



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

Variance File  
18C-5.1  
STATE OF IOWA 2-cells

DEPARTMENT OF NATURAL RESOURCES  
JEFFREY R. VONK, DIRECTOR

August 25, 2006

Mr. Tom Dietrick  
Dietrick Mobile Home Park, Inc.  
34304 160<sup>th</sup> Street  
Cedar Falls, IA 50613

Project No. S2006-0606  
File: Dietrick Mobile Home Court- Sewage

Subj: Department Response to Variance Request  
RE: Wastewater Plant Expansion, Dietrick Mobile Home Park, Iowa

Dear Mr. Dietrick:

The Department has received a request for variance from the Iowa Wastewater Facilities Design Standards to construct a 2-cell lagoon from your Engineer in a letter dated June 29, 2006. This letter transmits the Department's comments regarding the variance request for the above referenced project.

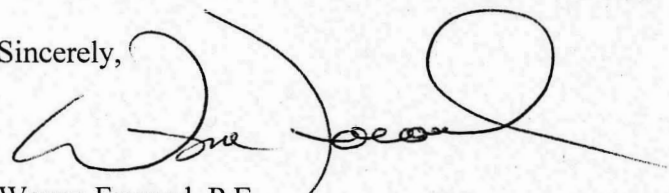
- A. Design Standard 18C.5.1 – request variance to allow a two-cell controlled discharge lagoon with approximately 4.27 acres of total surface area.

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.

If you have any questions, please call Satya Chennupati, P.E. at 515-281-8995.

Sincerely,



Wayne Farrand, P.E.  
Wastewater Construction Section Supervisor

Cc: Gibbs Engineering – David Gibbs, P.E.  
IDNR Field Office #2 – Curt Krieger  
IDNR Sewage File 6-38-00-6-00

Enclosures

✓ 9/6/06

## VARIANCE REQUEST

### Iowa Department of Natural Resources

1. Date: August 25, 2006  
 2. Review Engineer: Satya Chennupati  
 3. Date Received: June 29, 2006  
 4. County Number: 38 (Grundy)  
 5. Facility Name: Dietrick Mobile Home Park  
 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: Gibbs Engineering  
 12. Variance Rule: 507-64.2(9)c

13. Decision: *appeal*  
 Date: *8/25/06*  
 14. Appeal:  
 Date:

15. Description of Variance Request:

Dietrick MHP 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 areas. The MHP is proposing a two-cell lagoon even though the total surface area is approximately 4.27-acres.

16. Consulting Engineer's Justifications

Estimated cost savings \$32,000. Equivalent treatment effectiveness.

Private sewage disposal system adds financial hardship to tenants. Proposed BOD loading on primary cell is less than 15 lb/day compared to allowable 20 lb/day. By providing two cells in lieu of three cells by not building a dike, the storage provided in cell #2 will be 99 days compared to 60 days (3-cell option). A 2-cell system would provide for an easier system to maintain with 400 feet less of dike to maintain and to control weeds and animals. The lagoon system serves a relatively small area, an isolated community with only domestic wastewater.

17. Department's Justifications

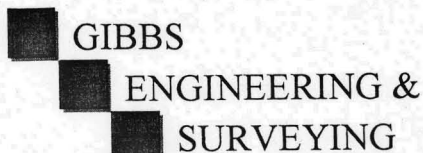
Recommend variance **approval with conditions listed in the approval letter.**

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." Two-cell lagoon for surface areas larger than 1-acre is one of variance approved. No problems have been reported for previously approved projects. Although this project is not an unsewered community, the proposed upgrade from the existing one-cell lagoon to a two-cell lagoon is a major improvement to the effluent water quality and the loading rates to the primary cell are low. The proposal will provide 196 days of detention time compared to the required 180-day standard.

18. Precedents Used

Previous small community pilot projects from Rural Water Association Small Community Wastewater Pilot Projects for smaller systems. Tingley, Arispe, Floris, Persia, Cromwell, East Peru.

19. Staff Reviewer: *Satya Chennupati* Date: *8/25/06*  
 20. Supervisor: *[Signature]* Date: *[Blank]*  
 21. Authorized by: *[Signature]* Date: *8/25/06*



105 West Main Street  
Manchester, IA 52057

52006-0606  
Recd. 7/6/06

J. David Gibbs, P.E., P.L.S.

dgibbs@gibbseng.com  
Tel(563)927-2434 Fax(563)927-8824

June 29, 2006

Satya Chennupati  
Wastewater Permit Section  
Iowa Department of Natural Resources  
Henry A. Wallace Building  
900 East Grand Avenue  
Des Moines, IA 50319

Dear Satya,

**SUBJECT: DIETRICK MOBILE HOME PARK**

On June 2, 2006, Tom Dietrick submitted a revised preliminary engineering report, including Schedules A, F and G in the Appendix. The report and Schedule A were both signed as approved by him. Accordingly, we are resubmitting a request for variance regarding 3-cell system.

In a letter from Courtney Cswercko of IDNR dated October 10, 2003, it was suggested that a two-cell lagoon system be evaluated for the project. The revised preliminary engineering report submitted to you on June 2, 2006, evaluated both two and three cell lagoon systems. The subsequent geotechnical report that was submitted indicates that soils encountered are suitable for lagoon construction and that a tile system can be installed to provide for added ground water separation.

The total project cost for a three-cell system is about \$32,000 more than a two-cell system estimated at \$207,000. As a private individual owns the treatment facility, there are no grants available to help defray some of the cost. With about 92 mobile home units in the park, there is a capital cost of about \$2,300 per unit and the cost of three-cell over two-cell would add another \$350 per unit.

In accordance with Section 18C.1 of the design standards, the owner is requesting a variance from the number of required cells as set out in Section 18C.5.1. We believe that the proposed two-cell system would provide at least equivalent treatment due to the following:

1. Design standards allow for a BOD loading on the primary cell of 25 lbs./day for 3-cell and 20 lbs./day for 2-cell. The proposed design is for a loading of less than 15 lbs./day.
2. For a three-cell system, the existing lagoon would be divided in two by construction of a center dike providing for storage for 83 days compared to minimum requirement of 60 days. As the two-cell system would not be divided into sections by an earthen dike, there will be additional detention in the secondary cell of the two-cell system providing for 99 days. Total storage volume for the two-cell system of 196 days versus 180 for three cell and a design minimum standard of 180 days.
3. A two-cell system would provide for an easier system to maintain with 400 foot less of dike to maintain and to control weeds and animals.
4. The lagoon system serves a relatively small area, an isolated community, with only domestic wastewater.

Please review this request and let us know should you desire any additional information.

Sincerely,

J. David Gibbs, P.E., L.S.  
Gibbs Engineering & Surveying

Cc: Tom Dietrick  
E.B. Spencer Engineering Company

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