begin construction within one (1) year of the effective date may result in termination of this permit if a request for an extension is not submitted to the Department in a timely manner.
13. The permittee must collect and maintain sufficient information for conducting a water balance. A water balance demonstrating that the ponds are maintaining the required permeability and are not leaking must be submitted to the Department 180 days prior to the expiration of the NPDES discharge permit. The water balance must be certified by a Professional Engineer licensed in the State of Arkansas.

Effective Date: May 12, 2015


Ellen Carpenter
Chief, Water Division
Arkansas Department of Environmental Quality


Issue Date

STATEMENT OF BASIS

For State Construction Permit Number AR0052451C.

The issuing office is:

Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, Arkansas 72118

The applicant is:

Peco Foods, Inc.
Pocahontas
P.O. Box 1760
Tuscaloosa, AL 35403

1. BASIS FOR PERMIT AND CONDITIONS

This permit is your authority to construct the wastewater treatment system in accordance with the permit application and plans and specifications which were received on 9/25/2014 with all additional information received by 3/5/2015. The issuance of the permit and conditions are based on the Arkansas Water and Air Pollution Control Act (Arkansas Code Annotated §8-4-101 et seq. and Arkansas Code Annotated §8-4-101 et seq.), Arkansas Pollution Control and Ecology Commission (APCEC) Regulation No. 6.202, NPDES Discharge permit AR0052451C, and 40 CFR 122.26.

Specific permit conditions and their sources are listed as follows:

Conditions 1, 2, 3, 4, 5, 7, 9, 10, and 11 are self-explanatory. Condition 8 is based on 40 CFR 122.26(b)(15). Condition 10 is based on submitted application and Plans and Specifications. Condition 6 is based on Section 93.42 of 2004 Edition of Recommended Standards For Wastewater Facilities (10-SS) and generally accepted scientific knowledge, and engineering practices. Condition 13 is necessary to verify that the ponds are maintaining the required permeability and are not leaking.

2. SOURCES

1. Application Form 1 and Plans and Specifications dated 9/25/2014 with all additional information submitted by 3/5/2015.
2. 2004 Edition of Recommended Standards for Wastewater Facilities (10-SS).
3. APC&EC Reg. 6, Reg. 8, and Reg. 9
4. A.C.A. §8-4-217(b)(1)(C)
5. 40 CFR 122.26

3. CONTACT PERSON

The ADEQ contact person for requesting information or obtaining copies of the application, permit, and the Statement of Basis is:

Loretta Reiber, P.E.
NPDES Branch, Water Division
Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, Arkansas 72118-5317
(501) 682-0612

RESPONSE TO COMMENTS FINAL PERMITTING DECISION

Permit No.: AR0052451C
Applicant: Peco Foods, Inc. - Pocahontas
Prepared by: Loretta Reiber, P.E.

The following are responses to comments received regarding the draft permit number above and are developed in accordance with APCEC Regulation No. 8 Administrative Procedures, and A.C.A. §8-4-203 e(2).

Introduction

The above permit was submitted for public comment on March 12, 2015. The public comment period ended on April 13, 2015.

This document contains a summary of the comments that the Arkansas Department of Environmental Quality (hereinafter "ADEQ") received during the public comment period. A summary of the changes to the NPDES Permit can be found on the last page of this document. There were several similar issues raised throughout the comments; those are grouped together, with one response from the ADEQ.

The following people or organizations sent comments to the ADEQ during the public notice. Ms. Linda Bly submitted a total of nine comments. The Arkansas Department of Health submitted one comment.

Comments 1 and 2: The pond liner construction is supposed to consist of 18 inches of clay. In its March 5, 2015, letter, the consultant states the 18 inch compacted clay liner will meet a "*maximum* hydraulic conductivity of 1×10^{-7} cm/sec." What will the minimum hydraulic conductivity be? Ms. Bly stated that she asked this question because ADEQ's draft permit states in Condition 6 that the ponds "must have a liner with a permeability of *less than* 1×10^{-7} cm/sec..." What is the exact hydraulic conductivity that the compacted clay liner is supposed to meet and that the on-site construction materials testing company is supposed to verify?

Wouldn't 1×10^{-9} cm/sec be better for protecting against leaks from the ponds? Why isn't this the permeability required for the clay liner?

Response: Hydraulic conductivity is a measure of a material's capacity to transmit water, i.e., permeability. The Department must issue State Construction permits which have been reviewed and approved in accordance with the applicable regulatory requirements. APC&EC Regulation 6.202(B) requires that the design criteria contained in the latest edition of "Recommended Standards for Sewage Works," published by the Great Lakes-Upper Mississippi Board of State

Sanitary Engineers known as 10 State Standards be met for all permitted wastewater treatment systems.

Section 93.422 of the 10 State Standards sets forth the requirements for pond bottom seals, i.e., liners. This section requires that the hydraulic conductivity (k) in centimeters per second (cm/sec) for the seal shall not exceed the value derived from the following expression where L equals the thickness of the seal in centimeters (cm).

$$k = 2.6 \times 10^{-9} * L$$

As approved, the thickness of the liners in each pond will be 18 inches which is equal to 45.72 cm.

$$k = 2.6 \times 10^{-9} * 45.72 \text{ cm} = 1.2 \times 10^{-7} \text{ cm/sec}$$

The State Construction Permit requires the permeability to be a number less than 1×10^{-7} cm/sec. A lower number, i.e., as approved for the treatment ponds, means the liners will be less permeable than is required. Therefore, the clay liners in the proposed treatment ponds as designed will transmit less water than is required demonstrating greater protection of the groundwater in the area. In short, the permeability of the pond bottom liner will be more stringent than what is required by Reg. 6.202(B) and 10 State Standards.

The State Construction permit requires the permittee to construct the treatment system in accordance with the approved plans and specifications. For this facility, the permittee is required to compact the clay liner to a minimum of 95% proctor (i.e., a method of measuring compaction) as stated on Sheet C4.5 which was submitted with the State Construction Permit application.

It should be noted that the commenter's request for a more stringent permeability requirement, i.e., 1×10^{-9} cm/sec, may allow for less transmission of water through the liner, but no regulatory or environmental justification was provided or can be found for this more stringent requirement. As discussed in the paragraphs above, the approved pond bottom liners will meet and exceed the current regulatory requirements.

Comments 3, 4, and 6: Why is there no requirement for a plastic liner?

Given the strength of the waste material, shouldn't there be a requirement for a plastic liner for the process waste pond?

Wouldn't plastic liners from the process waste ponds provide better protection of the environment?

Response: As stated in the response to Comments 1 and 2 above, the Department follows the requirements of the APC&EC Reg. 6.202(B) and 10 State Standards for pond design. Section 93.422 of the 10 State Standards states that seals consisting of soils, bentonite, or synthetic liners may be considered provided the permeability, durability, and integrity of the proposed material can be satisfactorily demonstrated for the anticipated conditions. The Department considers both synthetic liners and clay liners to be acceptable for most applications provided that all of the liner and the location requirements in the 10 State Standards are met.

As required in 10 State Standards Sections 93.22 and 93.23, there should be a minimum groundwater separation of four (4) feet and a minimum bedrock separation of ten (10) feet below the pond bottom. As designed, the groundwater level is five (5) feet below the bottom of the liner and the bedrock is over eighteen (18) feet below the bottom of the pond liner. In addition and as required by 10 State Standards Section 93.21, the permittee will be routing the stormwater runoff in the area around the ponds to protect pond levees from erosion. Therefore, the pond designs as approved meet and exceed the subject requirements.

As outlined in the response to Comments 1 and 2 above, the ponds will be constructed to meet the permeability and the compaction requirements (Sections 93.422 and 93.421, respectively). Sheet C4.5 which was submitted with the State Construction Permit application also indicates that the bottoms will be level as required by Section 93.423 of the 10 State Standards. Since the ponds will be used for stormwater runoff control during the construction of the processing facilities and the wastewater treatment plant, the prefilling requirement of Section 93.424 of the 10 State Standards will also be met.

Protection of the environment is based on the liner being installed as required, the permeability of the liner, and proper maintenance, not the material of the liner itself or the strength of the wastewater.

Comment 5: The company represents in a March 6, 2015, e-mail to Mo Shafii from Danile Russum that:

“The removal of solids will most likely be performed using hydraulic vacuum dredging equipment... The dredging equipment i[s] intended to remove the viscous layer without impacting the compacted clay on the lagoon bottom. Peco Foods may choose to employ (sic) an alternative method if needed...”

Ms. Bly emphasized a few important phrases from the above e-mail. They include “is intended” and “may choose to employ an alternative method if needed.” Why would an alternative method be needed? More importantly, what happens if the *intention* to remove the viscous layer without impacting the clay liner is not realized in practice and the clay liner is damaged? How will damage to the clay liner during sludge removal be detected? This is of special concern given the frequency with which solids have to be removed (every 133 days).

Because of the frequency, a plastic lining in addition to the compacted clay liner should be required. Tears in plastic can be easily observed, unlike tears in a uniform clay liner. Ms. Bly noted that Condition 7 of the draft permit requires a “detailed sludge removal plan to ensure that pond liners are not damaged.” However, an after the fact plan for removing sludge does nothing to cure the defective design of the ponds.

Response: As discussed above, the proposed pond design as approved meets and exceeds the regulatory and engineering requirements in APC&EC Reg. 6.202(B) and 10 State Standards. Therefore, the pond design is not “defective” and a plastic liner will not be necessary.

In addition to the design of the ponds, the Department must review the operation of the pond including the methods for sludge removal to ensure that the design integrity of the pond will be maintained. As stated, the primary method of sludge removal proposed by the permittee is hydraulic dredging. Hydraulic dredges work by vacuuming up a mixture of sediment and water from the bottom surface and transferring the mixture through a pipeline to the desired location. Hydraulic dredging does not involve digging or scraping of the liner surface.

The permittee is required to compact the liner to a minimum of 95% proctor (a method of measuring compaction) as stated on Sheet C4.5 which was submitted with the State Construction Permit application. The permittee will be responsible for verifying that the sludge removal equipment was properly operated and that the clay liner was not damaged during removal of the sludge.

Condition No. 7 of the permit states “A complete “Operations and Maintenance (O&M) Manual” of the wastewater treatment system shall be developed by the engineering consultant for the operator’s use before the plant is in operation. This manual must include a detailed sludge removal plan to ensure that pond liners are not damaged during the removal process. The sludge removal plan must be submitted to the Department for review and approval prior to operation of the wastewater treatment system.”

The condition requires submittal of the sludge removal plan prior to operation, not construction, of the treatment system. Sludge removal will take place when construction has been completed, the certification that the system was built in accordance with the approved plans and specifications has been received, and the construction permit has been terminated.

A requirement has been added to Condition No. 7 of the permit stating “The permittee will be required to submit a written certification by the Arkansas Professional Engineer (P.E.) 180 days prior to the expiration of the NPDES permit that the liner continues to meet the design parameters and 10 State Standards.” This condition will also be added to the NPDES discharge permit.

An alternative method for sludge removal is necessary in the event that there is an unforeseen problem with the primary method. However, since the permittee has stated that the sludge removal will take place with hydraulic dredging equipment, any change to this plan will require prior authorization from the Department.

Comments 7, 8, and 9: Again, given the strength of the waste, it is also important to require leak detection. How will ADEQ know if the ponds are leaking, if no leak detection is provided or required?

Ms. Bly stated that she understands that all liners leak. Does the ADEQ agree with this statement? If a certain amount of leakage is acceptable, how will ADEQ know if the ponds are leaking more than an acceptable amount if no leak detection is required?

Response: The Department acknowledges that all liners may leak. As required in APC&EC Reg. 6.202(B) and 10 State Standards, the Department must ensure that the design of a wastewater treatment pond meets the permeability requirements. This requirement is also included as a requirement in a State Construction permit for wastewater treatment ponds, See Condition No. 6.

In order to demonstrate compliance with the requirement, the permeability and compaction of the constructed liner are tested after installation. The engineering firm listed on the permit is responsible for certifying to the Department that the entire wastewater treatment system was built in accordance with the approved plans and specifications and that all requirements were met. See Condition No 3.

Several items may be used to determine if a pond is leaking such as level indicators which are required for the ponds, production rates, discharge rates, rainfall data, evaporation rates, etc. This data may be used to develop a water balance which can then be used to determine if the ponds may be leaking. The NPDES discharge permit and the State Construction permit (Condition No. 13) will each contain the following condition:

“The permittee must collect and maintain sufficient information for conducting a water balance. A water balance demonstrating that the ponds are maintaining the required permeability and are not leaking must be submitted to the Department 180 days prior to the expiration of the NPDES discharge permit. The water balance must be certified by a Professional Engineer licensed in the State of Arkansas.”

Comment 10: The Arkansas Department of Health stated that the degrees in the longitude for the outfall location in Condition No. 10 of the permit should be corrected to 90°.

Response: The Department has verified that 90° is the correct degrees designation for the outfall’s longitude. The permit has been corrected.

Summary of Changes to the permit

Condition	Draft Permit	Final Permit	Reason	Comment #
7	permit did not require certification of pond permeability to be submitted at a later date	permit requires P.E. to recertify the liner permeability 180 days prior to expiration of NPDES permit	necessary to demonstrate that the permeability requirement is still being met and that sludge removal has not damaged the liners.	5
10	Longitude was listed as 91°	Longitude has been corrected to 90°	typographical error	10
13	N/A	requires water balance	necessary to demonstrate ponds are meeting the permeability requirement and are not leaking	7, 8, & 9