

17.3.4.3

✓ 9-8-06

VARIANCE REQUEST

Iowa Department of Natural Resources

1. Date: July 16, 1999
2. Review Engineer: Terry L. Kirschenman
3. Date Received: 4/8/99, 6/25/99, 6/2/99, and 7/15/99
4. Facility Name: Mount Pleasant
5. County Number: 44
6. Program Area: CP
7. Facility Type: C09
8. Subject Area: 366
9. Rule Reference: 567-64.2(9)a
10. Design Stds Ref: 17.3.4.3
11. Consulting Engr: French Reneker Associates, Inc.
12. Variance Rule: 567-64.2(9)c

13. Decision: *Approved*
Date: *8/9/99*

14. Appeal:
Date:

15. Description of Variance Request:

The design for the sludge holding tank will provide 0.27 hp/1000 ft³ rather than 1.0 hp/1000 ft³ for mixing by satisfactory aeration equipment.

16. Consulting Engineer's Justifications

Both mixing and aeration capability are provided separately for the Mount Pleasant sludge holding tank. Iowa's design standards are based on the assumption of an aerator for mixing rather than a combination of mixers and aerators.

The sizing of each of the three blowers will be increased from 650 cfm to 920 cfm to assure that the sludge is well stabilized prior to storage. The backup SBR blower can be used as backup for the three 920 cfm sludge blowers.

A 15 hp mixer will be provided for each aerobic digester in addition to meeting the aeration requirements of 17.3.2.2. A 25 hp mixer will be provided for the sludge holding tank.

Sufficient space will be provided for the addition of another blower.

If there are odors in violation of Subrule 567 IAC 104.9(1), the City of Mount Pleasant understands that it may be required to increase the aeration capacity by as much as 1840 cfm or the sludge storage shall be covered.

17. Department's Justifications

Less mixing horsepower than is required by our design standards has been used successfully for sludge holding tanks with long detention times. The variance approval letter will be conditioned to assure that nuisance conditions will not be allowed to occur. The blowers for aerobic digesters also do not operate continuously because of the need to withdraw supernatant. The Department is requiring the sizing of the blowers for the aerobic digesters to be increased to provide at least 30 cfm/1000 ft³, each 650 cfm to 920 cfm. The Department also required that the sizing of the SBR blowers to be increased.

18. Precedents Used

19. Staff Reviewer:

Terry Kuschen

Date:

July 16, 1999

20. Supervisor:

Gary Tarran

Date:

7/16/99

21. Authorized by:

J. Riessen

Date:

8/4/99



DEPARTMENT OF NATURAL RESOURCES

THOMAS J. VILSACK, GOVERNOR
SALLY J. PEDERSON, LT. GOVERNOR

PAUL W. JOHNSON, DIRECTOR

August 10, 1999

The Honorable Stan Hill
Mayor of Mount Pleasant
220 West Monroe
Mount Pleasant, Iowa 52641

RE: Aerobic Digesters and Sludge Holding Tank
Mount Pleasant, Iowa
CS192118 01

Dear Mayor Hill:

The Iowa Department of Natural Resources has reviewed the response letter from French Reneker Associates dated July 15, 1999, to our July 1, 1999, correspondence. The City of Mount Pleasant's request for a variance from the design standard requirement of IA 17.3.4.3 for mixing by satisfactory aeration equipment is approved as substantially equivalent based on the following conditions:

- 1) The sizing of each of the three blowers dedicated to the aerobic digesters and holding tank shall be increased from 650 cfm to 920 cfm for a total aeration capacity of at least 2,760 cfm with all three blowers in service.
- 2) A 15 hp mixer shall be provided for each aerobic digester (each 46,000 ft³). A mixer, at least 25 hp, shall be included for the sludge holding tank (92,500 ft³).
- 3) Sufficient space shall be provided in the blower building for the addition of at least one more blower.
- 4) If inadequate sludge stabilization for vector attraction control or odors at the plant occur from the operation of the aerobic digesters or sludge holding tank in violation of Subrule 567 IAC 104.9(1), the Department may require the total combined aeration capacity to be

Letter to the City of Mount Pleasant

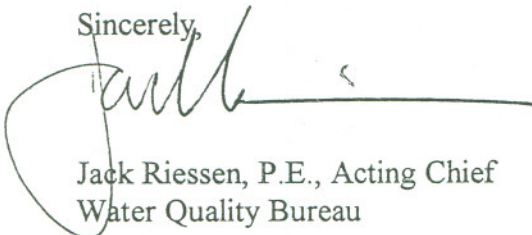
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increased from 2,750 cfm to at least 4,600 cfm to meet the minimum requirements of Design Standard 17.3.4.3 or the sludge holding tank shall be covered.

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

Sincerely,

A handwritten signature in dark ink, appearing to read "Jack Riessen", followed by a long horizontal line extending to the right. The signature is written over the printed name and title.

Jack Riessen, P.E., Acting Chief
Water Quality Bureau

French Reneker, Fairfield
Field Office 6

FRENCH - RENEKER - ASSOCIATES, Inc.

Donald E. French (1921-1982)

W. Daniel Reneker, PE (retired)

1501 S. MAIN STREET

PO BOX 135

FAIRFIELD, IOWA 52556

515-472-5145

Fax 515-472-2653

CONSULTING ENGINEERS

Kenneth D. Bucklin, PE-LS

Jerry W. Long, PE

David H. Fredericks, PE

Kent O. Rice, PE

Stephen W. Hausner, PE-LS

John W. Meyer, PE

July 15, 1999

Mr. Wayne Farrand
Iowa Department of Natural Resources
Wallace State Building
900 East Grand
Des Moines, Iowa 50319

Re: Aerobic Digesters and Sludge Holding Tank – Mt. Pleasant, Iowa
CS192118-01 (96-18)

Dear Wayne,

On behalf of the City of Mt. Pleasant, Iowa, we have reviewed your letter of July 1, 1999, concerning the design variance request related to the aeration capacity of the aerobic digesters and sludge holding tank.

Following careful review, the City of Mt. Pleasant agrees to:

1. Increase the size of each of the three blowers dedicated to the aerobic digesters and sludge holding tank from a capacity of 650 cfm to 920 cfm for a total capacity of 2,760 cfm with all three blowers in service.
2. A 15-horsepower mixer will be provided for each aerobic digester and a 25-horsepower mixer shall be included in the sludge holding tank.
3. Sufficient space shall be provided in the blower building for the addition of at least one more blower.
4. If there are odors from the operation of the aerobic digesters or sludge holding tank in violation of Subrule 567 IAC 104.9(1), the total aeration capacity will be increased to eliminate the violation or the sludge holding tank shall be covered. It is understood that an additional 1840 cfm of aeration capacity may be required. This will meet the minimum requirements of Design Standard 17.3.4.3. We believe it unnecessary to obligate the City at this time to add a specific amount of additional aeration. If a problem should occur, an evaluation will be made and appropriate remedial measures taken.

We believe that this meets the requirements outlined in your letter and would ask for the design variance to be approved based upon this response. Obviously, we would like to hear from you as quickly as possible. Once we receive word of the variance approval, we will submit final, certified plans and specifications for Department approval and issuance of a construction permit.

Very truly yours,
FRENCH-RENEKER-ASSOCIATES, INC.

John W. Meyer
John W. Meyer, PE
Project Engineer

JWM/tlb

cc: Terry Kirschenman
Brent Schleisman

FARRAND