NOTE:
This waiver submission includes references to proprietary items and brand name products. These references have been retained in order to provide context for the waiver submission. EPA does not evaluate a waiver based on a proprietary item but reviews the performance-based specifications for the project/products. As such, any references to brand or proprietary items are reviewed on an "or equal" basis by EPA.

Items and pages may have been intentionally redacted or excluded by the EPA. Contact CWSRFWaiver@epa.gov for more information if necessary.

Waiver Request of P.L. 113-76 (American Iron and Steel Requirement) of the Consolidated Appropriations Act of 2014

MWWTP Solids Renewal & Improvements, Project No. 805947
Metropolitan Council Environmental Services (MCES), St. Paul, Minnesota
October 20, 2020

GENERAL

The MWWTP Solids Renewal & Improvements project at the Metropolitan Wastewater Treatment Plant is funded by a loan through the Clean Water State Revolving Loan Fund. The Consolidated Appropriations Act of 2014 includes an "American Iron and Steel" (AIS) provision that requires SRF recipients to use iron and steel products produced domestically. Valves are included in the list being subject to this requirement.

The MWWTP Solids Renewal & Improvements project includes renewal and improvements of three sewage sludge incinerators and associated energy recovery and air pollution control equipment including miscellaneous equipment related to processing wastewater solids. Part of the project includes the procurement of high pressure ball valves to allow for greater cake pumping flexibility for incinerator feed and alkaline loadout for installation by a contractor. The design includes twenty-eight 10-inch valves and twelve 8-inch valves. The design team and contractor have not been successful at finding a domestic manufacturer of the high pressure ball valves needed to complete this project, and therefore requesting a waiver be issued for the high pressure ball valves specified in this project. In accordance with the guidelines for AIS waiver request, specific information is required to be submitted with waiver requests. The required information is present below and in attached documents.

Description of the foreign and domestic construction materials

The specified trunnion mounted style, full port ball valves are constructed of materials sourced internationally, including from China and India. Valve assembly for the proposed manufacturer occurs in Texas, USA.

Unit of measure: Each

Quantity: Twelve (12) 8-inch trunnion mounted style, full port ball valves
Twenty-eight (28) 10-inch trunnion mounted style, full port ball valves

Price: The material price is [redacted] for the 8-inch valves and [redacted] for the 10- inch valves. The total material price for all 40 valves is [redacted].

Time of Delivery: The estimated delivery time for these valves is approximately 16 weeks after issuance of a purchase order to the valve manufacturer.

Location of Project: Metropolitan Wastewater Treatment Plant
2400 Childs Rd
St Paul, MN 55106

Name and Address of Supplier: Forum Energy Technologies

3. Cv Values for Avco:

Valve Size	Cv Values Corresponding to Percentage of Valve Opening							
	20%	30%	40%	50%	60%	70%	80%	90%
4"	2	11	29	58	102	168	268	432

4. Maximum air pressure loss across the valve shall not exceed 1 psi at 1125 scfm, with upstream pressure of 25.3 psia.

5. Valve shall be capable of burning air pressure up to 9 psi at approximately 10 scfm to 66 scfm, with upstream pressure of 25.3 psia to balance air flow between sludge storage tanks with variable water levels.

G. Type VB12 Ball Valve 2 Inches and Smaller for Pulse Jet Compressed Air:

1. Rated 800 psi non-shock cold WOG, ASTM A105, forged steel or ASTM A216-WCB, cast steel body/bonnet, in-line, three piece, bolted body, full port type, reinforced Teflon seat, ASTM A108-CS steel stem and ball, reinforced teflon stem seal and thrust washer, hand lever operator, socket weld end connection.

2. Temperature limitations: -20 to 400 °F.

3. Pressure rating: 150 psig.

4. [redacted]

H. Type VB14 Carpenter 20 Cb-3 Ball Valve 1/4 to 4 inches: Rated 600 psig, ANSI B16.34. In-line, 3-piece, bolted body, full port. Carpenter 20 Cb-3 body. Reinforced Teflon seat. Carpenter 20 Cb-3 ball and stem, with reinforced teflon thrust washer, and Teflon stem seal. Socket welded end connections. Valve temperature limitations -73 to 204°F. Lever operated.

1. [redacted]

[redacted] Type VB15 8 inch and 10 inch Ball Valves for dewatered biosolids (cake) service. Full port, trunnion mounted, ANSI Class 600, and designed for a maximum working pressure of 1,440 psi and working (internal) temperature of 500°F. API monogrammed, built and audited to API 6D and ANSI standards. Valves shall consist of a full port ball that rotates on a fixed axis with an upper stem and lower trunnion. The valve shall be a bi-directional flow valve with independent sealing capability on each side of the ball. The valve shall also be non-lubricated, designed for dirty service (high solids applications or well drilling).

1. Valve body shall be cast steel, ASTM A216, or Grade WCB or forged steel, ASTM A105. Valve stem and trunnion stem shall be stainless steel, type 316 or 17-4 PH. Ball shall be stainless steel, Type 316. Seat ring inserts shall be nylon or reinforced Teflon. Gear operating housing shall be cast iron. Gear shall be cast iron or aluminum bronze. Worm shall be tool steel. Valves shall be shop coated with epoxy coating, primer, and rust protective coating per manufacturer's standard.

2. Valve body shall be provided with flanged ends. Flanges shall be flat faced and finished to true plane surfaces within a tolerance limit of 0.005 inch. Each flange face shall be perpendicular to the longitudinal axis of the valve within a maximum angular variation tolerance of 0.002 inch per foot of flange diameter. Flange faces shall have concentric or spiral serrated finish.

3. Actual length of valves shall be within 1/16 inch (plus or minus) of the theoretical length.

4. Valve body shall be top entry design. Single multi-purpose stem and interchangeable top plates shall permit changing from wrench to gear operator without disturbing any pressure containing parts. Provisions shall be made for emergency sealing for the stem.

5. Valve shall be capable of double block and bleed service as standard; pressure from either side of a closed valve is stopped by seat seal so that the ball cavity may be vented to verify both upstream and downstream seat seal integrity.

6. Ball and stem shall be heavy-duty, one-piece construction; and the ball shall be full port solid ground ball. Balls shall not be restricted port. Hollow or sleeved balls are not acceptable.

7. Seats shall be of the cartridge seat design consisting of a seat ring with a seat insert and a body seal with telescoping spring holder member, which assures ball/seat contact.

8. Energizing springs shall be individually cupped so as to minimize solids deposits from impending spring action. Provisions shall be made for emergency sealing for the seats.

9. Each valve for solids piping shall have a manual actuator capable of closing the valve, starting from wide open with the maximum port velocity specified and ending with a differential equal to the specified maximum shutoff pressure.

10. Valves shall be provided with limit switches as indicated on the drawings. Each limit switch shall be housed in a NEMA 4 housing and
11. shall have DPDT contacts which change state when the valve is in the fully closed position.

12. Each valve shall be provided with a position indicator to display the position of

the ball.

13. Each valve actuator shall have a position indicator mounted on the end of the valve shaft. A position indicator shall also be provided on each actuator mounted thereon.

14. [redacted]

2.9 PLUG VALVES

A. Type VP1 Eccentric Valve 3 Inches and Smaller: Nonlubricated type rated 175 psig CWP, drip-tight shutoff with pressure from either direction, cast iron body, threaded ends, cast iron plug, coated with Buna-N or Hycar with round or rectangular port, seat Type 316 stainless steel or nickel, stem bearing self-lubricating stainless steel or reinforced Teflon, stem seal multiple V-rings, U-cups, or O-rings of nitrile rubber.

1. [redacted]

2.10 BUTTERFLY VALVES

A. General: Butterfly valve specified as AWWA C504 to be in compliance with AWWA C504 and following requirements:

1. Suitable for throttling operations and infrequent operation after periods of inactivity.
2. Elastomer seats bonded or vulcanized to body shall have adhesive integrity of bond between seat and body assured by testing with minimum 75-pound pull in accordance with ASTM D429, Method B.
3. Bubble-tight with rated pressure applied from either side.
4. No travel stops for the disc on interior of the body.
5. Self-adjusting V-type or O-ring shaft seals.
6. Isolate metal-to-metal thrust bearing surfaces from flowstream.
7. Epoxy lined.

B. Type VF10 Butterfly Valve:

1. Lugged type.
2. AWWA C504, Class 150B.
3. Reinforced PTFE seats bonded or vulcanized to body.
4. 316L stainless steel body, disc, and stem.
5. Valve Actuator – See Valve Schedule
6. [redacted]

Tag No.	Size (inches)	Valve Type	Fluid	Service	Maximum P (psig)	Actuator Type	Control Features	Notes
VWSCR2AD	6	VF10	WFE	O/C	100	LVR	--	--
VWSCR3AD	6	VF10	WFE	O/C	100	LVR	--	--
VWSCR1AE	6	VF10	WFE	O/C	100	CHWL	--	--
VWSCR2AE	6	VF10	WFE	O/C	100	CHWL	--	--
VWSCR3AE	6	VF10	WFE	O/C	100	CHWL	--	--
VWSCR1AF	6	VF10	WFE	O/C	100	CHWL	--	--
VWSCR2AF	6	VF10	WFE	O/C	100	CHWL	--	--
VWSCR3AF	6	VF10	WFE	O/C	100	CHWL	--	--
Untagged Wet Scrubber Caustic Isolation Valves	<2	VP1	NAH-WSCR	O/C	100	LVR	--	--
V855C	10	VB15	CAKE	O/C	1200	CHWL	OC	--
V855D	10	VB15	CAKE	O/C	1200	CHWL	OC	--
V858C	10	VB15	CAKE	O/C	1200	CHWL	OC	--
V858D	10	VB15	CAKE	O/C	1200	CHWL	OC	--
VSLDGH1A	10	VB15	CAKE	O/C	1200	CHWL	OC	--
VSLDGH1B	10	VB15	CAKE	O/C	1200	CHWL	OC	--
VSLDGH1C	10	VB15	CAKE	O/C	1200	CHWL	OC	--

Tag No.	Size (inches)	Valve Type	Fluid	Service	Maximum P (psig)	Actuator Type	Control Features	Notes
VSLDGH1D	10	VB15	CAKE	O/C	1200	CHWL	OC	--
VSLDGH2A	10	VB15	CAKE	O/C	1200	CHWL	OC	--
VSLDGH2B	10	VB15	CAKE	O/C	1200	CHWL	OC	--
VSLDGH2C	10	VB15	CAKE	O/C	1200	CHWL	OC	--
VSLDGH2D	10	VB15	CAKE	O/C	1200	CHWL	OC	--
VOFFLD1	10	VB15	CAKE	O/C	1200	CHWL	OC	--
VOFFLD2	10	VB15	CAKE	O/C	1200	CHWL	OC	--
VOFFLD3	10	VB15	CAKE	O/C	1200	CHWL	OC	--
VOFFLD4	10	VB15	CAKE	O/C	1200	CHWL	OC	--
VOFFLD5	10	VK1	CAKE	O/C	100	CHWL	OC	--
VOFFLD6	10	VK1	CAKE	O/C	100	CHWL	OC	--
VFBR1A	8	VB15	CAKE	O/C	1200	PVA	OC, SDC	Dual Solenoid
VFBR1B	8	VB15	CAKE	O/C	1200	PVA	OC, SDC	Dual Solenoid
VFBR1C	8	VB15	CAKE	O/C	1200	PVA	OC, SDC	Dual Solenoid
VFBR1D	8	VB15	CAKE	O/C	1200	PVA	OC, SDC	Dual Solenoid

Tag No.	Size (inches)	Valve Type	Fluid	Service	Maximum P (psig)	Actuator Type	Control Features	Notes
VFBR2A	8	VB15	CAKE	O/C	1200	PVA	OC, SDC	Dual Solenoid
VFBR2B	8	VB15	CAKE	O/C	1200	PVA	OC, SDC	Dual Solenoid
VFBR2C	8	VB15	CAKE	O/C	1200	PVA	OC, SDC	Dual Solenoid
VFBR2D	8	VB15	CAKE	O/C	1200	PVA	OC, SDC	Dual Solenoid
VFBR3A	8	VB15	CAKE	O/C	1200	PVA	OC, SDC	Dual Solenoid
VFBR3B	8	VB15	CAKE	O/C	1200	PVA	OC, SDC	Dual Solenoid
VFBR3C	8	VB15	CAKE	O/C	1200	PVA	OC, SDC	Dual Solenoid
VFBR3D	8	VB15	CAKE	O/C	1200	PVA	OC, SDC	Dual Solenoid
V855E	10	VB15	CAKE	O/C	1200	CHWL	OC	--
V855F	10	VB15	CAKE	O/C	1200	CHWL	OC	--
V855G	10	VB15	CAKE	O/C	1200	CHWL	OC	--
V855H	10	VB15	CAKE	O/C	1200	CHWL	OC	--
V855I	10	VB15	CAKE	O/C	1200	CHWL	OC	--

Tag No.	Size (inches)	Valve Type	Fluid	Service	Maximum P (psig)	Actuator Type	Control Features	Notes
V855J	10	VB15	CAKE	O/C	1200	CHWL	OC	--
V858E	10	VB15	CAKE	O/C	1200	CHWL	OC	--
V858F	10	VB15	CAKE	O/C	1200	CHWL	OC	--
V858G	10	VB15	CAKE	O/C	1200	CHWL	OC	--
V858H	10	VB15	CAKE	O/C	1200	CHWL	OC	--
V858I	10	VB15	CAKE	O/C	1200	CHWL	OC	--
V858J	10	VB15	CAKE	O/C	1200	CHWL	OC	--
VKG001	10	VK3	ASHV	T	100	CHWL	--	--
VKG002	14	VK3	ASHV	T	100	CHWL	--	--
VKG003	15	VK3	ASHV	T	100	CHWL	--	--
RV1001	Sized by mfg.	VC22	ASHV	--	100	CK	--	--
VLOTR4E	4	--	LMQ	--	--	--	--	See Section 14400 for valve type
VLOTR4F	6	--	ASH	--	--	--	--	See Section 14400 for valve type
VLOTR4G	6	--	ASH	--	--	--	--	See Section 14400 for valve type
VASH12A	4	--	ASH	--	--	--	--	See Section 14400 for valve type