



February 19, 2021

Ms. Felicia D. Freeman, Technical Manager  
State Revolving Fund Loan Program  
William R. Snodgrass - Tennessee Tower, 12<sup>th</sup> Floor  
312 Rosa L. Parks Ave.  
Nashville, TN 37243

**NOTE:**

This waiver submission may include 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](mailto:CWSRFWaiver@epa.gov) for more information if necessary.

RE: Request for an **Availability-based American Iron and Steel Project Waiver for a 24" Insertion Valve**  
Town of Smyrna (Rutherford County), Tennessee  
2019 WWTP Improvements/Upgrades/Expansion from 5.85 MGD to 9.0 MGD

Dear Ms. Freeman:

The Town of Smyrna respectfully requests an **Availability-based American Iron and Steel Project Waiver for a 24" Insertion Valve**.

During the course of construction of the 2019 WWTP Improvements/Upgrades/Expansion from 5.85 MGD to 9.0 MGD project, the need arose to find a solution that would provide optimal isolation during bypassing, and that would also enhance future system control. This valve was not specified in the original project. The Town and Prime Contractor worked together diligently to find such a solution and agreed that the installation of a 24" insertion valve at the clarifier effluent can achieve this purpose.

To this end, the Prime Contractor provided a shop drawing and a specification, and an AIS certification letter was requested from the supplier. It was at this time that it was found that no one builds an AIS-compliant insertion valve. This is verified by the three attached AIS Project Waivers granted by EPA in two states.

Therefore, the Town requests this AIS Project Waiver because there are no known domestic manufacturers of a similar product that can achieve the same purpose.

American Iron and Steel Waiver Request Information	
Project Name:	2019 Wastewater Treatment Plant Improvements/ Upgrades/ Expansion Project
Project Scope:	The project expands the treatment capacity from 5.85 MGD to 9.0 MGD and upgrades the headworks, raw water lift station, flow splitter box, additional oxidation ditches, additional clarifiers, return activated sludge, waste activated sludge, post aeration/UV disinfection basin, sludge thickening, solids handling, and SCADA processes.
Project Location:	Existing WWTP located at 100 Jack Hunter Drive
CWSRF Project/ Loan Number(s):	CG7 2019-423, SRF 2020-438, SRF 2020-438-01
Description of the Construction Material:	24" Inserta Insertion Valve, EZ™ Valve, 24"
Purpose of this Item:	This type of valve (insertion) vs. a butterfly or gate valve minimizes the amount of time flow is shut down for valve installation. The WWTP must continue to operate while construction is ongoing. Butterfly or gate valves would require a full pipe cut-in and a much longer downtime of flow. In order to continue WWTP operations, installation of a butterfly or gate valve cannot be allowed.



American Iron and Steel Waiver Request Information	
Project Name:	2019 Wastewater Treatment Plant Improvements/ Upgrades/ Expansion Project
Justification for Use of this Item:	<p>As part of the expansion, the existing Clarifiers #1 through 6 effluent line will need to be connected to the expanded Aeration Basin.</p> <p>The clarifiers will be required to remain in operation, which will require temporary bypass pumping from the clarifiers to the existing Aeration basin while the line work and diversion box work are completed.</p> <p>Clarifiers #1 through #4 combine to a 36" line, and clarifiers #5 and #6 combine to a 24" line and then connect with the 36" line to a 46" line.</p> <p>The clarifiers cannot be separately taken down due to the current flowrates, so all clarifiers are required to stay in operation.</p> <p>Currently clarifiers #5 and #6 cannot be isolated because there are no valves on the 24" effluent line.</p> <p>The insertion valve will allow installation of the valve while the clarifiers remain in operation.</p> <p>After installation, the valve can be closed to isolate the 24" line from flowing back into clarifiers #1 through #4 while the flow is being bypassed.</p> <p>This will also allow future isolation for plant operations once the proposed clarifiers are online so that clarifiers #5 and #6 can be easily taken down for maintenance.</p>
Component Installation Schedule:	<p>The contractor is ready to install it immediately so that they can do the bypass of the clarifiers and get the gates in at the Post Aeration.</p> <p>This work will be scheduled with WWTP staff to pick an ideal time when flows are minimum so that the WWTP can continue operations.</p>
Quantity Requested:	1 Valve
Price:	\$54,500. Installed price is \$75,012 (attached Contractor's Proposal)
Time of Delivery Availability:	Immediate
Proposed Supplier / Manufacturer:	Advanced Valve Technologies 800 Busse Rd, Elk Grove Village, IL 60007
Domestic Supplier Information:	Not available. There are no domestic suppliers.
Project Schedule:	NTP - August 31, 2019; Construction Completion - October 17, 2022
Supporting Documentation:	1) EPA AIS Waiver-24inInsertionValve, Hollywood, FL 2) EPA AIS Waiver-24inInsertionValve, N Brunswick, NJ 3) EPA AIS Waiver-24inInsertionValve, Cape May, NJ 4) 24" Insertion Valve shop drawing and specification 5) Manufacturer/Supplier's Made in America Letter 6) Contractor Proposal for Installation of 24" Insertion Valve
TN CWSRF Project Manager:	Randy Anglin, P.E., <a href="mailto:randy.anglin@tn.gov">randy.anglin@tn.gov</a>
Consulting Engineer:	Jerome Dempsey, P.E., <a href="mailto:Dempsey.j@tandh.com">Dempsey.j@tandh.com</a>

Ms. Felicia D. Freeman, Technical Manager, State Revolving Fund Loan Program  
Request for an **Availability-based American Iron and Steel Project Waiver for a 24" Insertion Valve**  
Town of Smyrna, Tennessee  
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Sincerely,



Michael Strange, Director of Utilities  
Town of Smyrna

Attachments:

- 1) EPA AIS Waiver-24inInsertionValve, Hollywood, FL;
- 2) EPA AIS Waiver-24inInsertionValve, N Brunswick, NJ;
- 3) EPA AIS Waiver-24inInsertionValve, Cape May, NJ;
- 4) 24" Insertion Valve shop drawing and specification;
- 5) Manufacturer/Supplier's Made in America Letter
- 6) Contractor Proposal for Installation of 24" Insertion Valve

cc: Randy Anglin, P.E., SRF Project Manager  
Mark Parker, Assistant Director of Utilities, Town of Smyrna  
Jerome Dempsey, P.E., Thomas & Hutton  
Ryan Chamblee, P.E., Thomas & Hutton  
Emily Kelly, P.E., LDA Engineering, LLC

**Submittal Cover Sheet**  
**Dempsey, Dilling & Associates, P.C.**  
**Job No: 0102-402**

**Project:**  
**SMYRNA WWTP EXPANSION**  
**SRF Loan No. CG7 2019-423**  
**Project No. 18.0214**

**Contractor:**  
**Judy Construction Company**  
**Cynthiana, KY**

**Copies**

1

**Submittal Number**

40-05-61-10

**Submittal Description**

Insertion Valve @ Clarifier Effluent

**Contractor Certification Statement**

By this submittal, I hereby represent that I have determined and verified all field measurements, field construction criteria, materials, dimensions, catalog numbers and similar data and I have checked and coordinated each item with the contract drawings, specifications, other applicable approved shop; drawings and all contract requirements.

Paul Lawrence

1/18/2021

**Signature**

**Date**

**Contractor Stamp**

**Engineering Stamp**

Specification Section 40-05-61  
Shop Drawing # 40-05-61-10  
**JUDY CONSTRUCTION COMPANY**  
By: PL Date: 1/18/2021



Reviewed

Reviewed As Noted

**Comments:**

# **Specifications For Valve Insertion System**

Equipment For Valve Insertion  
Pipe Size: 14" (350mm), 16" (400mm),  
20" (500mm) and 24" (600mm)

## **1.0 SCOPE**

This specification covers the complete EZ Valve Insertion System.

## **1.1 Equipment Capability:**

The equipment shall be capable of installation, without shutdown, at one location, of pipe sizes in the range of 16" diameter. The capabilities specified herein are minimum mandatory requirements that must be met by any insertion equipment or insertion valve offered.

## **1.2 Valve Insertion Equipment**

<u>Quantity</u>	<u>Description</u>
1 each	End Mill Machine (14" - 24" Capability)
1 each	Drive Motor: Hydraulic
1 each	End Mill Cutter
1 each	Central Drill Hexagonal Screw Drive
1 each	Replaceable teeth
1 each	Rotating Feed Apparatus (14", 16", 20" or 24")
2 each	End Rings (14", 16", 20" or 24")
1 each	Drive Chain
1 each	Hand Crank
1 each	Export Hose
1 each	Debris Collection Bag
1 each	Misc.Tool Kit

## **2.0 Valve For Use With Specified Equipment**

Unless specified by purchaser, valves are not a bid item. However, the specified equipment shall be compatible with the valve below.

- 2.1.1** The EZ Valve shall be capable of pressure-tight assembly around the exterior of the pipe in which flow is to be stopped at a working pressure not to exceed 250 PSI.
- 2.1.2** The EZ Valve assembly shall be designed as to be easily rotated 120 degrees, perpendicular across the top of the pipe, while riding on three (3) separate rubber gaskets constructed of (EPDM or SBR), by using a perpendicular rotary feed mechanism driven by a chain.
- 2.1.3** The EZ Valve shall be constructed of three pieces (one top and two bottoms) of Ductile Iron castings. These pieces are to be bolted together using Ductile Iron bolts with zinc alloy anodes for corrosion protection. All Ductile Iron is to be manufactured to the Ductile Iron specification of ASTM 536 65-45-12.
- 2.1.4** The EZ Valve shall meet or exceed AWWA Specification C509-09 for resilient seal valves suitable for potable water service.
- 2.1.5** The Ductile Iron Gate shall have a resilient rubber seal 360 degrees around the gate that is expandable to the ID (inside diameter) of the pipe.
- 2.1.6** The valve stem shall be made of Stainless Steel 1 CR 12, with a tensile strength of 60,000psi.
- 2.1.7** The valve body shall have an E coating. A revolutionary process which allows the corrosion inhibitor to penetrate the host metal (ductile iron) NSF 61 as well as seal the ductile iron. Internal and external threads are completely penetrated and covered, unlike fusion bonded epoxy which can chip.
- 2.1.8** The EZ Valve shall use Stainless Steel fasteners joining the Valve Bonnet to the Valve top casting, unless otherwise noted in assembly drawings.
- 2.1.9** The final Restraint Fasteners (360 Degree) around the Valve Casting shall be constructed of Stainless Steel 304.



- 2.1.10** Design of valve shall be such that the valve shall have a satisfactory seal against the pipe exteriors in the following ranges, by using multiple gaskets if necessary:

<b><u>PIPE SIZE</u></b>	<b><u>DIAMETRICAL RANGE</u></b>
14"	15.30 - 15.65
16"	17.40 - 17.80
20"	21.60 - 22.06
24"	25.80 - 26.32

**3.0    Equipment**

The size and weights of each EZ Valve insertion unit shall be, once lowered into an excavation hole, light enough so that two (2) workers can mount the equipment onto the valve. The insertion equipment is designed as to be easily transported in a standard steel jobsite box.

- 3.1.1** This equipment shall consist of tapping unit, and a detachable rotary chain drive feed.
- 3.1.2** The End Mill cutting system shall have a positive "Stop" Mechanism located on the same end of the Valve casting from the rotary chain feed drive, to prevent under or over rotation of the 120 Degree milling operation.
- 3.1.3** The End Mill cutting unit shall be able to cut size 14", 16", 20" or 24" pipe with three (3) sizes of end mill cutter 60 MM for 14", 90 MM for 16" and 20", and 100 MM for 24".
- 3.1.4** Drive motor shall be electric interchangeable and capable of installation and removable from tapping machine without any modification.
- 3.1.5** The end mill cutter shall be manually advanced laterally by the worker to prevent cutter damage due to inclusions (hard spots, etc.) in the pipe. The cutter teeth shall be able to be field replaceable if necessary.

- 3.1.6 The End Mill process shall constitute a rotary End Mill, which through the rotation of the Valve casting, cuts a slot, 140 degrees across the top of the pipe only. This allows for the insertion of the Gate mechanism.
- 3.1.7 The End Mill operation shall take place through an isolation valve.
- 3.1.8 During the End Mill operation, the “chips” created by the End Mill Cutter shall be flushed outside of the pipe, through the Chip Flushing Hose attached to the valve body port located 90 degrees from the End Mill.
- 4.0 **Equivalent Equipment And Materials**  
Whenever a material or article is specified or described by using the name of proprietary product or the name of a particular manufacturer or vendor, the specific item mentioned shall be understood as establishing the type, function, and quality desired.
- 5.0 **Operating And Maintenance Materials**  
A comprehensive instruction and maintenance manual shall be provided for the system.
- 6.0 **Delivery**  
All equipment shall be bid F.O.B. with freight allowed to the purchaser. When delivered the equipment shall be complete as bid and ready to operate.
- 7.0 **Demonstration**  
A qualified representative of the manufacturer shall provide eight (8) hours of demonstration and training in the use of equipment specified. The demonstration and training shall be conducted under actual job conditions. All cost for this training shall be included in the prices bid for the equipment.
- 8.0 **Warranty**  
A One Year warranty shall cover parts and labor for Equipment and Valves (Excluding Perishable Tooling and O-Rings) barring misuse or lack of routine maintenance.



**EZ Valve Specifications  
For Nominal Size 14" - 24"**

- 1.) **Bottom Pieces of Body:** DI. ASTM A536 65-45-12 (AWWA C-509-01)
- 2.) **Upper Piece Body:** DI. ASTM A536 65-45-12 (AWWA C-509-01)
- 3.) **Bonnet:** DI. ASTM A536 65-45-12 (AWWA C-509-01)
- 4.) **Gate:** DI. ASTM A536 65-45-12 (AWWA C-509-01)
- 5.) **Gate Rubber Coated:** ASTM 10429 (AWWA C-509-01)
- 6.) **Stem:** Stainless Steel 1 CR 12 (AWWA C-509-01)
- 7.) **Gasket:** EPDM (AWWA C-509-01)
- 8.) **Set Collar:** Brass ASTM C519100 (AWWA C-509-01)
- 9.) **Stem Nut:** Bronze ASTM C90300 (AWWA C-509-01)
- 10.) **Wrench Nut:** DI. ASTM A536 65-45-12 (AWWA C-509-01)