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13.10.4

VARIANCE REQUEST

Iowa Department of Natural Resources

1. Date: May 23, 2006
2. Review Engineer: Larry Bryant
3. Date Received: May 5, 2006
4. Facility Name: City of Gravity WWTF
5. County Number: 87 (Taylor)
6. Program Area: CP (Wastewater Construction)
7. Facility Type: C02 (Pumping)
8. Subject Area: 327 (Valve Pit)
9. Rule Reference: 567-64.2(9)a
10. Design Stds Ref: 13.10.4
11. Consulting Engr: S.I.R.W.A.
12. Variance Rule: 567-64.2(9)c

13. Decision: *denied*

Date: *5/23/06*

14. Appeal:

Date:

15. Description of Variance Request:

Allow direct bury of the shutoff valves in lieu of providing a valve chamber. IA 13.10.4 requires that these valves be housed in a valve chamber.

16. Consulting Engineer's Justifications

"We are requesting a variance to the design standards to allow direct bury of the shut-off valves. SIRWA feels that the direct bury valves is safer, since a vault or manhole would be considered a confined space. Sirwa has several lift stations in our system now where the shut-off valve has been direct bury."

17. Department's Justifications

Recommend variance denial:

Several submersible lift stations with buried shutoff valves (no valve chamber) were previously approved by the Department as part of the original Small Community Pilot Projects program for unsewered communities (including the main lift station for the City of Gravity). However, the justification for these approvals was inclusion in the pilot program. With respect to the elimination of the valve chamber requirement for the pilot program projects, a March 8, 1995 letter from the Department to the Iowa Rural Water Association noted the following:

"The Department will accept designs eliminating the valve pit as a value engineering design concept if the check valves can be removed with the pump from the wet well. However, a high water overflow for the wet well will not be approved on the basis that a less reliable pumping station design is installed. Also, ductile iron piping must be used for the force mains near the buried valves. Eliminating a shallow valve pit for these pumping stations may increase the operation and maintenance over the life of the pumping station for the rural water districts to a cost level exceeding the estimated initial cost savings. The planning assumption that buried valves can be maintained at no added expense is not valid. One maintenance event could equal the cost of the structure. We also disagree with the supposition that an excavation pit for valve maintenance is a lesser safety concern. A valve pit may be required by the Department in the future if there is any bypass of raw wastewater attributed to this value engineering design concept."

The engineer's justification that a valve vault is a safety concern is valid only in that all confined spaces present a safety concern - a vault is no less safe than an excavation pit that would be required to access buried valves. The purpose of the standard is to provide easy access to the valves for maintenance and/or replacement. The use of buried valves in lieu of a valve vault would restrict such access. The City of Gravity is not an unsewered community and no unique circumstances that warrant consideration of this variance have been provided. Therefore, the conditions of 567 IAC 64.2(9)c are not met and variance denial is recommended.

18. Precedents Used

City of Watkins - Denied 10/19/05

City of Kinross - Denied 6/8/01

Oak Ridge Estates - Denied 5/26/89

City of Webster - Denied 10/6/03

City of Coralville - Denied 6/25/03

City of Lamoni - Denied 10/20/94

City of Lockridge - Denied 8/5/92

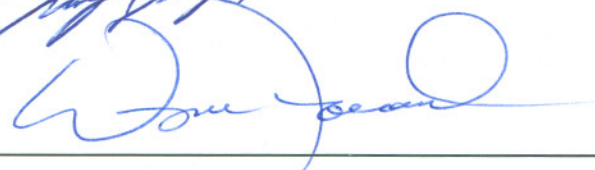
City of Martinsburg - Denied 10/6/03

19. Staff Reviewer:



Date: 5/23/06

20. Authorized by:



Date:

5/23/06



STATE OF IOWA

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

DEPARTMENT OF NATURAL RESOURCES
JEFFREY R. VONK, DIRECTOR

May 24, 2006

David Bauer, P.E.
Southern Iowa Rural Water Association
1391 190th Street
Creston, IA 50801-8299

RE: Variance Requests
Iowa Wastewater Facilities Design Standards Sections 13.5.2.2 and 13.10.4
City of Gravity - Lift Station and Force Main

Dear Mr. Bauer:

The Iowa Department of Natural Resources in accordance with Subrule 567-64.2(9) of the Iowa Administrative Code has reviewed your requests for variances from Sections 13.5.2.2 and 13.10.4 of the Iowa Wastewater Facilities Design Standards. Section 13.5.2.2 requires that check valves be placed on the horizontal portion of discharge piping except for ball checks, which may be placed in the vertical run. Section 13.10.4 requires that valves for submersible pumps be located in a separate valve chamber. Variances from Sections 13.5.2.2 and 13.10.4 to use a vertically mounted flapper-type check valve located in the lift station wet well are approved. The variance request from Section 13.10.4 to allow buried shutoff valves in lieu of a valve chamber is denied.

Paragraph 567 IAC 64.2(9)c states that "Variances from the design standards and siting criteria which provide in the judgment of the department for substantially equivalent or improved effectiveness may be requested when there are unique circumstances not found in most projects". The supporting information for location of the check valves inside the lift station wet well and use of a flapper-type valve satisfies these conditions. The justification provided for buried shutoff valves in place of a separate valve chamber does not.

The check valve issue is a unique circumstance in that the use of small grinder pumps that utilize a check valve integral to the manufacturer's standard pump package are proposed. The purpose of Section 13.5.2.2 is to provide a reliable valve arrangement for lift stations that pump raw wastewater. As noted in your supporting justification, the proposed check valve arrangement is the manufacturer's standard design and in widespread usage in this application. In addition, we are unaware of any noted problems with the specific valve type in this configuration. The purpose of Section 13.10.4 is to provide easy access to the lift station valves for maintenance or replacement. The proposed check valves can be removed with the pumps without entry into the wet well. Thus, both conditions required for issuance of a variance are satisfied.

The supporting justification provided for burial of the shutoff valves is that "SIRWA feels that the direct bury valves is safer, since a vault or manhole would be considered a confined space" and

that "SIRWA has several lift stations in our system now where the shut-off valve has been direct bury". As stated previously, the purpose of the valve chamber requirement is to provide access to the valves. Burial of the valves restricts such access and therefore does not provide equivalent effectiveness as would be provided by technical compliance with the standard on this issue. While a valve chamber (and all confined spaces) present a safety concern, we feel that an excavation pit required for access to buried valves would present no less of a safety concern.

Designs for lift stations with buried shutoff valves (including those operated by SIRWA) have been previously approved by the Department as part of the Small Community Pilot Projects program for unsewered communities. In these instances, the buried valve arrangement was accepted as part of a number of value engineering concepts intended to reduce project costs for unsewered communities facing the "unique" situation of attempting to simultaneously finance both new wastewater collection and treatment facilities. The City of Gravity is no longer an unsewered community and in our review of the variance request for elimination of the valve chamber, we fail to see how the existing situation presents "unique circumstances not found in most projects" as further enumerated under paragraph 567 IAC 64.2(9)e.

In summary, we find that the proposed check valve arrangement satisfies both of the variance criteria required by the Department's Administrative Rules but that the proposed shutoff valve arrangement satisfies neither. Copies of the applicable rules and standards are enclosed for your reference. Please note that 567 IAC 64.2(9)c provides that the denial of a variance request by the Department may be appealed to the Environmental Protection Commission. Such an appeal would need to be filed within 30-days of receipt of this letter in accordance with Chapter 561 IAC 7 (also enclosed).

If there are any questions or comments regarding this please call me at (515) 281-6759 or email me at larry.bryant@dnr.state.ia.us.

Sincerely,

A handwritten signature in black ink, appearing to read "Larry Bryant", with a stylized flourish at the end.

Larry Bryant, P.E.
Project Manager
Wastewater Section

Enclosures