

THOMAS J. VILSACK, GOVERNOR

STATE OF IOWA

DEPARTMENT OF NATURAL RESOURCES JEFFREY R. VONK, DIRECTOR

SALLY J. PEDERSON, LT. GOVERNOR

September 18, 2002

The Honorable Larry Murphy Mayor of Oelwein 20 - 2nd Avenue SW Oelwein, Iowa 50662

RE: Variance Request, Oelwein, Iowa - CS192168 01

Dear Mayor Murphy:

In your July 17, 2002 letter to Wayne Gieselman, Environmental Services Division Administrator, you requested a variance from state wastewater design standards for the secondary treatment facilities as part of other modifications to the City's wastewater plant. A variance was also requested to allow continued use of the split flow treatment concept for flows above 2.5 mgd. You did mention that Oelwein would agree to additional secondary treatment process improvements as a second phase if required by the Department. In brief, the Department is denying the requested variances.

State agencies have general authority to grant variances to provisions of their rules. The Department's wastewater design standards and criteria for split flow treatment are contained in our rules and, therefore, the Department does have the authority to grant variances to these provisions. However, the decision to grant variances must satisfy criteria contained in the Code of Iowa and Department rules. 561 IAC Chapter 10, adopted by reference in 567 – Chapter 13, contains four criteria, including the following two that are of particular relevance:

- The application of the rule would pose an undue hardship on the person for whom the waiver or variance is requested.
- Substantially equal protection of public health, safety, and welfare will be afforded by a
 means other than that prescribed in the particular rule for which the waiver or variance is
 requested.

Our wastewater rules [567 IAC 64.2(9)] contain additional variance conditions and limitations for wastewater facilities. These rules stipulate that variances (from the design standards) that provide for substantially equivalent or improved effectiveness may be requested when there are unique circumstances not found in most projects. When reviewing the variance request, the Department may consider the unique circumstances of the project, direct or indirect environmental impacts, the durability and reliability of the alternative, and the purpose and intent of the rule or standard in question. Circumstances that would warrant favorable consideration of a variance request that provides for substantially equivalent or improved effectiveness include the following:

- Utilization of new equipment or new process technology that is not explicitly covered by the current design standards.
- (2) Application of established and acceptable technologies in an innovative manner not covered by current standards.
- (3) Conditions and circumstances considered in the adoption of the rule or standard are not applicable to the project in question and the effective purpose of the rule will not be compromised.

Final clarifiers with activated sludge return are an established process technology covered by current design standards. There are two criteria in 567 IAC 62.3(2) "e" for the use of split flow treatment. This sub-paragraph provides that "The design to accommodate split flow must be approved by the department and (must be) consistent with applicable design standards for wastewater treatment facilities." Oelwein's proposal will compromise the effective purpose of this rule if Iowa's wastewater facilities design standards (for final clarifiers and activated sludge return) are not met. Oelwein's proposal to not add a 50 foot diameter final clarifier, not provide new return sludge pumps, and continue split flow treatment indefinitely at flows above 2.5 mgd do not provide substantially equivalent or improved effectiveness as compared to the design standards.

Your letter indicates that the effluent violations in the past occurred because one of the final clarifiers (smallest unit) was out of service and a large inventory of solids was in the secondary treatment process. The monitoring data reported to the Department, however, does not support the city's conclusions. Oelwein has continued to violate its TSS limitations with all final clarifiers in service at flows significantly less than the proposed AWW design flow of 2.5 mgd. The following table summarizes the recent violations.

Month	Average Flow (mgd)	Average Aeration Tank MLSS Concentrations ** (mg/l)	
March '01	1.781	5,131	
April '01	1.764	4,793	
May '01	2.232	2,938	
June '01	1.668	2,796	
July '01	1.343	4,172	
March '02	1.146	3,745	
April '02	1.440	3,321	
June '02	1.566	1,686	

Table 1. Months in 2001 and 2002 with Effluent TSS Violations*

*Prior to May 8, 2001, one 35 foot diameter final clarifier was used as a sludge thickener ** The design MLSS concentration for the aeration tanks is approximately 3,000 mg/l.

The June 2002 monitoring report from the city contains the following statements: "Received 3.8 inches of rain in three days causing high flows at the plant. Exceeded our design daily max twice. The high flows also caused solids to be washed out of the final clarifiers. This resulted in exceedances for both 7-day avg. & 30 day avg. for concentration & mass of TSS. Also, the 7-day avg. for CBOD was exceeded...."

In addition, the Department's reliability requirements for design require evaluation of the plant with the <u>largest</u> final clarifier out of service for single stage nitrification systems (lowa Wastewater Facilities Design Standard 14.5.2.3). Without at least one 50-foot diameter clarifier in service at all times, the City will far exceed the maximum final clarifier solids loading criteria at the 75 percent design loading. This analysis was provided in our June 14, 2002, correspondence. The wasteload allocation transmitted to the City on August 2, 2002 indicates that a high level of biological treatment and sedimentation also must be maintained at peak flows to consistently meet permitted fecal coliform limits as well as the average and maximum day limitations for ammonia nitrogen. In summary, we can only approve split flow treatment for flows above 5.0 mgd once secondary improvements including a new 50 foot diameter secondary clarifier and enhanced sludge return are provided.

While we are not approving the requested variances, we are agreeable to extending the compliance schedule for plant construction. An Administrative Order (98-WW-01) was issued on January 5, 1998 that cited Oelwein for repeated violations of the 1987 design flow limits and established a compliance schedule for needed improvements. We might also note that a sewer hookup moratorium to the East Knoll Addition Improvements in Oelwein was issued, but was lifted on February 14, 2001 on the basis of the city's February 1, 2001 proposal to include a 50 foot diameter clarifier and 4 new return activated sludge pumps in the proposed improvements. We are amenable to amending Administrative Order 98-WW-01 to include the compliance schedule provided below. This schedule will allow the phasing of construction necessary as the result of this variance denial.

Wastewater Treatment Plant

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Phase 1 January 1, 2003 – Submit final Plans and Specifications for Phase 1 Wastewater Treatment Plant improvements meeting IDNR Design Standards and Reliability Criteria March 15, 2003 – Advertise for Bids April 15, 2003 - Receive Bids May 1, 2003 - Award Construction Contract October 15, 2004 - Complete Construction of Flow Equalization Basin. Preliminary Treatment Facilities, Gravity Thickener, Sludge Solids Handling Improvements and Storage, Disinfection Facilities, Emergency Generator, and associated appurtenances Phase 2 December 1, 2004 – Submit final Plans and Specifications for Phase 2 Wastewater Treatment Plant improvements meeting IDNR Design Standards and Reliability Criteria February 15, 2005 - Advertise for Bids March 15, 2005 - Receive Bids April 1, 2005 – Award Construction Contract July 1, 2006 – Complete Construction of a second 50 foot diameter Final Clarifier, RAS Pumps, and associated appurtenances; Discontinue Split Flow Treatment: and Comply with Final Effluent Limitations

Collection System Analysis and Improvements

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July 1, 2003 – Submit Comprehensive Collection Systems Evaluation Report identifying all necessary Improvements to eliminate Bypassing and Basement Backups in the North Frederick Street area and First Street N.E. area

July 1, 2006 – Eliminate collection system bypassing and basement backups

Regarding Phase 1 and the CWSRF loan progress, we would encourage the City of Oelwein to hold a public hearing with 30 day notification on the Facilities Plan as soon as possible. The estimated user charge should be based on a loan interest rate of 3 percent. A coordination meeting with the Department's staff may be beneficial to expedite this project's (Phase 1) remaining planning and design. You should be aware that 567 IAC 92.8(7) allows a project to be bypassed by projects of a lower priority that are in a state of readiness for any project without a signed, binding commitment by August 31 following the fiscal year in which a fundable priority was assigned.

The denial of a variance may be appealed to the Environmental Protection Commission. If the city of Oelwein wishes to appeal this denial, we suggest you contact Mike Murphy at 515-281-8973 as soon as possible to determine the format for a timely appeal. If the city does not plan to appeal this variance denial and is agreeable to the extended compliance schedule, please let us know as soon as possible so that appropriate modifications can be made.

Should have any questions, please feel free to contact Terry L. Kirschenman at 515-281-8885 or Wayne Farrand at 515-281-8877.

Sincerely,

Jack Riessen, P.E., Chief, Water Quality Bureau

c: Earth Tech, Waterloo Victor Kane, Oelwein DNR ESD Field Office 1, Manchester

City Hall 20 - 2nd Avenue South We Oelwein, Iowa 50662 (319) 283-5440

Mr. Wayne Gieselman, Administrator Environmental Services Division Iowa Department of Natural Resources Wallace State Office Building 900 East Grand Des Moines, Iowa 50319

Subject: I/I and Solids Handling Studies Request for Variance

Dear Mr. Gieselman:

In reference to Earth Tech's April 18, 2001, letter and DNR's June 14, 2002, letter, the City of Oelwein hereby requests a <u>variance-from</u> the DNR for the requirement of improving the City's secondary treatment facilities with the addition of a secondary clarifier. We also request that the variance allow the City to continue using the split flow concept above flows of 2.5 million gallons per day. A new 1.2 million gallon flow equalization basin would store wastewater flows in excess of 5.0 mgd. The City would still proceed with the preliminary treatment facilities, gravity thickener, reed beds, flow equalization facilities and disinfection/generator improvements (if required by the DNR), totaling \$3,400,000.

We believe that the split flow concept enables the discharge to consistently meet limits. The effluent violations in the past were the result of too much solids inventory in the secondary treatment process because of limited sludge storage and inability to apply sludge to land-application sites. One of the final clarifiers was also being used as a gravity thickener, thus reducing total final clarifier capacity. The clarifier has since been returned to service as a clarifier, and the City wants to proceed with a new gravity thickener, reed beds and new flow equalization facilities.

As a part of this request, the City would agree to proceed with the secondary treatment improvements as a second phase to the project if it is found that the first phase, using the split flow concept and other proposed system improvements, is inadequate to consistently meet the effluent limits.

We would be happy to meet with you and/or your representative to further discuss the City's position in this matter at a mutually agreeable time. Please call if you have questions or need additional information.

Very truly yours,

City of Oelwein

Larry Murphy Mayor

C:

Mr. Bamsey Mr. Ron Stellick, Manchester DNR

T/L/W Gieselman doc

VARIANCE REQUEST Iowa Department of Natural Resources

1. Date:	August 14, 2002	
2. Review Engineer:	Terry L. Kirschenman	
3. Date Received:	July 26, 2002	
4. Facility Name:	Oelwein	
5. County Number:	33	
6. Program Area:	CP	
7. Facility Type :	CO5	
8. Subject Area :	321	
9. Rule Reference:	567-64.2(9)a	
10. Design Stds Ref:	14.5.2.3	
11. Consulting Engr:	Earth Tech	
12. Variance Rule:	567-64.2(9)c	

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14.Appeal: Date:

15. <u>Description of Variance Request:</u> Continue with split flow treatment for flows above 2.5 mgd and not upgrade secondary treatment facility at this time.

16. <u>Consulting Engineer's Justifications:</u> If the project is found to be inadequate, the City will proceed with the secondary treatment improvements as a second phase.

17. <u>Department's Justifications</u>: Denial of this variance request is recommended. Paragraph 567 IAC 62.3(2)"e", requires the design of split flow treatment plants to meet design standards. Also, the concept must be approved by the Department's staff. No such approval has been granted. The City of Oelwein was cited for its violation of the 1987 flow limits on January 5, 1998. Only if the secondary treatment capacity is expanded will the AO be addressed. Bob Bamsey's May 24, 2002, letter acknowledged that the City's proposal may not "technically" meet all of the IDNR criteria for facility plan improvements. Subrule 567 IAC 62.1(7) states the following: "Wastes in such volumes or quantities as to exceed the design capacity of the treatment works or reduce the effluent quality below that specified in the operation permit of the treatment works or a privately owned domestic sewage treatment works and are prohibited." Without an increase in secondary treatment capacity, the Department would be required to restrict loadings to the plant with a sewer connection moratorium. Reliability Class I applies in this instance because of the disinfection requirement, IA 14.5.1.

18. Precedents Used: None 19. Staff Reviewer: Date: 14,2002 20. Supervisor: Date: 21. Authorized by: Date: