



STATE OF IOWA

TERRY E. BRANSTAD, GOVERNOR
KIM REYNOLDS, LT. GOVERNOR

DEPARTMENT OF NATURAL RESOURCES
CHUCK GIPP, DIRECTOR

April 25, 2016

City of Orange City
Bryan Gerritson
125 Central Avenue SE
Orange City, IA 51041

RE: WWTF Improvements Project
City of Orange City
DNR Project No. S2015-0310

Subject: Variance Request from 567 IAC 64.2(9) and Design Standards Section 17.5.3

Dear Mr. Gerritson:

After careful and thorough consideration, the Department has approved your February 1, 2016 request for a variance from Iowa Administrative Code Subrule 64.2(9) and Chapter 17.5.3 of the Iowa Wastewater Facilities Design Standards, which requires installation of aeration equipment in sludge holding lagoons to ensure adequate mixing.

Based on the documentation presented by your Engineer, it is the determination of this Department that satisfactory justification has been presented to warrant the granting of a variance for sludge storage without aeration equipment that meets the 20 cfm per 1,000 cubic feet of lagoon volume requirement. The requested variance is deemed to be reasonable and necessary pursuant to the Iowa Code section 455B.181.

The facts presented for the project present unique circumstances and the variance is therefore justified to provide the narrowest exception possible to the provisions of the rule in accordance with Rule 561 IAC 10.5. Since the project planning and construction may last more than one year, the variance is considered to be of a permanent nature. The validity of this variance approval shall last for a period of one year from the date of the construction permit in accordance with Rule 561 IAC 10.5.

This decision is based on our review of justification presented to support the request. Our concurrence with the request is based on the Department's finding that the resulting project will provide substantially equivalent effectiveness as would be provided by technical compliance with the design standard on this issue.

This variance approval is subject to the following **conditions and requirements**:

1. Should the Department determine that nuisance odors are occurring, then aeration equipment shall be installed per 17.5.3.

Please feel free to call Laura Knispel at 515-725-8423 or email her at laura.knispel@dnr.iowa.gov if you have any further questions.

Sincerely,



Jon Tack
Water Quality Bureau Chief

Cc: DGR – Rock Rapids (Mike Carr)
DNR FO #3
DNR Sewage File 6-84-74-0-01
DNR Legal Services

VARIANCE REQUEST
Iowa Department of Natural Resources

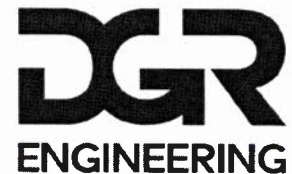
<p>1. Date: April 22, 2016</p> <p>2. Reviewer/Engr.: Laura Knispel</p> <p>3. Date Received: February 1, 2016</p> <p>4. Facility Name: Orange City WWTF</p> <p>5. Facility Number: 6-84-74-0-01</p> <p>6. County Number: 84 (Sioux)</p> <p>7. Program Area: CP (Wastewater)</p> <p>8. Facility Type: C05 (Biological Treatment)</p> <p>9. Subject Area: 366</p> <p>10. Rule Reference: 567-64.2(9) a</p> <p>11. Design Std. Ref.: 17.3.5.3</p> <p>12. Consulting Engr.: DGR</p> <p>13. Variance Rule: 567-64.2(9) c</p>	<p>14a. Decision: <i>Approved</i></p> <p>Date: <i>4/27/16</i></p> <p>Expiration Date (if any):</p> <p>14b.</p> <p>15. Appealed: Date:</p>
<p>16. <u>Description of Variance Request:</u></p> <p>The City of Orange City is planning to upgrade their current aerated lagoon wastewater treatment facility of an SBR with aerobic sludge digestion.</p> <p>The City is proposing to use one of their existing lagoons for sludge storage and requests a variance from the Iowa Wastewater Facility Design Standards 17.3.5.3 requirements for mixing and air requirements for sludge holding lagoons. The proposed design will provide 2.49 cfm per 1,000 cubic feet of lagoon volume instead of the 20 cfm per 1,000 cubic feet of lagoon volume required by standard.</p>	
<p>17. <u>Applicant's/Consulting Engineer's Justification:</u></p> <p>The lagoon will be used for storage of treated sludge only. The sludge will have been completely digested in the aerobic digester before it is transferred to the holding lagoon, so complete aeration and mixing should not be necessary.</p>	
<p>18. <u>Department's Justification:</u></p> <p>Recommend variance approval (with condition):</p> <p>Approval is recommended based on the stability of the generated sludge, but a condition will be included in the construction permit that will require installation of aeration/mixing equipment per IA 17.3.5.3 if nuisance odors result.</p>	
<p>19. <u>Precedents Used:</u></p> <p>City of Garner - 10/28/13</p> <p>City of Walford - 6/25/03</p> <p>City of Sully - 4/10/96</p>	
<p>20. Staff Reviewer: <i>L Knispel, Eng Wast</i></p>	<p>Date: <i>4/25/16</i></p>
<p>21. Supervisor: <i>Satya Chandra</i></p>	<p>Date: <i>4/28/16</i></p>
<p>22. Authorized by: <i>Jn CLK</i></p>	<p>Date: <i>4/27/16</i></p>

Explanation of item numbers:

- #1 – Date starting process
- #3 – Date stamped received by Iowa DNR
- #4 – Must always be filled in, even in variance for Iowa DNR
- #11 – If doesn't apply, note "n/a"
- #13 – Rule allowing for an exception
- #14a – "Approved" or "Denied "
- #14b – If variance is permanent, note "permanent" per legal.
- #15 – Date of Decision (#14)
- #16 – Summarize (4-5 short sentences) **with** attached documentation
- #17 – Summarize (4-5 short sentences) **with** attached documentation
- #18 – Summarize (4-5 short sentences) **with** attached documentation
- #19 – Summarize (4-5 short sentences) **with** attached documentation
- #21 – Supervisor
- #22 – Bureau Chief (sometimes same as supervisor)

Note:

#16, #17, #18, & #19: the Reviewer/Engineer summary is important as the technical and knowledgeable entity for the subject matter. Including the attachments is helpful but the Customer Service Team is uncomfortable attempting to summarize the attachments on your behalf.



January 21, 2016

Laura Knispel
Iowa Department of Natural Resources
Wastewater Section
Henry A. Wallace Building
502 E. 9th St.
Des Moines, IA 50319

RE: City of Orange City
Wastewater Treatment Facility Improvements
Variance Request
DGR Project No.: 817561

Dear Laura:

On behalf of the City of Orange City, we are requesting a variance to the requirements of Chapter 17 Section 3.5.3 regarding the sludge holding tank mixing and air requirements.

The City of Orange City is updating its current WWTF in order to meet more strict NPDES limits. As a part of this process it is proposed that they utilize what is now an aerated lagoon for sludge storage. The aeration equipment currently in this aerated lagoon can provide 4,530 cfm (2.49 cfm per 1,000 cubic feet of lagoon volume) of aeration, falling short of the 20 cfm per 1,000 cubic feet of volume required by Design Standard 17.3.5.3. After considering other alternatives and discussing the issue with the City staff, we have decided to request a variance from the design standards.

The following information has been provided per the IDNR's Variance Request Guidance document:

1. Name, address and telephone number of entity whom a variance is requested:
 - a. City of Orange City, IA
Representative: Bryan Gerritson
P.O. Box 406
Orange City, IA 51041-0406
2. Description and citation of the specific rule from which the variance is requested:
 - a. Chapter 17.3.5.3 Sludge Stabilization and Holding – Mixing and Air Requirements part a. sets a minimum aeration rate of 20 cfm per 1,000 cubic feet of volume.

3. Specific variance requested, including precise scope and operative period that the variance will extend.
 - a. A variance is requested to allow the existing lagoon aeration rate of 2.49 cfm per 1,000 cubic feet of volume in the sludge holding lagoon. Due to the size of the lagoon, providing the minimum required aeration rate would be economically burdensome to the City. Furthermore, the sludge holding will be preceded by an SBR with an aerobic digester providing sludge stabilization. Finally, communities in Iowa which have received similar variances from this rule generally operate without issue.
 - b. The variance will extend from construction through the design life of the proposed treatment facility.
4. Relevant facts the petitioner believes would justify a variance.
 - a. The proposed treatment system includes sludge stabilization as a part of the SBR structure. The designed unit follows the IDNR guidelines for sludge stabilization, and thus the sludge will be properly handled before storage in the lagoon.
 - i. Additionally, air is available to be supplied to the sludge storage lagoon at a rate up to 2.49 cfm/1,000 cubic feet of volume to provide some level of solids mixing and uniform solids concentration during storage.
 - b. The WWTF is located on the west edge of the City, with the closest residence >1,000 feet from the proposed storage lagoon. Thus, odor is not expected to be a nuisance.
 - c. Multiple communities in Iowa have received similar variances from this rule and are generally operating without issue.
5. History of prior contacts between the Department and the petitioner for the past five years.
 - a. There are no known prior contacts between the petitioner and the Department within the last five years regarding this variance request, including notices of violations, administrative orders, contested case proceedings, and/or lawsuits.

6. Information known to the petitioner regarding the Department's treatment of similar cases.

Facility	Preceding Digestion	Holding Tank/Lagoon	Mixing/Aeration Provided	Approval Date
Carroll	Anaerobic	Lagoon - uncovered	None	5/2/1984
Ames	Anaerobic	Lagoon - uncovered	None	3/9/1987
Grinnell	Anaerobic	Tank - uncovered	1/3 hp/1,000 cu. ft.	Sept-94
Belmond	Anaerobic	Tank - covered	None	9/1/1995
Marshalltown	Anaerobic	Tank - uncovered	None	Oct-95
Maquoketa	Anaerobic	Lagoon - uncovered	None	10/27/1995
Iowa Falls	Anaerobic	Tank - uncovered	0.66hp/1,000 cu. ft.	11/1/1995
Sully	Aerobic	Lagoon - uncovered	existing mixers unspecified	4/10/1996
CLSD	Aerobic	Tank - covered	None	6/3/1996
Rockwell City	Anaerobic	Tank - covered	None	10/3/1998
Nora Springs	Aerobic	Tank - uncovered	0.23hp/1,000 cu. ft. + 10 cfm/1,000 cu. ft.	4/2/1999
Cherokee	Aerobic	Tank - uncovered	0.7hp/1,000 cu. ft.	7/19/1999
Mt. Pleasant	Aerobic	Tank - uncovered	0.27hp/1,000 cu. ft.	8/9/1999
Charles City	Aerobic	Tank - uncovered	0.48hp/1,000 cu. ft.	1/2/2002
Evansdale	Aerobic	Lagoon - uncovered	None	4/12/2002
Jefferson	Aerobic	Tank - uncovered	1/2 hp/1,000 cu. ft.	4/16/2003
Walford	Aerobic	Lagoon - uncovered	1.24 cfm /1,000 cu. ft.	6/25/2003
LeMars	Anaerobic	Lagoon - uncovered	None	11/3/2003
Riverside	Aerobic	Lagoon - uncovered	None	1/25/2006
Garner	Aerobic	Lagoon - uncovered	None	10/28/2013

*The Evansdale, Garner, Riverside, Sully, and Walford precedents are the most similar to the proposed Orange City variance in that they are uncovered lagoon systems for storage of aerobically digested sludge and using mixing intensities less than (if at all) that required by the design standards.

7. Name, address and telephone number of any public agency or political subdivision of the state or federal government which also regulates the activity in questions, or might be affected by granting the variance.
- a. None.
8. Name, address and telephone number of any person or entity that would be adversely affected by granting the petition.
- a. None.

9. Identity of those having knowledge of the relevant facts concerning the variance.


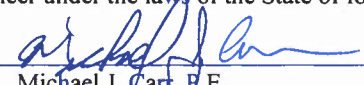
- a. Duane Feekes, Orange City City Administrator
- b. Bryan Gerritson, Orange City Public Works Director
- c. Jerry Reuvers, Orange City WWTP Superintendent
- d. Michael Carr, P.E., DGR Engineering

Signed releases authorizing persons with factual knowledge concerning the request to furnish the Department with information relevant to the variance.

I attest to the accuracy of the facts provided in the petition and the reasons as listed to justify issuance of the various request.



Bryan Gerritson, Orange City Public Works Director

	I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Iowa.	
	By  Michael J. Carr, P.E.	11/21/16 (date)
	License Number <u>15276</u>	
	My license renewal date is December 31, 2017.	
Pages or sheets covered by this seal: <u>All</u>		

Please feel free to contact me with any questions or if you need additional information to support the variance request.

Sincerely,

DGR Engineering

Michael J. Carr, P.E.
Project Manager

cc: Duane Feekes, City of Orange City
Bryan Gerritson, City of Orange City