

✓ 9-8-06

TAMA
15.2.4.2.1

VARIANCE REQUEST
Iowa Department of Natural Resources

1. Date: March 30, 1993
2. Review Engineer: Bill Graham
3. Date Received: March 30, 1993
4. Facility Name: Tama Wastewater Treatment Facilities
5. County Number: 86
6. Program Area: cp (wastewater construction)
7. Facility Type: C04 (physical treatment)
8. Subject Area: 329 (bar racks)
9. Rule Reference: 900-64.2(9)a
10. Design Standard Reference: 15.2.4.2.1 (bar spacing)
11. Consulting Engineer: RUST Environmental and Infrastructure, Waterloo, Iowa
12. Variance Rule: 900-64.2(9)c

13. Decision: *Approved*
Date: *4/6/93*

14. Appeal:
Date:

15. Description of Variance Request: The Design Standard requires a minimum clear opening between the bars of a mechanical bar screen of 5/8 inch. The City of Tama's consultant has proposed a mechanically cleaned bar screen with 3/8 inch bar spacing.

16. Consulting Engineer's Justification: The city's consultant is proposing a mechanically cleaned bar screen with 3/8 inch openings to more completely remove plastics from the waste stream. Screens with 5/8 inch or larger openings will not catch smaller plastics. A comminutor will grind up the plastics into smaller pieces, but these pieces remain in the flow causing potential plugging problems for downstream equipment and end up being land applied with plant sludge.

The mechanically cleaned bar screen will normally operate based on an operator adjustable timer for a set period of time each hour. An upstream float switch will automatically start the screen should blinding occur prior to activation of the timer switch. A bypass manually cleaned bar screen is also provided. The slide gate separating the two screen channels will be designed to act as an overflow weir to automatically bypass excessive flow to the manually cleaned screen.

Screenings are currently disposed of at the local landfill. Screenings volume with the new screen is estimated to be 3 cubic yards per week or less. Odors from the increased putrescible wastes will be controlled with frequent pick-up (twice per week) and by treating screenings with lime during summer months or as needed.

17. Department's Justification: In order to provide equivalent or improved effectiveness to the minimum 5/8 inch bar spacing of the Design Standards, the following must be addressed:

1. Provision of adequate means for handling the increased screenings volume and increased odor potential.
2. Provision of alternative high water overflow directing wastewater away from a malfunctioning mechanical bar screen.

The reviewer has discussed the variance request with Terry Kirschenman and Jim Stricker of the Department and they agree with the conclusion that the smaller bar spacing will increase the screen's effectiveness by removing small plastics such as tampons and that the above concerns have been adequately dealt with in the engineer's justification to provide equivalent effectiveness.

18. Precedents Used:

Winterset has a mechanical bar screen with a 1/2 inch opening.

Ames has a mechanical bar screen with a 1/2 inch opening and grinds screenings which are then returned to the wastewater.

Story City has a rotating screen with an opening size of 0.06 inch.

19. **Staff Reviewer:** William Graham

Date: 3-31-93

20. **Supervisor:**

Date:

21. **Authorized by:**

Date:



TERRY E. BRANSTAD, GOVERNOR

DEPARTMENT OF NATURAL RESOURCES
LARRY J. WILSON, DIRECTOR

Winterset Sewage
TLK

August 6, 1992

Mr. Mark Nitchals
City Administrator
101 E. Jefferson
Winterset, Iowa 50273

RE: Design Variance - Bar Screen Spacing
Winterset, Iowa
C190743 02

Dear Mr. Nitchals:

The Iowa Department of Natural Resources has reviewed your request for a variance from design standard 15.2.4.2.1. Your bar screen proposal using a 1/2" rather than a 5/8" opening is approved provided the plans and specifications are modified to include a high water overflow directing all wastewater to adjacent channels should the mechanical bar screen malfunction for an extended period of time. This safe guard is not evident and should be provided for both bar screen systems, mechanical and manual.

Should you have any questions, please call. My telephone number is 515-281-8869.

Sincerely,

Darrell McAllister, Chief
Surface and Groundwater Protection Bureau

cc: Field Office 5
Vance and Hochstetler, Winterset
Snyder and Associates, Ankeny



301 North Ankeny Blvd.
Ankeny, Iowa 50021
515-964-2020
FAX 515-964-7938

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SNYDER & ASSOCIATES, INC.

Terry Kirschenman, P.E.
Project Manager
Wastewater Permits Section
Iowa Department of Natural Resources
Wallace State Office Building
900 East Grand Avenue
Des Moines, IA 50319

RE: VARIANCE REQUEST
BAR SCREEN BAR SPACING
WASTEWATER TREATMENT PLANT IMPROVEMENTS
WINTERSET, IOWA
90-405-G

Dear Terry,

On behalf of the City of Winterset, we request a variance from your department's design standards for bar screen openings. The requested bar screen opening width is 1/2"; this is smaller than the minimum width of 5/8" of the current IDNR design standards.

The requested 1/2" openings have been used successfully at other Iowa facilities, including Ames. The 1/2" openings improve the removal of plastic materials which pass 5/8" openings. The removal of these plastic materials has been a concern of your department, as expressed in several letters to the City of Winterset.

The requested 1/2" openings offer improved performance at no significant cost difference than the 5/8" openings. We request your department's variance from the IDNR design standards on this requirement.

Please call the writer with any questions or requests for additional justification.

Sincerely,

SNYDER & ASSOCIATES, INC.


Russ Stammer, P.E.

RDS:sm

cc: Jim Hochstetler, Vance & Hochstetler, P.C.

301 NORTH ANKENY BLVD. • ANKENY, IOWA 50021 • 515-964-2020
P.O. BOX 209 • EAST HIGHWAY 3 • ATLANTIC, IOWA 50022 • 712-234-5035

WALTER D. BOGILLER

VARIANCE REQUEST

Iowa Department of Natural Resources

1. Date : 8-6-92 13. Decision: *Approved*
2. Review Engineer : Terry Kinschman Date: *8/7/92*
3. Date Received : 8-4-92
4. Facility Name : Winterset 14. Appeal:
5. County Number : 61 Date:
6. Program Area : cp
7. Facility Type : 005
8. Subject Area : 329
9. Rule Reference : 64.2(9)
10. Design Std. Ref. : 15.2.4.2.1
11. Consulting Engr. : Snyder and Associates
12. Variance Rule : 64.2(9) c

15. Description of Variance Request

Use an opening width of $\frac{1}{2}$ inch
for a mechanical bar screen rather
than $\frac{5}{8}$ inch.

16. Consulting Engineer's Justification

More plastic material will be removed
from the wastewater thereby providing
better protection for the plastic media
trickling filters.

16. Consulting Engineer's Justification (cont.)

17. Department's Justification

The concern is valid. Ames has observed some plastic material on the surface of its trickling filters. Ames uses $\frac{1}{2}$ inch opening screens but grinds it up and sends it back to the wastewater. Ames has stated that tampons will be removed by a screen with a $\frac{1}{2}$ inch opening but they will still get through a $\frac{5}{8}$ inch opening.

The channel size will allow the use of a $\frac{5}{8}$ inch opening if it is ever desired at a future date.

18. Precedents Used

Stony City has a rotating screen with an opening of 0.06 inch.

Ames uses a $\frac{1}{2}$ inch opening but grinds up screened material and returns it to wastewater.

19. Staff Reviewer	:	Terry Kinscherman	Date:	8/6/92
20. Supervisor	:	G. J. J. J.	Date:	8/6/92
21. Authorized by	:	David H. H.	Date:	8/7/92

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19. **Staff Reviewer:** *William Graham*

Date: *3-31-93*

20. **Supervisor:** *[Signature]*

Date: *4/1/93*

21. **Authorized by:** *[Signature]*

Date: *4/6/93*