

✓ 9-6-06

Variance File

18C.5.1

VARIANCE REQUEST**Iowa Department of Natural Resources**

1. Date: July 24, 2006
 2. Review Engineer: Satya Chennupati
 3. Date Received: July 24, 2006
 4. County Number: 43
 5. Facility Name: Harrison County
 6. Program Area: CP (Wastewater)
 7. Facility Type: CO5
 8. Subject Area: 350, number of lagoon cells
 9. Rule Reference: 507-64.2(9)a
 10. Design Stds Ref: 18C.5.1
 11. Consulting Engr: Sundquist Engineering
 12. Variance Rule: 507-64.2(9)c

13. **Decision:**

Date:

approved
7/25/0614. **Appeal:**

Date:

15. Description of Variance Request:

The County requested a variance from the design standard which requires a minimum of three cells for all controlled discharge lagoon facilities greater than one acre total surface area. The County is proposing a two-cell lagoon with room for expansion rather than 3-cells even though the total surface area is 4.8 acres.

16. Consulting Engineer's Justifications

The 2-cell lagoon construction will reduce the amount of earthwork and erosion protection stone. There are other small western Iowa towns that operate with two cell systems and we have not heard of any problems.

17. Department's Justifications

Recommend variance **approval**.

A letter from this department on March 8, 1995 stated "This Department will approve two cells as a value engineering concept for most of these unsewered communities." Departmental approval is recommended since this project is for two unsewered communities even though it is not a rural water franchised facility. Two-cell lagoon for surface areas larger than 1-acre is one of variance approved. There has been a precedent for three communities (2 rural water franchised and 1 community owned) in the past for 2-cell lagoon approvals under and over 5 acres. No problems have been reported to date for previously approved projects.

18. Precedents Used

Persia (Shelby County RWA) - Approved 7/3/95 (5.4 acres).

Crawfordsville (Wapello RWA) - Approved 11/15/99 (4.31 acres).

Riverton - Approved 3/18/02 (4.1 acres).

19. Staff Reviewer:

Satya Chennupati

Date:

7/25/06

20. Supervisor:

Date:

21. Authorized by:

Don Jensen

Date:

7/25/06

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SUNDQUIST ENGINEERING, P.C.

CONSULTING ENGINEERS

July 24, 2006

Satya Chennupati, P.E.
Iowa Department of Natural Resources
Wallace Building
502 E 9th Street
Des Moines, IA 50319-0034

RE: HARRISON COUNTY WASTEWATER PROJECT
LITTLE SIOUX/RIVER SIOUX, IOWA

Dear Satya:

We are requesting the following variances from the design standards for the above referenced project.

1. Design Standard 18C.5.1 – Request to allow a 2 cell controlled discharge lagoon with room for expansion rather than 3 cells. This will reduce the amount of earthwork and erosion protection stone. There are other small Western Iowa towns that operate with two cell systems and we have not heard of any problems.
2. Design Standard 18C.7.4.4 – Request to allow installation of ductile iron influent lines above the pond seal in lieu of burying them. This will reduce the cost of installing the influent lines, which will be a direct savings to the owner. The performance of the system will not be affected.
3. Design Standard 18C.7.4.6 – Request to eliminate the saucer-shaped depression for discharge of influent. This will also reduce the amount of earthwork and there is no longer a need for the depression if the influent piping is installed above the pond seal. The concrete apron will still be installed.
4. Design Standard 18C10.6 – Request to allow pond level measurements to be in vertical pond piping in lieu of pond level gauges. This alternative would be less expensive than sloped concrete and the ice cover in the winter is hard on the normal calibrated mast or pipe gauges that have been used in the past.

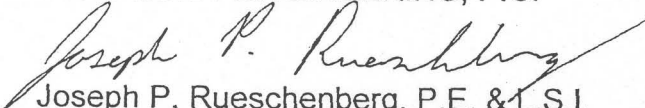
Please review this request and authorize the variances as soon as possible.

120 SOUTH MAIN P.O. BOX 220 DENISON, IA 51442 PHONE: (712) 263-8118 FAX: (712) 263-2181
910 7TH STREET ONAWA, IA 51040 PHONE: (712) 423-3131 FAX: (712) 433-3134

Mr. Satya Chennupati, P.E.
July 24, 2006
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If you have any questions, feel free to contact us.

Sincerely,
SUNDQUIST ENGINEERING, P.C.


Joseph P. Rueschenberg, P.E. & L.S.I.

Enclosures

cc: Susan Bonham, Auditor
Edie Ball, Clerk
Jim Carroll, USDA
File - 12603



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

STATE OF IOWA

DEPARTMENT OF NATURAL RESOURCES
JEFFREY R. VONK, DIRECTOR

July 25, 2006

Mr. Larry King, Chairman
Harrison County Board of Supervisors
111 North 2nd Avenue
Logan, IA 51546

Subj: Department Response to Variance Requests
RE: Wastewater System Improvements, Cities of Little Sioux and River Sioux, Iowa

Dear Mr. King:

The Department has received a request for several variances from the Iowa Wastewater Facilities Design Standards from your Engineer in a letter dated July 24, 2006. This letter transmits the Department's comments regarding the variance request for the above referenced project. The responses are grouped in the same order as they were requested.

- A. Design Standard 18C.5.1 – request variance to allow a two-cell controlled discharge lagoon with approximately 4.8 acres of total surface area.

The above variance is **approved** in accordance with the Small Community Pilot Project concept as providing equivalent effectiveness with the following **conditions**:

- a. The 2-cell lagoon is approved provided control structures are installed and the system is always operated as a controlled discharge lagoon.
- b. There shall be no transfer of wastewater from the primary cell to the secondary cell of a two cell system while the facility is discharging.
- c. Three cells increase the operational flexibility, reliability, and performance of the system to meet effluent limits at all times. If at any time, the lagoon has difficulty meeting effluent limits, needs to discharge frequently than in a controlled discharge mode, or has trouble discharging within the limits of its operating permit, a third cell may be required at that time.

- B. Design Standard 18C.7.4.4 – request variance to allow installation of DIP influent lines at or above the elevation of the pond seal.

The above variance is **approved** based on the small community pilot project concept as providing equivalent effectiveness with the following **conditions**:

- a. The influent discharge lines shall rest on a suitable concrete apron which is large enough such that the terminal influent velocity at the end of the apron does not cause soil erosion as required by the Iowa Wastewater Facilities Design Standards 18C.7.4.6. The apron must have a lip or baffle at the opposite end of the discharge point.
- b. Adequate measures must be taken to ensure that the line is properly/securely anchored.