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Metropolitan Water Reclamation District of Greater Chicago

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June 16, 2015

Mr. Bill Jankousky
Infrastructure Financial Assistance Section, BOW
Illinois Environmental Protection Agency
1021 North Grand Avenue East
Springfield, IL 62794-9276

RECEIVED-BOW

JUN 18 2015

**Infrastructure Financial
Assistance Section**

Dear Mr. Jankousky:

Subject: American Iron and Steel Act Waiver Request – Knife Gate Valves
Contract No. 11-195-AP, SRF Loan No. L175161
Phosphorous Recovery System, SWRP

Transmitted herewith is the Contractor's request for a waiver of the American Iron and Steel Act requirements for fifteen knife gate valves. Please process the request and notify the District of the USEPAs findings.

Questions regarding the enclosed may be directed to Louis Storino, of my staff, at (312) 751-3167.

Very truly yours,



William Sheriff
Assistant Director of Engineering



KMF:LS
Enclosure

cc: Rohloff

This waiver request was submitted to the EPA by the Metropolitan Water Reclamation District of Greater Chicago. All supporting correspondence and/or documentation from contractors, suppliers or manufacturers included as a part of this waiver request was done so by the recipient to provide an appropriate level of detail and context for the submission.



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BLACK & VEATCH CONSTRUCTION INC.
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June 16, 2015

Metropolitan Water Reclamation District of
Greater Chicago
100 East Erie Street
Chicago, IL 60611

Stickney WRP Phosphorus Recovery
B&V Project 182019

B&V File 14.2100.02

Letter No. 00233

Attention: Mr. Glenn Rohloff, P.E., Supervising Civil Engineer
Subject: BVCI AIS Waiver Request – Ostara Knife Gate Valves

Dear Mr. Rohloff,

Please find attached Ostara's request for a product waiver to the American Iron and Steel requirements for the knife gate valves associated with the Phosphorus Recovery Equipment.

Please process this request through the IEPA at your earliest convenience.

Very truly yours,

BLACK & VEATCH CONSTRUCTION, INC.

Josh Clausen
Project Manager

tjm
Enclosure[s]

cc: T.J. Moore – B&V
James Greenyer – BVCI
File



June 11, 2015

T.J. Moore
Group Manager - Water Procurement Operations, C&P
Black & Veatch Corporation
8400 Ward Parkway, Kansas City, MO 64114

Dear Mr. T.J. Moore,

Re: AIS Non-compliant Knife Gate Valves

According to the AIS requirements, CWSRF and DWSRF assistance recipients are required to use specific domestic iron and steel products that are produced in the United States if the project is funded through an assistance agreement. The agency can determine whether it is necessary to waive this requirement based on certain circumstances set forth in Section 608(c)(2) of the Clean Water Act. The provision states that, "[the requirements] shall not apply in any case or category of cases in which the Administrator of the Environmental Protection Agency ... finds that - (2) iron and steel products are not produced in the United States in sufficient and reasonably available quantities and of a satisfactory quality."

Ostara is requesting a Product Waiver of American Iron and Steel Requirements for the following knife gate valves to be used in the MWRDGC Stickney WRP Phosphorus Recovery Project, Chicago IL.

- 24" reactor bottom isolation Knife Gate Valve – 3 Each.
- 24" recycle line isolation Knife Gate Valve – 3 Each.
- 8" post-digestion centrate isolation Knife Gate Valve – 3 Each.
- 4" E-leg isolation Knife Gate Valve – 6 Each.

Manufacturer of the above knife gate valves is ITT. Valve model number is: XS150-ULV.

The ITT XS150-ULV series knife gate valves are selected because the phosphorus recovery process (in the form of struvite pellets) requires tight shutoff, non-discharging knife gate valves that can resist scaling and provide reliable protection

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Ostara USA, LLC
1723 S Kings Avenue
Brandon, Florida 33511, USA

from atmospheric leaks. The ITT XS150-ULV series knife gate valves meet all of Ostara's specifications and have proved to perform well and as expected in all the Ostara facilities to date. ITT XS150-ULV series knife gate valves are Ostara's standard valves for our phosphorus recovery process.

However, ITT XS150-ULV knife gate valves are not AIS compliant. Castings of these valves come from two places, China and South Korea.

To look for potential alternative knife gate valves that meet the AIS requirement, Ostara has contacted various valve manufactures. Below is a list of alternative manufactures that Ostara has contacted and our findings:

1. DeZURIK – does not have AIS compliant knife gate valves; knife gate valve design does not meet Ostara's specifications.
2. Pentair – could potentially fabricate AIS compliant knife gate valves (very long lead time), but their knife gate valve design does not meet Ostara's specifications. ** LEAD TIME*
3. Red Valve – does not have AIS compliant knife gate valves; valve design does not meet Ostara's specifications. Ostara has field tested Red Valve's DX series Slurry Knife Gate valves, but the valve performance did not meet Ostara's expectations.
4. Wey Valve – has AIS compliant knife gate valves, but knife gate valve design does not meet Ostara's specifications. Ostara has field tested Wey Valve's VS series valves, but the valve performance did not meet Ostara's expectations.

Please see below detailed technical notes/comparisons of the above listed knife gate valves.

ITT Urethane Lined Knife Gate Valve (ITT XS150-ULV)

- Valve is perimeter seated (protected, soft elastomer seal) with relief area behind seat to ensure tight shutoff, and prevents over compression
- Valve has one-piece perimeter and transverse seal (bicycle lock)
- Seal (with shouldered design) is mechanically retained to prevent it from being pulled out, suitable for severe service
- The triple scraper design of gate scrapers stops process debris from reaching the transverse packing seal, thus preventing damage that could cause leakage to atmosphere
- Seal packing can be maintained with valve in service



- Valve seat has urethane liner which is especially effective in the struvite service as it is not susceptible to scaling in the same way a hard metal surface is
- The Urethane liner is a standard part and can be replaced in the field which minimizes process downtime
- Full port design
- Successful installations and operating experience in all of Ostara's Canada, UK and US locations

DeZURIK and Pentair Urethane-lined Valves (DeZURIK KUL, Pentair M145)

- DeZURIK and Pentair are alternative manufactures of urethane-lined valves (DeZURIK KUL knife gate valve and Pentair M145). However, their knife gate valve designs do not include an elastomer based perimeter seal or transverse packing seals. Their valves rely on sealing against the stiff urethane liner and use standard rope-style packing which is known to have leakage issues in the field.
- The DeZURIK KUL valve features a one-piece, cast-in-place liner. If the liner is damaged, the valve will need to be sent back to the factory for repair, which would typically take a minimum of 3-4 weeks or longer.

Wey Knife Gate Valves (Wey VS series, Wey NA1 series)

- Ostara has field tested an 8" VS series knife gate valve in one of our facilities. Within 6-8 months of operation, severe struvite scaling prevented the valve from operating properly and the valve had to be replaced.
- The Wey NA1 series valve offers an option to add a urethane liner to lower the risk of struvite scaling. However, this urethane liner is permanently adhered to the valve body. If this liner gets damaged, the valve will need to be sent back to the factory for repair, which would typically take a minimum of 3-4 weeks or longer.
- Wey knife gate valves do not have full port design. For the phosphorus recovery process, any protrusion in the pipe line (which causes turbulence) will increase the risk of struvite scaling.

In summary, Ostara's experience has shown that although the cast ITT valves do not meet the AIS requirements, no other manufacturers of Urethane Lined Knife Gate Valves can meet the AIS requirements, Ostara's specifications and the process performance requirements of knife gate valves. Therefore, Ostara is requesting a



**Product Waiver of American Iron and Steel Requirements for the above ITT XS150-
ULV series knife gate valves.**

Yours truly,

**Aynul Dharas
VP Projects**

**Cc: Melissa Zhang – Ostara
 Eric Streeter – Ostara
 Joshua Clausen – BVC
 James Greenyer – BVC**

