

17.3.4.3

✓ 9-8-06

VARIANCE REQUEST

Iowa Department of Natural Resources

1. Date: March 30, 1999
 2. Review Engineer: Terry L. Kirschenman
 3. Date Received: March 4, 1999
 4. Facility Name: Nora Springs
 5. County Number: 34
 6. Program Area: CP
 7. Facility Type: CO9
 8. Subject Area: 366
 9. Rule Reference: 567-64.2(9)a
 10. Design Stds Ref: 17.3.4.3
 11. Consulting Engr: Yaggy Colby Associates
 12. Variance Rule: 567-64.2(9)c

13. Decision: *Approved*
 Date: 4/2/99

14. Appeal:
 Date:

15. Description of Variance Request:

Provide 20 cfm per 1000 ft³ when both aerators are operating and two mixers each rated at 2.5 hp for a total of 5 hp for the proposed sludge holding tank design. Design Standard 17.3.4.3 requires an aeration rate of 20 cfm per 1000 ft³ with the largest blower out of service or mechanical aerators with a minimum of 1.0 horsepower per 1000 ft³. In this case, 21.3 hp would be required based on the volume.

16. Consulting Engineer's Justifications

The specified submersible mixers (5 hp) alone will provide sufficient mixing to maintain solids in suspension without the aeration system. If one blower is taken out of service, the mechanical mixers and remaining blower will adequately mix and aerate the stored sludge. The specified blowers supply a total of 20 cfm per 1000 ft³ when operating simultaneously.

17. Department's Justifications

The City's proposal should be adequate to prevent objectionable odors if the system is properly operated and maintained. Our design standards do not recognize the possibility of a combination including both aerators and mechanical mixers. This sludge storage facility is sized for 117 days of storage which is longer than typically provided when the design standards were adopted in 1980. The storage tank also is covered.

18. Precedents Used

None

19. Staff Reviewer: *Terry Kirschenman*
 20. Supervisor: *[Signature]*
 21. Authorized by: *[Signature]*

Date: *March 30, 1999*
 Date: *3/4/99*
 Date: *4/2/99*



THOMAS J. VILSACK
GOVERNOR

DEPARTMENT OF NATURAL RESOURCES
PAUL W. JOHNSON, DIRECTOR

SALLY J. PEDERSON,
LT. GOVERNOR

March 30, 1999

The Honorable Roger Schumaker
Mayor of Nora Springs
45 North Hawkeye
Nora Springs, Iowa 50458-9998

RE: Sludge Holding Tank Design Requirements
Nora Springs, Iowa
6-34-23-0-01

Dear Mayor Schumaker:

This letter is in response to the March 3, 1999, request from Yaggy Colby Associates for a variance from Iowa Wastewater Facilities Design Standard 17.3.4.3. Design Standard 17.3.4.3 requires an aeration rate of 20 cfm per 1,000 ft³ with the largest blower out of service or mechanical aerators with a minimum of 1.0 horsepower per 1000 ft³. The City of Nora Springs is proposing to provide 20 cfm per 1,000 ft³ when both aerators are operating and two mixers each rated at 2.5 hp for a total of 5 hp. The volume of the covered sludge holding tank is 21,350 ft³. The proposal by City of Nora Springs including both aeration and mixing equipment for a covered sludge storage tank is substantially equivalent to the Department's design standard. The plant and this equipment, however, as a condition of this design variance approval shall be operated and maintained in a manner which prevents objectionable odors.

Should you have any questions, please contact Terry L. Kirschenman at 515-281-8885.

Sincerely,

A handwritten signature in black ink, appearing to read "Jack Riessen".

Jack Riessen, Chief
Water Quality Bureau

c: Yaggy Colby Associates, Mason City
Field Office 2, Mason City