GLWA
Great Lakes Water Authority

Financial Services
Public Finance
735 Randolph Street, Suite 1601
Detroit, Michigan 48226
Phone: 313-964-9201

October 7, 2019

Ms. Kelly Green, Administrator
Water Infrastructure Financing - Finance Division
Michigan Department of Energy, Great Lakes and Environment (EGLE)
P.O. Box 30457
Lansing, MI 48909-7957
Attention: Karol Patton, Manager EGLE

Dear Ms. Green:

Subject: Availability Waiver Request from Use of American Iron and Steel Requirements in PL113-76, Drinking Water Revolving Fund (DWRF No. 7445-01), GLWA- DB-1803258, Northeast Flow Control Facility

The Great Lakes Water Authority (GLWA) would like to apply for a project waiver pursuant to the "American Iron and Steel" requirements for four (4) plunger valves to be used at the new Northeast Flow Control Facility (NEFCF) located at the Northeast Water Treatment Plant (WTP) in Detroit, Michigan.

Per AIS requirements, DWRF assistance recipients are required to use specific domestic iron and steel products that are produced in the United States; however, recipients may receive a waiver if certain circumstances are met. For this project, we are requesting a waiver pursuant to condition number two, "Iron and steel products are not produced in the United States in sufficient and reasonably available quantities and of a satisfactory quality". Pursuant to the Environmental Protection Agency (EPA) Availability Request, GLWA is providing the attached general project information and Availability Waiver request information to facilitate the waiver review.

Based on the attached information, we are requesting that a waiver for the use of Erhard plunger valves be granted for use on the NEFCF project. If you have any questions or comments, please contact Tim Kuhns at (734) 634-7861 (email: timothy.kuhns@glwater.org) or Francine Duncan-Martin at (313) 964-9489 (email: Francine.Duncan-Martin@glwater.org).

Thank you in advance for your consideration.

Sincerely,

Sue McCormick
Chief Executive Officer/DWRF Authorized Representative, GLWA

cc: Ms. Cindy Clendenon [clendenonc@michgan .gov]; Jonathan Wheatley, Francine Duncan-Martin, Jacqueline Morgan, Grant Gartrell, Tim Kuhns

Attachment: General project information and Availability Waiver request information

General Project Information

General Project Information

The NEFCF project is phase one of a three phase water transmission system upgrade to deliver up to 200 million gallons per day (MGD) of finished water flow to the Northeast WTP from the Springwells and Water Works Park WTPs in an effort to decommission excess treatment capacity at the Northeast WTP.

The applicant, GLWA, requests plunger valve availability waiver exemptions to meet the design and service life criteria for the proposed NEFCF project. The project includes construction of:

- 84-inch and 42-inch yard piping to connect to the existing 60-inch Garland transmission main (from Springwells and Water Works Park WTPs) and future 81-inch transmission main from the Water Works Park WTP.
- Four (4) 48-inch flow control valves trains and associated piping and isolation valves to control flows from the transmission system through the new yard piping system
- A large, below-ground, reinforced concrete structure with weir chamber and associated above-ground building superstructure to house the flow control valves and process piping
- A connection to, and extension of, the existing NE WTP filtered water conduits' Junction Chamber No. 1 to convey the finished water to the Northeast WTP filtered water reservoirs;
- Building bridge crane and truck access appurtenances within the facility
- Associated utility and site improvements
- Electrical and control system components.

Description of the Foreign and Domestic Construction Materials

The subject valves for which the waiver is sought are plunger valves made by Erhard GMBH& Co. located in Heidenheim, Germany. The foreign iron and steel materials contained in the Erhard plunger valve consist of:

- Valve bodies: ductile iron
- Valve shafts: 316 SS, 304, 413 stainless steel
- Bearings: No lead bronze

Unit of Measure for Plunger Valves

The unit of measure for the proposed plungers is "Per Each Valve".

Quantity and Price of Plunger Valves

Plunger valve quantities for this project are as follows:

Price of plunger valves: [redacted] per valve, [redacted] for (4) valves

Time of Delivery or Availability for Plunger Valves

Time of Delivery for the proposed plunger valves is as follows:

32 weeks upon approved shop drawings

Location of Construction Project

The NEFCF Project is located within the City of Detroit, Michigan at the Northeast WTP, which is located just south of East Eight Mile Road (immediately south of the Macomb County line) about a half-mile east of Van Dyke Avenue.

Name and Address of Proposed Supplier

The name and address for the proposed plunger valve supplier is:

ERHARD GmbH & Co. KG
Meeboldstraße 22
89522 Heidenheim, Germany
Phone: +49 (0)7321 320 0
Fax: +49 (0)7321 320 808
E-mail: info@talis-group.com

Detailed Justification for Use of Foreign Construction Materials

The purpose of the proposed Erhard plunger valves and larger NEFCF project is to control the pressure and flow of the water transmission system that delivers flow to the Northeast WTP finished water reservoirs from the Springwells and Water Works Park WTPs. Flows exceeding the transmission system rated capacity could result in low pressures for the wholesale customers connected to the transmission system feeding the NEFCF. The proposed plunger valves can accommodate the hydraulic service conditions for anticipated system operations and prevent excessive flow (and associated low pressures) on the water transmission system delivering flow to the NEFCF. GLWA examined alternate valve designs including axial flow valves and sleeve valves:

1. Mokveld Axial Flow Valves
   Axial flow control valves are typically used for high-energy, anti-cavitation applications. These valves met the hydraulic service conditions, however, these valves are manufactured outside of the United States and would be subject to AIS requirements.
2. Sleeve Valves
   Sleeve valves were also evaluated for this project, however, the use of a sleeve valve presented several issues:
   - The sleeve valve alternative with a comparable lay length to other control valves (95.75") is equipped with a 30-inch outlet, and at the maximum design flow rate (67 MGD) have excessive discharge velocities in the range of 21 feet per second (fps). In order to address the velocity issues, a larger outlet is required on the valve which requires a significantly longer lay length. The valve bay structure has been sized, designed, and approved to accommodate the more compact plunger valve and associated velocity profile produced by the plunger valve.
   - The sleeve valve design would require small hole perforations on the sleeve which are prone to clogging, leading to higher repair and failure rates.
   - Maintenance on sleeve valves requires that the entire valve be pulled from the site for maintenance off-site. The NEFCF is a critical flow delivery site and requires minimal downtime due to maintenance for any given valve. Plunger valves can be repaired in-situ with reduced downtime.

Good Faith Effort to Solicit Bids from Domestic Manufacturers

GLWA made a good faith effort to solicit bids from domestic manufacturers in that sleeve valves were included as an option for the flow control valves, however, because of the issues identified above, the sleeve valve could not offer a solution that met the needs of GLWA.

October 3, 2019

Chief Executive Officer
Great Lakes Water Authority
735 Randolph, Suite 1900
Detroit, Michigan 48226

Subject: CON-DB-1803258 Plunger Valve Waiver

Please reference attached letter from Cascade Consultants LLC, regarding the non-availability of domestic sourced plunger valves. In addition, the following information is provided per your request:

- Price of plunger valves: [redacted] per valve, [redacted] for (4) valves
- Time of delivery or availability: 32 weeks upon approved shop drawings
- Name and Address of proposed supplier: ERHARD GmbH & Co. KG, Meeboldstrabe 22, 89522 Heidenhiem, Germany

Thank you,

DocuSigned by:
Cyril Pokorny
CCD158B16FDC4B5...

CJ Pokorny
Sr. Project Manager
Walsh Construction
3031 W. Grand Blvd. Suite 640
Detroit MI 48202

Availability Request Waiver Information

Availability Waiver Request Information

Supplier information or pricing information from a reasonable number of domestic suppliers

There are no domestic suppliers of waterworks Plunger Valves.

Supporting Documentation to Demonstrate the Availability of Materials for Which Waiver is Requested

GLWA worked with the Environmental Protection Agency (EPA) Drinking Water State Revolving Fund (DWSRF) staff to perform a pre-waiver product research to identify a suitable domestically produced U.S.-made product. The DWSRF staff pre-waiver product research did not identify a domestic alternative to the plunger valve. A copy of the email from the DWSRF staff is provided as an attachment.

Project Schedule

Key Schedule Information for NEFCF Project:

- Notice to Proceed for the NEFCF Design Build Project: September 5, 2019
- Substantial Completion: July 7, 2022
- Final Completion: September 4, 2022

Relevant Excerpts from Specifications Indicating the Required Quality of Construction

Excerpts from Plunger Valve Spec:

2.01 PLUNGER VALVES

A. Manufacturers:

1. Erhard

2. VAG

3. Owner approved equal

B. Valve Construction:

1. Provide plunger valve assembly consists of a flanged short conical inlet section with an internal cone to divert the water flow into the annular cross sectional area of the valve body.

2. Provide plunger valves one or two piece body design. Provide the plunger valves with a continuously increasing annular cross section and resulting linear increase of flow velocity to the full open position without producing damaging cavitation.

3. Provide an oval body section with an inner annular chamber formed by the body shell.

4. Provide the plunger and custom designed cylinder control trim as an integral part of the internal slider crank mechanism and driven by an AWWA standard 90 degree quarter

turn worm gear actuator or slider crank gearbox.

a. Provide the gearbox to allow a slower closing speed near the CLOSED position to enable a soft closing to eliminate pressure surges.

b. Provide the valve capable of control by a 4-20mA signal and electric actuator

5. Provide the control trim cylinder field removable and replaceable and also replaceable with alternate control trim when hydraulic conditions change or new operating parameters are required.

6. Provide the plunger moving in an axial flow direction to increase or decrease the annular cross section open to the flow medium. The water will flow around the plunger or when present, through the customized trim, from the outer annular chamber to the inner chamber to control and regulate pressure or flow.

7. Provide seals of the plunger valve to allow the valve to be drip and bubble tight in both flow directions.

a. Provide the downstream seal of the plunger to seat against a stainless steel or nickel chromium welded overlay seat by a profile sealing ring that is embedded in a stainless steel chamber at the downstream end of the valve plunger.

b. Provide the upstream seal ring to deflect and seal in both axial directions.

c. Provide the plunger seal recessed from the flow stream located in the hydraulic non-critical pressure zone to avoid any potential hydraulic damage.

d. Provide a dry shaft design where the valve shaft is sealed to prevent corrosion and to prevent the potential of water entering into the gear box.

(1) Provide the valve operating shaft with O-ring seals; two on the shaft at the crank mechanism and three on the shaft at the gear box.

(2) Provide the O-ring seals to maintain a drip tight seal regardless of modulation cycles or inactivity and to prevent corrosion of the shaft body bore.

8. Provide push rod linkages mechanically retained by hexagonal screw, castellated nut and split pins to prevent dislodging during prolonged modulation or transmitted pipeline vibration. Provide the control linkage and entire crank mechanism either completely

machined or investment casted. Exposed rough casting are not acceptable.

9. Provide valves with four (4) integral feet for each 180 degree circumference. Provide four (4) factory drilled and taped lifting lugs, one per each foot, designed to assist with rigging of an unbalanced load. Provide the valve suitable for operation within any 180 degree flange rotation.

10. Provide valves designed in SolidWorks or a similar finite-element stress analysis program to demonstrate the integrity of the valve at the design pressure with the body and flanges unconstrained.

11. Provide all valves suitable for "dead end" service.

12. Provide plunger valves designed to operate throughout the specified flow range without damaging cavitation, noise, or vibration. Vanes to prevent cavitation are not acceptable

a. Operating noise levels not to exceed 95 decibels (dBA) at a distance of three (3) feet from the valve at the conditions specified and indicated.

b. Flow rate as a function of pressure drop across the valve: Linear to within 3-8 percent.

C. Plunger Assembly:

1. Provide plunger valves designed with a customized designed plunger with tailored anticavitation

trim with slots or orifice holes, to eliminate all cavitation damage.

2. The area open to flow on the plunger, slots or orifice holes, shall not be open to flow when the valve is placed in the closed position.

3. Provide a vaned ring for lower pressure differentials if required to control flow as specified and indicated.

4. Provide a seal ring and seal designed for free discharge applications.

5. Provide the profile stainless steel seat ring as part of the streamlined body and not penetrated by fasteners, exposed to the high speed flow stream in the open position and not be subject to cold flow, tearing, scalloping or pullout of the elastomer.

6. Provide plunger valves designed for axial stroke movements, upstream and downstream, guided in the internal body by a crank and push rod mechanism of stainless steel.

a. The crank and push rod mechanism driven by the gear.

b. Guide Rails: Welded overlay of bronze aluminum alloy, lead free, minimum thickness: 3mm

(1) Position guide rails around the plunger to reduce the potential for damaging harmonic vibration, clogging or excessive wear.

7. Provide the plunger valves designed so that the profile sealing ring is located in the downstream flange with the seal and ring accessible via a dismantling joint installed downstream of the valve. Provide the profile sealing replaceable without dismantling the valve from the pipeline.

8. Provide the valve body equipped with a threaded tapped plug for venting air and draining the valve body cavity for maintenance and inspection and provide a pressure gauge assembly.

9. Valve Body shall indicate location of casting.

D. Ends: Flanged:

1. Valves with design pressure up to and including 275 psi: AWWA Class E steel flanges or

ANSI B16.5, Class 150 steel flanges.

2. Provide flat faced flanges with a serrated concentric finish having with at least four (4) grooves (3 grooves/inch) with the surface finish roughness of 250 to 500µin. (6.35 to 12.7 µm) roughness.

3. Provide all flange gasket surfaces fully machined with a spiral serrated finish.

E. Operators:

1. Provide 3-phase electric motor actuators for all valves in accordance with Sections 26 00 50 and 22 01 80.

2.02 VALVE MATERIALS:

A. Valve Body: Ductile Iron ASTM A536, GR. 65-45-12, 60-40-18 or Cast Steel ASTM A 216 WCC

B. Plunger: Type 316/316L Stainless Steel

C. Piston Guide: Bronze ASTM C63280 or equivalent

D. Shaft Bushing: Bronze ASTM C91700 or equivalent

E. Crank Shaft: Type 431or 420 Stainless Steel, solid core, no chrome plating

F. Crank Mechanism: Type 431or 316 Stainless Steel, solid core, no chrome plating

G. Seat / Retaining Ring: Type 316/316L stainless steel

H. Body/Plunger Sealing O-ring: EPDM

I. Profile Sealing Ring: EPDM

J. Shaft O-Rings: EPDM

K. Gearbox Housing: Ductile Iron ASTM A536, GR. 65-45-12

L. Crank: Cast Stainless Steel CK3MCuN

M. All studs, bolts, washers, and nuts: Type 316 stainless steel.

N. Seat and seat ring retainers: Allen or hex head fasteners, slotted screw fasteners are not acceptable.

O. Provide all materials of moving components in contact with each other of dissimilar hardness to prevent galling.

P. Material stresses not to exceed 1/5 of the ultimate or 1/3 of the yield strength of the material

Statement from Prime Contractor and Supplier

A statement from the plunger valve supplier indicating the non-availability of domestically produced plunger valves is provided as an attachment to this letter.

Other waiver requests for the materials described in this waiver request, for comparable projects?

GLWA is not aware of other waiver requests that have been received by the State of Michigan, but waiver requests for comparable requests have been granted for other projects for the following Utilities:

- Duchesne County Water Conservancy District, Utah
- Santa Margarita Water District, California

Project waivers for these Utilities have been provided as an attachment to this document.

Financial Services
Procurement
735 Randolph Street, Suite 1508
Detroit, Michigan 48226
Phone: 313-964-9157

August 29, 2019

Issam Bahou, Vice President
Walsh Construction Company II, LLC
3031 West Grand Boulevard, Suite 640
Detroit, Michigan 48202

RE: Contract No. 1803258
Design Build Services for Northeast Flow Control Facility
Notice to Proceed/Contracting Officer Assignment

Dear Mr. Bahou:

This letter is to confirm that the Great Lakes Water Authority (GLWA) awarded Schreiber Corporation the above referenced contract on June 26, 2019. The start work date for this State of Michigan Drinking Water Revolving Fund project is September 5, 2019. The substantial completion date is July 7, 2022. The final completion date is September 4, 2022.

As Chief Executive Officer of the Great Lakes Water Authority, I herewith assign Sonya Collins, Interim Chief Procurement Officer, to act as the Contracting Officer as provided for in the contract documents. Ms. Collins is the only individual authorized to interpret the requirements of the contract documents and judge the technical performance thereunder. Sonya Collins shall have the authority to delegate, in writing, those duties and functions necessary to implement the day-to-day work for compliance with the contract documents. She can be reached at (313) 964-9486.

If questions should arise as to the general administrative requirements of this contract, you may contact Daniel Edwards, Procurement Manager, at (313) 964-9471.

Note: Walsh Construction Company II has acknowledged that they will provide the Builder's Risk insurance prior to the commencement of construction on this project.

Sincerely,

Sue F. McCormick
Chief Executive Officer

SFM/gm

cc: Sonya Collins, Interim Chief Procurement Officer

Financial Services
Procurement
735 Randolph Street, Suite 1508
Detroit, Michigan 48226
Phone: 313-964-9157

August 29, 2019

Issam Bahou, Vice President
Walsh Construction Company II, LLC
3031 West Grand Boulevard, Suite 640
Detroit, Michigan 48202

RE: Contract No. 1803258
Design Build Services for Northeast Flow Control Facility
Contracting Officer's Representative

Dear Mr. Bahou:

Timothy Kuhns, Manager, Water and Field Services, is hereby designated as my authorized representative for performing all the duties and functions required of the Great Lakes Water Authority (GLWA) as provided in this contract. The authorized representative shall have the authority to delegate, in writing, those duties and functions necessary to implement the day-to-day work for compliance with the contract documents.

Walsh Construction Company II, LLC shall not undertake any out-of-scope work without my written authorization. Any questions as to whether something is out-of-scope should be directed to my office prior to services being rendered.

You may refer to the authorized representative with all matters in conjunction with the prosecution of the work under this contract. However, if direct communication with my office is necessary, please advise both the authorized representative at (313) 926-8114 and my office at (313) 964-9486. No other person is authorized to speak on my behalf without written notice from my office.

Sincerely,

Sonya Collins
Interim Chief Procurement Officer

SC/gm

cc: Timothy Kuhns, Manager, Water and Field Services

ERHARD BY TALIS

Cascade CONSULTANTS LLC

Cascade Consultants – 5604 Sugar Pine Drive – Yorba Linda CA – 92886

Great Lakes Water Authority
Project: Northeast Flow Control Facility
Attention: Project Manager

October 3, 2019

RE: Non-Availability of domestic sourced Plunger Valves

To whom it may concern,

In support of your waiver request, we hereby confirm that Plunger Valves have no known domestic source of manufacture.

Plunger Valves, engineered and manufactured to each project specific, are uniquely designed in that they deliver high performance to meet/exceed clients' demanding flow conditions with little to no maintenance.

We believe these facts will assist you and GLWA with your waiver request submittal.

Sincerely,

Keming 'Skip' Zeng
Cascade Consultants LLC
President

This waiver request was submitted to the EPA by the state of Michigan. 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. There may be documents with project diagrams, schedules, and supplier correspondence in formats that do not meet the Federal accessibility requirements for publication on the Agency's website. Hence, these exhibits have been omitted from this waiver publication. They are available upon request by emailing DWSRFWaiver@epa.gov.