



STATE OF IOWA

TERRY E. BRANSTAD, GOVERNOR
KIM REYNOLDS, LT. GOVERNOR

DEPARTMENT OF NATURAL RESOURCES
ROGER L. LANDE, DIRECTOR

May 4, 2012

City of Hospers
Attn: Harlan Rouse, Mayor
P.O. Box 248
Hospers, IA 51238.

Subject: Variance Request from 567 IAC 64.2(9) "b"; 17.3.2.2"a" and 17.3.4.3"a"

RE: City of Hospers (Petitioner) for Wastewater Treatment Plant Upgrades
DNR Project No. S2009-0096; CWSRF File No. CS192052401

Honorable Mayor Rouse:

The department has considered and conditionally approved your April 24, 2012 petition for a variance from rule 567 Iowa Administrative Code (IAC) 64.2(9)"b" and Iowa Wastewater Design Standards sections 17.3.2.2"a" and 17.3.4.3"a", which require sludge aeration of 30 cfm/1,000 ft³ of tank volume, with the largest blower out of service for sludge stabilization and 20 cfm/1,000 ft³ of tank volume, with the largest blower out of service for sludge holding, respectively.

Based on the documentation submitted by the engineer, Petitioner City of Hospers – Iowa, will treat and store the waste sludge from the Biolac cells in an existing aerated lagoon with a capacity of 3.2 MG and will provide aeration of at least 2,017 cfm with all existing blowers in service for stabilization. The Biolac is an extended aeration activated sludge system, with a solids retention time of about 60 days. Therefore, it is the determination of this department that satisfactory justification has been presented to warrant the granting of a variance, with conditions, for proper operation and sludge aeration stabilization and holding requirements. The requested variance is deemed to be reasonable and necessary pursuant to the Iowa Code section 455B.181.

The facts submitted with the project present unique circumstances and the variance is therefore justified to provide the narrowest exception possible to the provisions of the rule in accordance with 561 IAC 10.5. Because the approved variance is for the sludge aeration requirements, a temporary variance is impracticable; therefore, the approved variance is of permanent nature in accordance with 561 IAC 10.5.

As a condition to this variance being granted, petitioner must meet the following operating and sewage sludge land application requirements:

1. If any amount of sludge is stored in onsite lagoons for a period longer than two years, a Surface Disposal Permit from USEPA VII shall be obtained, pursuant to 40 CFR Part 503.
2. If sludge is stored on site for less than two years, land application of sewage sludge shall meet the rules set forth in 567 IAC Chapter 67:
 - a. 67.8(455B) contains the requirements for land application of Class II sewage sludge.
 - b. 67.8(1) provides for limitations on the land application requirements for Class II sludge.
 - c. 67.8(2) requires management practices when land applying Class II sewage sludge.
 - d. 67.8(3) establish frequency of monitoring for land application of Class II sludge.

- e. 67.8(4) requires record keeping for Class II sludge land application.
3. The peak month solids wasting rate to the sludge stabilization and storage facilities shall not exceed 295 lbs/day without further engineering analysis and an approval by the department.
 4. The aeration equipment and blower capability for sludge stabilization, if modified as a result of an approved design variance, shall be maintained at not less than 2,017 cfm with all blowers in service and meet an oxygen requirement not less than 1,240 lb-O₂/day. This operating requirement shall apply unless written authorization to abandon these facilities is given by the department.
 5. The City of Hospers shall isolate each sludge storage lagoon from freshly wasted sludge for at least 60 days prior to land application in the absence of any other specific and written direction approved by DGR.

This decision is based on our review of justification presented to support the request. Our concurrence with the request is based on the Department's finding that the resulting project will provide substantially equivalent effectiveness (567 IAC 64.2(9) "e") as would be provided by technical compliance with the design standard on this issue.

If you have any questions, please contact Sara Smith at (515) 242-5521.

Sincerely,



Shelli Grapp
Water Quality Bureau Chief
ENVIRONMENTAL SERVICES DIVISION

c: Tom Wall, PE – DGR & Associates (Rock Rapids, Iowa)
Sheila Kenny (DNR) – Field Office 3
Sewage File 6-84-39-0-01
CWSRF File No. CS192052401

VARIANCE REQUEST
Iowa Department of Natural Resources

1. Date: 05/04/2012
2. Reviewer/Engr.: Sara Smith
3. Date Received: 04/30/2012
4. Facility Name: Hospers, Iowa
5. Facility Number: 6-84-39-0-01
6. County Number: 84
7. Program Area: CP (Wastewater)
8. Facility Type: CO5
9. Subject Area: 389
10. Rule Reference: 567 IAC 64.2(9)"c"
11. Design Std. Ref.: 17.3.2.2"a" & 17.3.4.3"a"
12. Consulting Engr.: Tom Wall (DGR & Associates)
13. Variance Rule: 567 IAC 64.2(9)"c"

14. Decision: *Approved*
Date: *5-4-12*

15. Appealed:
Date:

16. Description of Variance Request:

Section 14.5.2.3"5" of the Iowa Wastewater Design Standards requires sludge wasting, sludge stabilization (defined by process) and holding, and a final disposal site. Section 17.3 includes the detailed criteria for sludge digestion and holding. Specifically, section 17.3.2.2"a" requires that for aerobic sludge digestion using diffused air systems, at least 30 cfm of air per 1,000 ft³ of tank volume be provided, with the largest blower out of service. In addition, section 17.3.4.3"a" requires that sludge holding tanks be provided to store the digested sewage sludge and that such holding tanks have an aeration system capacity of at least 20 cfm per 1,000 ft³, with the largest blower out of service.

The city of Hospers was approved for a variance from 17.3.2.2"a" on 02/27/2012, for aeration levels of 20 cfm per 1,000 ft³ with the largest blower out of service. To achieve this, the city needed to add 2 new blowers, in addition to dike work for a sludge lagoon volume of 1 MG.

The city of Hospers received CP-2012-0265-S on 03/22/2012. In this permit, the approved project included treatment and storage of the sewage sludge wasted from the Biolac to a new sludge storage lagoon with a volume of 1 MG and the addition of 2 new blowers, with a capacity of 2,000 cfm each.

The city contends that after the project was bid, the approved aerated lagoon modification and 2 new blowers would add over \$200,000 in capital investment to the project.

The city is petitioning for a new variance to use only existing blowers and the existing aerated lagoons to store the wasted sludge from Biolac without the lagoon cell modifications and without the 2 new blowers.

17. Applicant's/Consulting Engineer's Justification:

The city of Hospers receives and treats the wastewater from two local industries, Iowa Premium Pork (IPP) and DenHartog Industries, with IPP contributing the majority of the design organic loads because of their meat processing business. IPP is planning an expansion, and as a result the city of Hospers is proposing to upgrade their existing

wastewater treatment plant (lagoons) by constructing a Biolac system.

In the variance document dated 04/24/2012, the city and engineer submitted technical literature that mentions the Biolac as an activated sludge treatment type with extended aeration and an estimated sludge age of nearly 60 days.

In the petition for variance, the city also submitted test results performed by Parkson Corporation, the Biolac system manufacturer and claim that the Biolac sludge can meet the EPA's requirements for Class B sludge included in the 40 CFR Part 503, without further digestion when all treatment units are in service.

The city contends that to provide aeration as previously approved, the 20 cfm/1,000 ft³ within a 1 MG modified lagoon volume + the work to modify the lagoon, will increase the project cost by at least \$200,000. In this new variance petition, the sludge is proposed to be stored in the existing aerated lagoons, each with a storage capacity of 3.2 MG. The existing aeration equipment consists of one 25-hp blower rated at a maximum of 857 cfm and two 20-hp blowers, each rated at a maximum of 580 cfm, for a total maximum rated capacity of 2,017 cfm with all blowers in service.

18. Department's Justification:

Approval of this variance with conditions, is recommended due to the following reasons:

- The city of Hospers is proposing to treat and store the wasted activated solids from Biolac in the existing aerated lagoons, each has a storage capacity of 3.2 MG. The existing aerated lagoon has a total maximum aeration capacity of 2,017 cfm, with all blowers in service.
- EPA has estimated that the Biolac system provides a solids retention time (SRT) of about 30 to 70 days –See EPA Technology Assessment document dated September 1990, Publication No. 430/99-90-013 (enclosed are pages 1 and 35).
- Parkson Corporation has provided a list of case studies which includes Greenville, KY and Western Wayne, IN (enclosed with variance petition documents for similar configurations).
- The design of this technology and the fact that the city of Hospers has plenty of storage capacity in the 2 existing aerated lagoons (each can store up to 3.2 MG).

Conditions upon approval of this variance is recommended:

- The city of Hospers shall construct sludge digestion and holding facilities as required in the Iowa Wastewater Design Standards Section 17.3; if the sludge removed from the aerated cells does not meet the requirements of 40 CFR Part 503, as a result of not building sludge digestion facilities meeting design standards.
- Additional permits must be obtained by the city for any sludge stored in the aerated lagoon cells longer than 2 years pursuant to 40 CFR Part 503; or pursuant to 567 IAC Chapter 67 for any sludge stored less than 2 years.
- It is recommended that the city exercise an effective 60 day isolation period, prior to land applying any sludge, to ensure minimum sludge treatment and stabilization.
- The peak month solids wasting rate to the sludge stabilization and storage facilities will not exceed 295 lbs/day.

- The aeration equipment and blower capability for sludge stabilization shall be maintained at the aerated lagoon at not less than 2,017 cfm with all blowers in service and meet an oxygen requirement not less than 1,240 lb-O₂/day. This operating requirement shall apply unless written authorization to abandon these facilities is given by the department.

19. Precedents Used:

None.

20. Staff Reviewer: *Sara Smith*

Date: *5/4/2012*

21. Supervisor: *Satya Chennupati*

Date: *5/4/2012*

22. Authorized by: *Shelli Gapp*

Date: *5.4-12*

