



STATE OF IOWA

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

DEPARTMENT OF NATURAL RESOURCES
CHUCK GIPP, DIRECTOR

November 28, 2012

Mr. Scott P. Langel
City Administrator
City of Le Mars
40 Central Ave. SE
P.O. Box 1130
Le Mars, Iowa 51031-1130

RE: City of Le Mars Wastewater Improvements
DNR Project No. S2010-0309

Subject: Variance Request from 567 IAC 64.2(9) and Design Standards Section 14.5.2.3.5

Dear Mr. Langel:

After careful and thorough consideration, the Department has approved your Nov. 2, 2012 request for a variance from Iowa Administrative Code Subrule 64.2(9) and Design Standards Chapter 14.5.2.3.5 of the Iowa Wastewater Facilities Design Standards, which requires any mechanical treatment facility designed as a single stage combined carbonaceous oxidation and nitrification treatment is required to have sludge wasting, sludge stabilization defined by process and holding, and a final disposal site.

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 separation distance. 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 567 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.

Please feel free to call Emy Liu at 515-281-8509 or email emy.liu@dnr.iowa.gov if you have any further questions.

Sincerely,



Shelli Grapp
Water Quality Bureau Chief

Cc: Bolton & Menk, Ames, Attn:Greg Sindt
DNR FO #3
DNR Sewage File 6-75-40-0-01
DNR Legal Services

VARIANCE REQUEST			
Iowa Department of Natural Resources			
1. Date:	November 28, 2012	14. Decision:	
2. Reviewer/Engr.:	(Emy) Wenxin Liu	Date:	
3. Date Received:	November 2, 2012		
4. Facility Name:	City of Le Mars		
	Wastewater Treatment		
5. Facility Number:	6-75-40-0-01	15. Appealed:	
6. County Number:	17	Date:	
7. Program Area:	CP (Wastewater)		
8. Facility Type:	C09 (Sludge Handling)		
9. Subject Area:	405 (Sludge Stabilization)		
10. Rule Reference:	567-64.2 (9) a		
11. Design Std. Ref.:	14.5.2.3.5 (Unit Process Reliability Criteria C-Sludge Stabilization)		
12. Consulting Engr.:	Bolton & Menk, Inc. Consultants		
13. Variance Rule:	567-64.2(9)c		
16. <u>Description of Variance Request:</u>			
The City of Le Mars proposed to IDNR a wastewater facility plan for construction of an industrial wastewater treatment facility for treating the projected significant increases in waste loads from two significant industrial users: Wells Enterprises and Dean Foods. Wells Enterprises is currently constructing a major expansion to its ice cream production plant. The proposed treatment process is an activated sludge process with aeration basins and clarifiers. Biosolids will be gravity thickened, stored in earthen biosolids storage lagoons and land applied to agricultural land located adjacent to the industrial wastewater treatment facility site. The City of Le Mars requests a variance from the Iowa Wastewater Facility Design Standards 14.5.2.3.5 requirements under Unit Process Reliability Criteria C category. IA 14.5.2.3.5 states any mechanical treatment facility designed as a single stage combined carbonaceous oxidation and nitrification treatment is required to have sludge wasting, sludge stabilization defined by process and holding, and a final disposal site. The industrial wastewater treatment facility owned by the City of Le Mars will not provide a sludge stabilization process defined by process. The facility will provide sludge wasting and sludge final disposal.			
17. <u>Applicant's/Consulting Engineer's Justification:</u>			
Consulting Engineers for the City of Le Mars listed unique circumstances of the project as follows. 1. This industrial treatment facility will treat wastewater generated by only industrial users and no residential users. The US EPA biosolids rules (40 CFR 503) require biosolids stabilization for municipal wastewater treatment facilities, but specifically exclude industrial wastewater treatment facilities from biosolids stabilization requirements. Therefore, the request for variance from the requirement for sludge stabilization for this industrial treatment facility is consistent with US EPA biosolids rules that exclude industrial wastewater treatment facilities from biosolids stabilization requirements. 2. Consulting Engineers provided a list of other industrial treatment facilities in Iowa that do not have biosolids stabilization processes, which includes Michael Foods Industrial Wastewater Treatment Facility, Agri Star Industrial Wastewater Treatment Facility,			

Tyson Fresh Meats Wastewater Facilities at City of Storm Lake, City of Columbus Junction, and City of Perry.

3. The principal wastewater constituents in the Le Mars industrial treatment facility are rapidly utilized and stabilized by microorganisms in the activated sludge process.
4. As indicated in the October 2, 2012 IDNR letter to the City of Le Mars, the Department's primary concern regarding lack of a sludge stabilization process is the potential for odor emissions from the biosolids storage lagoon. The proposed facility is located adjacent to the existing City of Le Mars biosolids storage lagoons. The area is low population density and adjacent to livestock production facilities. The area is a remote location and proximity to odor emitting land use activities.
5. The biosolids will be directly injected below the soil surface. If the biosolids are not directly injected, they are incorporated within 24 hours of application. Therefore, there is very low odor emission risk for land application activities.
6. In the event that there are significant objectionable odor emissions attributed to inadequate biosolids stabilization from the industrial wastewater treatment facility, the City of Le Mars will construct treatment facility modifications or modify the treatment process operations to reduce the odor emissions.

18. Department's Justification:

This Variance is recommended to be approved.

Iowa Wastewater Facilities Design Standards IA 14.5.2.3.5 requires any mechanical treatment facility designed as a single stage combined carbonaceous oxidation and nitrification treatment have sludge wasting, sludge stabilization defined by process and holding, and a final disposal site. In State of Iowa, land application of domestic sludge is regulated by 40 CFR Part 503 and IAC 567-67, Standards for the Land Application of Sewage Sludge. The industrial sludge land application is regulated by IAC 567-121, Land Application of Wastes.

According to 40 CFR 503, if a publicly owned treatment works (POTW) has only industrial wastewater influent, the sludge generated at this treatment works is not sewage sludge (biosolids) because it is not a residual from the treatment of domestic sewage, but industrial wastewater. See 40 CFT 503.6(d). Therefore, waste sludge generated by the City of Le Mars industrial wastewater treatment plant shall be regulated under the provisions of Land Application of Wastes according to IAC 567-121, even though the industrial wastewater treatment facility is publically owned by the City of Le Mars.

According to IAC 567-121.2, "Stabilized Sludge" means sludge that has been processed to a point where it has the ability to resist further change, produces minimal odor, and has achieved a substantial reduction in the pathogenic organism content. The purpose of sludge stabilization is not only a reduction of pathogens but also a reduction of organic content in the waste sludge to a stabilization point that can resist further change so that risk of sludge odor and putrefaction effects can be minimized.

The Le Mars industrial influent is largely composed of milk solids and sugar. There is no human pathogenic component in the raw waste because this is not domestic sewage. IAC567-121.6(1) e states that if the industrial sludge containing pathogens, the waste must be treated to reduce pathogen content by stabilization methods specified in 567-Chapter 67 prior to land application. The sludge stabilization methods allowed by 567-67 are sludge stabilization methods as defined by process that is noted in IA Wastewater Facilities Design Standards. However, the City of Le Mars industrial wastewater treatment facility does not need a sludge stabilization process for the purpose of pathogen reduction because there is no

pathogen source in the wastewater.

The Le Mars wastewater facility is designed to provide 20 days of SRT. The extended aeration process as proposed will possibly be operated at endogenous decay stage on microorganism growth curve in activated sludge process so that the sludge solids would be relatively more stabilized as compared to a conventional activated sludge process with shorter SRT.

567-121 6 (1) h has a requirement that "The waste is not putrescible, or is incorporated (or otherwise managed) to prevent runoff and odor problems." The sludge meeting vector attraction requirement is considered a sludge that can fulfill sludge stabilization requirement and not putrescible.

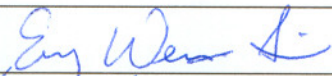
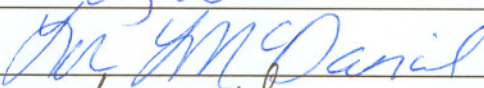
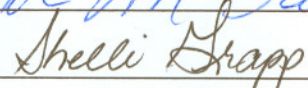
Although it was not specifically listed with respect to analytical methods and sludge treatment methods of determination of organic stabilization under Chapter 567-121, Chapter 567-67 allows in 567-67.8(1) c (7) or (8) land application practices at application site to meet vector attraction requirements if no sludge analytical and sludge treatment methods can be met from any one from 567-67.8 (1) c (1) to (6). Either one of these two land application methods will minimize odor and putrefaction issues so that equal protection of water quality and human health can be made as if it were the sludge can meet volatile solids reduction benchmark through sludge digestion.

In 567-67.8(1) c (7), it states that sewage sludge shall be injected below the surface of the land and no significant amount of the sewage sludge shall be present on the land surface within one hour after the sewage sludge is injected. This is one of the vector attraction reduction requirements for a sewage sludge to be classified as Class II sludge and land applied. Or, as stated in 567-67.8(1) c (8), sewage sludge applied to the land surface or placed on a surface disposal site shall be incorporated into the soil within six hours after application to or placement on the land. This is another way to meet vector attraction requirement.

The City of Le Mars proposed that the biosolids will be directly injected below the soil surface. If the biosolids are not directly injected, they are incorporated within 24 hours of application. Therefore, there is very low odor emission risk for land application activities. The concept of managing sludge land application through injection or incorporation to provide equal - protection can be approved. However, the City shall land apply sludge based on 567-67.8(1) c (7) or 67.8 (1) C (8) specific requirement to address the concern of sludge stabilization concern.

19. Precedents Used:

Michael Foods Industrial Wastewater Treatment Facility (activated sludge)
Agri Star Industrial Wastewater Treatment Facility (activated sludge)
Tyson Fresh Meats Wastewater Facilities at City of Storm Lake (activated sludge)
Tyson Fresh Meats Wastewater Facilities at City of Columbus Junction (activated sludge)
Tyson Fresh Meats Wastewater Facilities at City of Perry (activated sludge)

20. Staff Reviewer:		Date: 11/28/2012
21. Supervisor:		Date: 11/28/2012
22. Authorized by:		Date: 11-29-12