



# STATE OF IOWA

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

DEPARTMENT OF NATURAL RESOURCES  
JEFFREY R. VONK, DIRECTOR

March 16, 2004

The Honorable Bill Einwalter  
Mayor of Farley  
202 1<sup>st</sup> Street NW  
P.O. Box 246  
Farley, IA 52046

RE: Request for variance. Farley Wastewater Treatment Improvements  
CS 102160

Dear Mayor Einwalter:

On March 15, 2004, your consulting engineer requested a variance from Design Standard 16.3.2.4.2, Final Settling Tanks – Activated Sludge. This standard defines the solids loading rate of 30 lb/day/sft at the average wet weather (AWW) flow or 50 lb/day/sft at the peak hourly wet weather (PHWW) flow. The engineer proposes to use 35 lb/day/sft at the design AWW flow. As indicated in the design variance request, all flow above the design AWW flow will be diverted to equalization basin. As a result, AWW, MWW, and PHWW flows through the treatment plant are equal. Therefore, the proposed peak solids loading rate will be significantly lower than that required by design standards (35 lb/day/sft at PHWW compared to the required 50 lb/day/sft at PHWW).

According to 567 IAC 64.2(9), it was determined that the variance consideration was warranted. It was also determined that the variance should be reviewed based on the subparagraph "e"(3) that allows to grant a variance from design standards if it will not compromise the effective purpose of the rule. Our review indicated that the design standard requirement for solids loading rate of 30 lb/day/sft at the AWW flow takes into account that higher loading will be experienced during peak flows. In the proposed project, solids loading at the AWW flow is equal to the peak loading. It is reasonably clear that this type of process was not considered in the adoption of the standard. The proposed solids loading rate of 35 lb/day/sft meets the requirements of the Ten States Standards (35 lb/day/sft at the maximum day flow).

Based on the above considerations, the variance request has been approved. If you have any questions, please contact Boris Eliosov at 515/281-7953. My telephone number is 515/281-8877.

Sincerely,

A handwritten signature in black ink, appearing to read "Wayne Farrand", with a large, stylized loop at the end.

Wayne Farrand, P.E.  
Wastewater Section Supervisor

cc.: MSA Professional Services  
Field Office 1

✓ 9-8-06

## VARIANCE REQUEST

Iowa Department of Natural Resources

1. Date: March 16, 2004  
 2. Review Engineer: Boris Eliosov  
 3. Date Received: March 15, 2004  
 4. Facility Name: Farley  
 5. County Number: Dubuque  
 6. Program Area: CP (Wastewater Construction)  
 7. Facility Type: C05 (Biological Treatment)  
 8. Subject Area: Solids Loading Rate  
 9. Rule Reference: 567-64.2(9)a  
 10. Design Stds Ref: 16.3.2.4.2 (Final settling tanks – activated sludge)  
 11. Consulting Engr: MSA Professional Services  
 12. Variance Rule: 567-64.2(9)"a", "e"

13. Decision: *approved*  
 Date: *3/18/04*

14. Appeal:  
 Date:

### 15. Description of Variance Request:

The City of Farley and it's consulting engineer are requesting a variance from Design Standard 16.3.2.4.2, Final Settling Tanks – Activated Sludge. This standard defines the solids loading rate of 30 lb/day/sft at the AWW or 50 lb/day/sft at the PHWW. The engineer proposes to use 35 lb/day/sft at the design AWW.

### 16. Consulting Engineer's Justifications

All flow above the design AWW flow will be diverted to equalization basin. As a result, AWW, MWW, and PHWW flows through the treatment plant are equal. Therefore, the proposed peak solids loading rate will be significantly lower than that required by design standards (35 lb/day/sft at PHWW compared to the required 50 lb/day/sft at PHWW).

### 17. Department's Justifications

#### **Recommend variance approval:**

1. The proposed design of final clarifiers will provide 75% reliability with two largest units out of service.
2. Design Standard requirement for solids loading rate of 30 lb/day/sft at the AWW flow takes into account that higher loading will be experienced during peak flows. In the proposed project, solids loading at the AWW flow is equal to the peak loading. It is reasonably clear that this type of process was not considered in the adoption of the standard. Therefore, higher loading at the design AWW flow will not compromise the effective purpose of the rule.
3. The proposed solids loading rate of 35 lb/day/sft meets the requirements of the Ten States Standards (35 lb/day/sft at the maximum day flow). Ten States Standards does not have an AWW flow solids loading rate requirements.

### 18. Precedents Used

None

19. Staff Reviewer: *B. Eliosov*

Date: *03/16/04*

20. Supervisor: *[Signature]*

Date: *3/15/04*

21. Authorized by:

Date:





March 15, 2004

Iowa Department of Natural Resources – Wastewater Section  
Attn.: Mr. Boris Eliosov  
Wallace State Office Building  
900 East Grand Avenue  
Des Moines, IA 50319

Re: Farley, IA Aeromod Clarifier Sizing  
NPDES Permit Number: 31-35-0-01  
MSA Project No.: 4730203

Dear Mr. Eliosov:

As you requested, we are writing you this letter to formally request a variance in Design Standards for the Solids Loading Criteria in Farley, Iowa. This request is being submitted to you on behalf of the City.

The current Iowa Wastewater Treatment Plant Design Standards stipulate that "The final settling tank solids loading for all activated sludge processes shall not exceed 30 pounds of solids per day per square foot at AWW flow." The current ten states standards stipulate that the maximum solids loading rate at peak flow is equal to 35 pounds of solids per day per square foot.

The design flow rates in Farley are the following:

ADW = 0.164 MGD  
AWW = 0.794 MGD  
MWW = 2.200 MGD  
PHWW = 4.400 MGD

The proposed Aeromod treatment process involves flow splitting mechanisms ahead of the aeration and clarification units. These flow splitting mechanisms will reduce the overall flow into the downstream aeration and clarification units to 0.800 MGD. Therefore the peak flow and the AWW are essentially the same.

*Offices in Illinois, Iowa, Minnesota, and Wisconsin*

1605 ASSOCIATES DRIVE, SUITE 102 • DUNDIS, IA 52002  
563-582-3973 • 888-869-1214 • FAX: 563-582-4020

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Page 2

Mr. Eliosov, IDNR  
March 15, 2004

Due to the dramatic flow splitting ability in Farley, we are hereby requesting a design variance to implement a 35 pounds of solids per day per square foot for the AWW / Peak Flow into the plant.

Should you have any questions, or require anything further, please do not hesitate to contact me at (563) 582-3973.

Sincerely,

MSA Professional Services, Inc.



Jason Miller, PE  
Project Manager

Cc: Steve Thompson, MSA  
City of Farley