



STATE OF IOWA

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

DEPARTMENT OF NATURAL RESOURCES
CHUCK GIPP, DIRECTOR

July 13, 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"; 16.2.1 and 16.2.2

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 March 26, 2012 petition for a variance from rule 567 Iowa Administrative Code (IAC) 64.2(9)"b" and Iowa Wastewater Design Standards sections 16.2.1 and 16.2.2, which require that multiple clarifier units capable of independent operation and flow splitting devices be provided, respectively.

Based on the documentation submitted by the engineer, DGR & Associates for the Petitioner City of Hospers, will temporarily store the wastewater or mixed liquor suspended solids from the final integral clarifier, which is attached to the Biolac cell; in the existing three-cell facultative lagoon, if an integral clarifier must be taken out of service for maintenance or repairs. The stored water from the existing facultative lagoon cells will be returned to the Biolac cell(s) for treatment. 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 reliability 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 independent clarifier 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 requirements:

1. If in the opinion of the department, the wastewater treatment plant at the City of Hospers experiences operational problems as a result of the lack of independent clarifiers or flow splitting devices, the City of Hospers shall construct facilities to fully comply with the requirements set forth in the Iowa Wastewater Design Standards Sections 16.2.1 and 16.2.2.
2. All wastewater diverted to the three-cell facultative lagoon shall be pumped back to the plant.
3. No later than one year following completion of construction, the City of Hospers shall submit for the department's approval, an adequate Operation and Maintenance (O & M) plan approved by a licensed engineer in the state of Iowa, that reflects the aforementioned variance conditions and those included in the Modified Construction Permit CP No. 2012-0265-S issued on 03/22/2012.

4. The granting of this variance does not eliminate the requirement for the City of Hopers to comply with all wastewater effluent limits and operating conditions established in the NPDES permit or construction permit.

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
Lee Wagner – NPDES Section
Sewage File 6-84-39-0-01
CWSRF File No. CS192052401

VARIANCE REQUEST
Iowa Department of Natural Resources

1. Date: 07/13/2012 2. Reviewer/Engr.: Sara Smith 3. Date Received: 04/03/2012 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: 333 10. Rule Reference: 567 IAC 64.2(9)"c" 11. Design Std. Ref.: 16.2.1 and 16.2.2 12. Consulting Engr.: Tom Wall (DGR & Associates) 13. Variance Rule: 567 IAC 64.2(9)"c"	14. Decision: Date: 15. Appealed: Date:
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16. Description of Variance Request:

The Iowa Wastewater Design Standards chapter 16 "Settling", applies to construction, installation or modification of any disposal system required to obtain a construction permit from DNR, pursuant to Iowa Code 455B.183 and 567 Iowa Administrative Code (IAC) Chapter 64.

Section 16.2.1 requires that multiple units capable of independent operation be provided in all plants except those specified in Section 14.5. In addition, section 16.2.2 requires flow splitting devices and control appurtenances to allow for adequate proportioning of flow to each unit in accordance with 14.4.9.3.

The city of Hospers proposed two final (integral) clarifiers, each attached to the two-cell Biolac system; however, due to the openings from the aerated cells into the final clarification zone and the uniqueness of the design considerations for the Biolac system, the clarifiers will not be truly independent from the aeration tanks.

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

The city of Hospers has been approved to upgrade their existing wastewater treatment lagoons with a Biolac system, with Modified CP No. 2012-0265-S issued on 03/22/2012.

This construction permit included a condition that the city seeks a variance from the department for multiple units capable of independent operation requirement in 16.2.1.

The city has petitioned for a variance from the independent clarifiers and flow splitting requirement set forth in Iowa Wastewater Design Standards Sections 16.2.1 and 16.2.2. In its petition for variance, the city states that each integral clarifier, attached to a Biolac cell, will provide equivalent effectiveness without increasing capital and operational costs.

The city's consulting engineering firm, DGR & Associates contends that all motors in the integral clarifier will be above the water line and that maintenance occurs at the water surface.

In addition, DGR & Associates asserts that if maintenance or repairs are needed, the integral clarifier equipment (air lift pump and flocc/sweeper mechanism) can be pulled out from the clarifiers without the need to empty them. DGR & Associates also states that these integral clarifiers do not have the bottom rotating truss mechanisms more typically found in conventional clarifiers.

DGR & Associates also explains that even if two integral clarifiers would be provided for each Biolac cell, they would not be truly independent from each other as presently configured because of the openings from the Biolac cells into the clarification zone.

In order to provide duplication of the integral clarifiers, the City of Hospers would need to duplicate the integral clarifier accessories, in addition to making some structural modifications, adding piping and control structures for the scum, which would increase the total cost of the wastewater treatment plant upgrades by an estimated amount between \$200,000 and \$250,000, the city explains.

The City of Hospers is seeking a variance from the aforementioned design standards stating that it will provide equivalent effectiveness because the existing three-cell facultative lagoons, can be used for temporary storage of the wastewater or mixed liquor suspended solids, if repairs or maintenance of the integral clarifiers are needed. The three-cell facultative lagoons may also be used for the storage of supernatant from the sludge storage aerated lagoons, if needed.

The Facility Plan dated 11/04/09 lists the existing storage capacity for the three-cell facultative (non-aerated) lagoons as 12.02 MG in cell #3, 11.53 MG in cell #4 and 8.56 MG in cell #5, respectively, which will provide a total storage capacity of 32.11 MG. The Facility Plan also states the average wet weather flow, AWW-30 day, to be estimated at 203,400 gallons/day (gpd). The total available storage capacity in the three-cell facultative lagoons exceeds the storage needed for 5 days at AWW-30 day flow, which meets design standard section 14.5.2.1 for plants with a secondary effluent quality requirement.

Cells #1 and 2 are the existing aerated lagoons, will not be used for the purpose of flow equalization, but instead for sludge treatment and storage.

18. Department's Justification:

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

- The city of Hospers presents unique circumstances due to the existing three-cell facultative lagoons could be used as temporary storage for wastewater or mixed liquor suspended solids, in the event that maintenance and repairs are needed for the integral clarifiers.
- As explained by DGR & Associates, because of the unique circumstances of this project and the proposed design that allows all of the equipment in the integral clarifier to be removed without the need to dewater the integral clarifier, the need to completely isolate and dewater the integral clarifier will be minimal. This will eliminate the need for the city to invest in independent clarifier units.

- DGR & Associates states that the City of Hospers has a portable 1,000 gpm pump, which could be used to pump the effluent from the facultative lagoons back into the Biolac cells, when needed.
- A similar Biolac system configuration with one Biolac cell followed by one final (integral) clarifier was approved for the City of Sully (CP No. 1996-207-S issued on 04/12/1996). The City of Sully however, utilizes the pre-existing facultative lagoons as equalization basins and their effluent limits may not have been as stringent as those of Hospers because their permit was issued before the new water quality standards were adopted in recent years. The City of Sully has experienced some effluent violations, due to operational problems, however, these issues have not been linked to lack of reliability.
- Therefore, it is recommended that the variance be granted, with the following conditions:
 - The City of Hospers shall be required to comply with 16.2.1 and 16.2.2, if problems associated with the lack of independent clarifier units arise.
 - The City of Hospers must provide for a system capable to return the wastewater from the three-cell facultative lagoon to the Biolac system. This includes a requirement to permanently maintain the 1,000 gpm portable pump to transfer the lagoon supernatant back to the Biolac system.
 - It is also understood that the issuance of this variance, does not release the petitioner, City of Hospers, from complying with all the applicable operational requirements and effluent limits set forth in the NPDES permit.

19. Precedents Used:

None.

20. Staff Reviewer: Sara Smith

Sara Smith

Date: 07/13/2012

21. Supervisor:

Shelli Drapp *J. Chennupali*

Date: 7-13-12

22. Authorized by:

Shelli Drapp

Date: 7-13-12

Terry Kischner

7-13-12

