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VARIANCE REQUEST

Iowa Department of Natural Resources

Date : 3/5/93 13. Decision: Approved/Conditioned
 2. Review Engineer : Terry Kirschbaum Date: 3/10/93
 3. Date Received : 2/15/93
 4. Facility Name : Johnston WWTP 14. Appeal:
 5. County Number : 77 Date:
 6. Program Area : CP
 7. Facility Type : CO3
 8. Subject Area : 319, 321, 346, 351 and 352
 9. Rule Reference : 567-64.2(9)g
 10. Design Std. Ref. : 21.1.7.2 and 21.7.3
 11. Consulting Engr. : Veenstra and Kinn, Inc.
 12. Variance Rule : 567-64.2(9)c

15. Description of Variance Request

The variance basically proposes the use
 of the same pipe as the influent
 and effluent location for Reservoir No. 2.

16. Consulting Engineer's Justification

The original pond construction was not
 designed to meet current standards.
 Because construction may be expensive, the
 location of the proposed pipe, although
 not desirable, is good enough. Improvements

16. Consulting Engineer's Justification (cont.)

to meet all current standards would be very expensive at this time. (See February 15, ~~1993~~ and 25 letters)

17. Department's Justification

Continued use of the deep storage pond can be approved conditionally with some operational and construction constraints. The effluent transfer pipe needs to be redesigned to make full use of the large storage pond (See March 10, 1993 correspondence)

18. Precedents Used

19. Staff Reviewer

: Tommy Kinschewsky

Date: 3/5/93

20. Supervisor

: John J. [Signature]

Date: 3/6/93

21. Authorized by

: Daniel H. [Signature]

Date: 3/10/93



TERRY E. BRANSTAD, GOVERNOR

RECORD COPY

File Name Johnston Sewage File
Senders Initials TLK

DEPARTMENT OF NATURAL RESOURCES
LARRY J. WILSON, DIRECTOR

March 10, 1993

Mr. Robert E. Hays
6221 Merle Hay Road
P.O. Box 410
Johnston, Iowa 50131

RE: Johnston Treatment Plant - Reservoir No. 2
Johnston, Iowa
CS192046 01

Dear Mr. Hays:

The Iowa Department of Natural Resources in accordance with Subrule 567-64.2(9)c of the Iowa Administrative Code has considered Veenstra and Kimm's February 15, 1993, request for variances from Iowa Design Standards 21.1.7.2 and 21.1.7.3. Their letter requests an operating depth of 16 feet and withdrawal of the wastewater from the very bottom of the pond by connecting the existing discharge pipe of the transfer pumping station to a new 16 inch effluent transfer pipe. Portable pumps will be used to direct water to Reservoir No. 2 in an emergency.

In general, the construction of the storage lagoons for a land application system shall conform with 18C of the design standards. The maximum total water depth shall not exceed 10 feet. The minimum drawoff shall be at the two foot level. Also, there shall be a minimum of two storage cells with the capability of series and parallel operation. Our approval of Johnston's deep storage pond and new effluent piping is conditioned on the following:

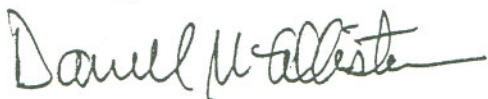
1. The effluent from the mechanical pretreatment plant must be directed to a storage pond under all circumstances without a cross connection to the proposed effluent transfer pipe. Added piping flexibility allowing the wastewater to flow by gravity from the mechanical plant to Reservoir No. 2 is necessary in the absence of installed firm pumping capacity. This will provide a high degree of reliability for all scheduled routine maintenance and encourage the city to lower the water level before Reservoir No. 1 is taken out of service. We note the proposed irrigation pumping station for this project is not designed to provide reliable continuous operations for deep storage depths.
2. The proposed effluent transfer piping from Reservoir No. 2 must be redesigned to minimize the potential for short circuiting. The existing mechanical plant was constructed in the late 1970s with single units. Short circuiting through Reservoir No. 1 also could occur because of existing piping deficiencies. If the influent piping to Reservoir No. 2 cannot be extended toward the opposite side, the best location for a new effluent control structure is toward the south side of the pond.

3. Your request to withdraw wastewater to the proposed effluent transfer pipe only from the very bottom of Reservoir No. 2 must be denied. At least 4 multi-level drawoffs should be provided for a pond 16 feet deep. Withdrawal of the optimum quality water containing reduced levels of pathogenic bacteria and viruses must occur near the surface in the absence of supplemental mixing. Johnston is expected to provide an effluent fecal coliform level no greater than 2.2 MPN/100 ml. Veenstra and Kimm, Inc., noted the importance of "natural ultraviolet light" in their variance request for the disinfection system. A drawoff below the two foot level for a new effluent control structure also does not assure protection of the pond liner or provide for the storage of solids.
4. Supplemental aeration or mixing may be required for Reservoir No. 2 in the future if odors are a problem.

We trust this approval will provide some added guidance and allow the City of Johnston to proceed toward the completion of its final plans and specifications. The Department is open to the use of interim piping arrangements for lowering the water level in Reservoir No. 2 this summer to accommodate the construction of necessary influent and effluent piping. Our goal is a reliable long term solution to Johnston's wastewater treatment needs.

Should you have any questions or wish to meet, please call. My telephone number is 515/281-8869.

Sincerely,



Darrell McAllister, Chief
Water Quality Bureau
Iowa Department of Natural Resources

cc: Field Office 5
Veenstra and Kimm., West Des Moines
Mark Lee, Johnston