

**VARIANCE REQUEST**  
**Iowa Department of Natural Resources**

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| 1. Date: 02/15/2012<br>2. Reviewer/Engr.: Sara Smith<br>3. Date Received: 02/03/2012<br>4. Facility Name: Hospers, Iowa<br>5. Facility Number: 6-84-39-0-01<br>6. County Number: 84<br>7. Program Area: CP (Wastewater)<br>8. Facility Type: CO5<br>9. Subject Area: 389<br>10. Rule Reference: 567 IAC 64.2(9)"c"<br>11. Design Std. Ref.: 17.3.2.2"a"<br>12. Consulting Engr.: Tom Wall (DGR & Associates)<br>13. Variance Rule: 567 IAC 64.2(9)"c" | 14. Decision:<br>Date:<br><br>15. Appealed:<br>Date: |
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**16. Description of Variance Request:**

The Iowa Wastewater Design Standards chapter 17, section 17.3.2.2"a" requires that for the aerobic sludge treatment when using diffused air systems, at least 30 cfm per 1,000 ft<sup>3</sup> of tank volume shall be provided, with the largest blower out of service.

The city of Hospers is proposing to provide 20 cfm per 1,000 ft<sup>3</sup>.

**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.

According to technical literature provided by the consulting engineering firm, the Biolac is an activated sludge treatment type with extended aeration and an estimated sludge age of nearly 60 days. Tests performed by Parkson Corporation, the Biolac system manufacturer, appear to indicate that the Biolac sludge can meet the EPA's requirements for Class B sludge without further stabilization.

To provide 30 cfm per 1,000 ft<sup>3</sup> with the largest blower out of service, the city would need to increase the aeration capacity needed by 50%, in addition to the increased capital and operation cost.

**18. Department's Justification:**

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

- The city of Hospers is proposing to convert their existing aerated lagoons for sludge treatment and storage. The volume for sludge storage to be provided is approximately 1,000,000 gallons (1 MG) or about 133,700 ft<sup>3</sup> (133.7 x 1,000 ft<sup>3</sup>). According to the

amended facility plan, this will provide approximately 365 days of storage.

- The design standards for sludge holding lagoons in 17.3.5 and 17.3.4.3 require a minimum of 20 cfm/1.000 ft<sup>3</sup> with the largest blower out of service.
- The proposed Biolac design basis for Hospers estimates a sludge age of about 60 days in the Biolac treatment units.
- It is been 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).
- A variance for 17.3.2.2"a" was approved by Iowa DNR on 05/13/1998 when the City of Waukee, Iowa constructed a new Biolac system. No problems have been noted at Waukee.

19. Precedents Used:

City of Waukee, Iowa on 05/13/1998 for their Biolac system.

20. Staff Reviewer: *Sara Smith*

Date: *2/27/2012*

21. Supervisor: *Satya Chennupati*

Date: *2/28/2012*

22. Authorized by: *Shelli Grapp*

Date: *2-28-12*

TLK *2/28/2012*



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

DEPARTMENT OF NATURAL RESOURCES  
ROGER L. LANDE, DIRECTOR

February 27, 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" and 17.3.2.2"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 approved your January 26, 2012 petition for a variance from rule 567 Iowa Administrative Code (IAC) 64.2(9)"b" and Iowa Wastewater Design Standards section 17.3.2.2"a", which requires sludge aeration of 30 cfm/1,000 ft<sup>3</sup> of tank volume, with the largest blower out of service. Based on the documentation submitted by the engineer, Petitioner City of Hospers – Iowa, will provide aeration of 20 cfm/1,000 ft<sup>3</sup> of tank volume with the largest blower out of service, to the sludge treated in the Biolac cells. The Biolac is an activated sludge system, with extended aeration and 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 for sludge aeration 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 requirements of the 567 IAC Chapter 67 "Standards for the land application of sewage sludge", prior to the final disposal of the sludge generated at the city's wastewater treatment plant.

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,

ENVIRONMENTAL SERVICES DIVISION



Shelli Grapp  
Water Quality Bureau Chief

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