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## Santa Margarita Water District

November 22, 2018

California Water Boards  
Loan & Grant Administration Section  
Division of Financial Assistance  
State Water Resources Control Board  
1001 "I" Street, 16<sup>th</sup> Floor, Sacramento, CA 95814

Attention:    Mr. Martin Taylor

Reference:    Trampas Recycled Water Pump Station, C-1773B

Subject:      AIS Waiver Request for Butterfly Valves

Gentlemen:

This letter and Support Documentation is written in regards to an AIS waiver request for usage of a double offset, high velocity, dry shaft butterfly valves for the Trampas Recycled Water Pump Station, Contract No. C-1773B.

Please review this request and the enclosed information at your earliest convenience.

If you should have any questions or comments regarding our request, please do not hesitate to contact me at 949-459-6504.

Respectfully,  
SANTA MARGARITA WATER DISTRICT

A handwritten signature in blue ink, which appears to read "J. McDonnell".

Jeffrey P. McDonnell, P.E.  
Construction Engineering Manager

Enclosures:    Support Documentation for AIS Waiver Request

## Supporting Documentation for AIS Waiver Request

### General

The Santa Margarita Water District Trampas Canyon Dam and Reservoir project is designed to provide 5000 AFY of reclaimed water storage. Treated effluent from the Chiquita Water Reclamation Plant will be stored in the Reservoir to minimize ocean outfall and maximize reuse via increased seasonal storage. The Trampas Recycled Water Pump Station will distribute the stored recycled water back to the conveyance systems as recycled water demands occur.

The Applicant, Santa Margarita Water District, requests butterfly valve waiver exemption to meet the design and service life criteria for the proposed project. The Project entails the reconstruction of an existing dam and reservoir to provide seasonal and operational storage of 5,000 acre-feet (af) of recycled water and the construction of a new pump station to meet demands for nondomestic water in South Orange County within the SMWD service area. The purpose of these facilities is to store water during the winter months when more supply is available and demands are low, then effectively use the water during summer months when the demands are high.

### — Description of the foreign and domestic construction materials

Double Offset Butterfly Valves will be made by [REDACTED] and at a [REDACTED].

### Foreign Iron and Steel Materials consist of :

- Valve bodies: Ductile Iron
- Valve Discs: Ductile Iron
- Valve Shafts: 316 SS, 304, 413 Stainless Steel
- Bearings: No lead bronze

### — Unit of measure

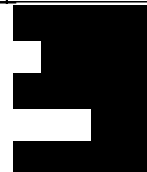
Per Each- Valve.

### — Quantities. Approx. Price

DWG	Double Offset BFV's	Qty.	Cost	
			Unit	Total
C-5	<b>SUCTION FEED</b>			
1	20" F X F CL 150 WITH OP NUT	3		
2	16" F X F CL 150 WITH OP NUT	2		
C-8	<b>SURGE TANKS</b>			
1	12" F X F CL 250 WITH HW	1		
2	12" F X F CL 150 WITH HW	1		
C-9	<b>PRESSURE SUST. VALVE STA. (PSV)</b>			
1	14" F X F CL 150 WITH HW	2		
2	16" F X F CL 150 WITH HW	2		
3	30" F X F CL 150 WITH OP NUT	1		
4	24" F X F CL 150 WITH OP NUT	1		
5	24" F X F CL 150 WITH EMO	1		
6	30" F X F CL 150 WITH EMO	2		
C-10	<b>PRESSURE REDUCING VALVE STA. (PRV)</b>			
1	10" F X F CL 150 WITH HW	1		
2	10" F X F CL 250 WITH HW	2		
3	16" F X F CL 150 WITH OP NUT	1		
4	10" F X F CL 250 WITH EMO	1		
M-2	<b>PUMP STATION INTERIOR</b>			
1	12" F X F CL 250 WITH HW	2		
2	16" F X F CL 150 WITH HW	3		
	QUANTITY TOTAL	26		

OP NUT = OPERATING NUT FOR BURIED SERVICE  
HW = HANDWHEEL FOR ABOVE GROUND SERVICE  
EMO = ELECTRIC MOTOR ACTUATED  
F X F = FLANGE BY FLANGE

mat'l ST  
TAX  
ST  
FREIGHT  
Total



— **Time of delivery or availability**

Approximately 16-24 weeks for complete delivery after submittal review process.

— **Location of the construction project**

The Project is located within unincorporated Orange County, California in Trampas Canyon on the Rancho Mission Viejo, east of Interstate 5 (I-5), approximately one mile south of Ortega Highway (SR-74), and just west of Cristianitos Road. The formal address is as follows:

31402 Ortega Highway,  
San Juan Capistrano, CA 92675  
APN 125-162-44

— Name and address of the proposed supplier

[REDACTED]

[REDACTED]

[REDACTED]

— A detailed justification for the use of foreign construction materials

The project is a Dam and Reservoir of approximately 5000 af of recycled water impoundment located fairly close upstream to a heavily traveled roadway, Highway 74. The Department of Safety of Dams (DSOD) have reviewed and approved the plans. Design of project included system velocities in excess of 27 fps which exceed AWWA C504 design criteria. The overall project includes a pump station component to deliver the recycled water back to the distribution system upon demand and has the same hydraulic and structural design criteria as for the Dam.

AWWA C504 valves are designed for a 16 fps maximum full open velocity and the project valves exceed this condition and especially under emergency conditions for a large water impoundment in a seismic activity area of Southern California.

AWWA C504 is a solid unified waterworks platform (Standard) but it does have and state its limitations. AWWA C504 states, valves shall be designed for a **“maximum full open velocity of 16 fps (4.9m/s)”** and that **“Some hydraulic systems can produce flow velocities much higher than 16 fps described in this standard (AWWA C504)”** Typically high velocities can result from line break, during firefighting or in surge relief (ex. free discharge) applications. The effects of high velocities and asymmetrical turbulent flow conditions can result in high loads and torque requirements, which are unaccounted for in this standard. These design conditions should be clearly specified by the purchaser”.

Worth noting, is that [REDACTED] is an acting member of the [REDACTED] committee.

**26ea -12” thru 30” Double Offset Butterfly Valves**

1. No US manufacturer designs and builds a double offset butterfly valves for waterworks applications meeting and exceeding AWWA C504 design criteria.
2. Resilient seated double offset butterfly valves are designed specifically to prevent the elastomeric seal from being compressed when the valve is in the open position. As no elastomeric contact, no compression set of the elastomer and valve is leak free when closed. US designs are zero offset or

- single offset from the 1950's and 1960's with little to no improvement in designs made since first developed.
3. No US waterworks and or AWWAC504 valve manufacturer designs their valves for velocities above 16 fps (AWWA C504). Velocities under emergency conditions: Earthquake, line-break, emergency draining of Reservoir would exceed 16 fps. [REDACTED] double offset will handle velocities to 50 fps- line-break conditions.
  4. [REDACTED] Double Offset [REDACTED] provides a modern dry shaft and dry disc hub. Best and correct shaft seal placement provides for a dry shaft which prevents premature corrosion of the body shaft bore which is wetted raw metal in both current AWWA and API designs. The valve will remain corrosion free for durations well exceeding AWWA wetted shaft designs. Both traffic and wilderness areas will not be disturbed for longer durations. The dry shaft design allows an actuator to be removed without dewatering a pipeline, saving rate payer money.

**Assistance recipient made a good faith effort to solicit bids for domestic iron and steel products, as demonstrated by language in requests for proposals, contracts, and communications with the potential vendors.**

#### **AIS Requirement Excerpts throughout bid documents:**

##### American Iron and Steel Provisions

1. All iron and steel products used in the Project are to be produced in the United States in a manner that complies with the American Iron and Steel Requirement, unless a waiver of the requirement is approved by the Engineer. The Contractor shall provide all necessary information to support a waiver of the American Iron and Steel Requirements if requested by the Engineer or District.

The Contractor shall submit written certification to the Engineer that all iron and steel products used in the Project meet the requirements of the American Iron and Steel Provision. The certification shall include at a minimum: (1) the specific product delivered to the Project site; (2) the location (i.e. city and state) of the foundry/mill/factory where the product was manufactured; (3) the name of the Project and the jurisdiction where the product was delivered; and, (4) a signature of the Contractor's designated representative.

Submit American Iron and Steel (AIS) certification per P.L. 113-76, Consolidated Appropriations Act, 2014, Section 436, for all items specified herein.

#### **Specification Excerpt on "or equal"**

Unless specifically designated in the Contract Documents, whenever any material, process, or article is indicated or specified by grade, patent, or proprietary name or by name of manufacturer, such Specifications shall be deemed to be used for the purpose of facilitating the description of the material, process or article desired and shall be deemed to be followed by the words "or equal." Contractor may, unless otherwise stated, offer for substitution any material, process or article which shall be substantially equal or better in every respect to that so indicated or specified in the Contract Documents. However, the District may have adopted certain uniform standards for certain materials, processes and articles.

c. Contractor shall submit requests, together with substantiating data, for substitution of any “or equal” material, process or article no later than ten (10) days after award of the Contract. To facilitate the construction schedule and sequencing, some requests may need to be submitted before ten (10) days after award of Contract. Provisions regarding submission of “or equal” requests shall not in any way authorize an extension of time for performance of this Contract. If a proposed “or equal” substitution request is rejected, Contractor shall be responsible for providing the specified material, process or article. The burden of proof as to the equality of any material, process or article shall rest with the Contractor. The District has the complete and sole discretion to determine if a material, process or article is an “or equal” material, process or article that may be substituted.

d. Data required to substantiate requests for substitutions of an “or equal” material, process or article data shall include a signed affidavit from the Contractor stating that, and describing how, the substituted “or equal” material, process or article is equivalent to that specified in every way except as listed on the affidavit. Substantiating data shall include any and all illustrations, specifications, and other relevant data including catalog information which describes the requested substituted “or equal” material, process or article, and substantiates that it is an “or equal” to the material, process or article. The substantiating data must also include information regarding the durability and lifecycle cost of the requested substituted “or equal” material, process or article. Failure to submit all the required substantiating data, including the signed affidavit, to the District in a timely fashion will result in the rejection of the proposed substitution.

**— Supplier information or pricing information from a reasonable number of domestic suppliers indicating availability/delivery date for construction materials**

There are no domestic suppliers of waterworks AWWA Double Offset dry shaft, high velocity butterfly valves.

**— Documentation of the assistance recipient’s efforts to find available domestic sources, such as a description of the process for identifying suppliers and a list of contacted suppliers.**

SMWD are continually engaged with the marketplace through tradeshow, direct contact with manufacturers and manufacturers’ representatives as well as through engineering design project work with Consulting Engineers. SMWD knows the marketplace well and there are no current US manufacturers of Double Offset AWWA C504 with upgraded designs such as dry shafts, high velocity field replaceable seals. An internet search also yielded the same results.

**— Project schedule**

SMWD wishes to pre-purchase the valves and provide them to a construction contractor for them to install. Pump Station construction is scheduled to begin in January 2020. Project completion is planned for September 2020 concurrently with the Dam and Reservoir portion of the project.

**— Relevant excerpts from project plans, specifications, and permits indicating the required quantity and quality of construction Materials**

**12” thru 30” Double offset butterfly valves**

**Spec excerpts:**

- Butterfly valves shall be of the double offset design, short body and either flanged or mechanical joint for buried valves.
- Valve shall conform to and exceed AWWA C504, Class 150B.
- Valves shall be designed to handle line break velocities to over 30fps and the resulting localized velocities across the seat without damage.
- Valve design shall be dry shaft and disc hub and allow for actuators to be removed from the valve without dewatering the pipeline.

**• Waiver request includes a statement from the prime contractor and/or supplier confirming the non-availability of the domestic construction materials for which the waiver is sought**

This process has already been vetted by by both SMWD and the Consulting Engineer, AECOM. SMWD proposes to pre-purchase these valves for contractor installation.



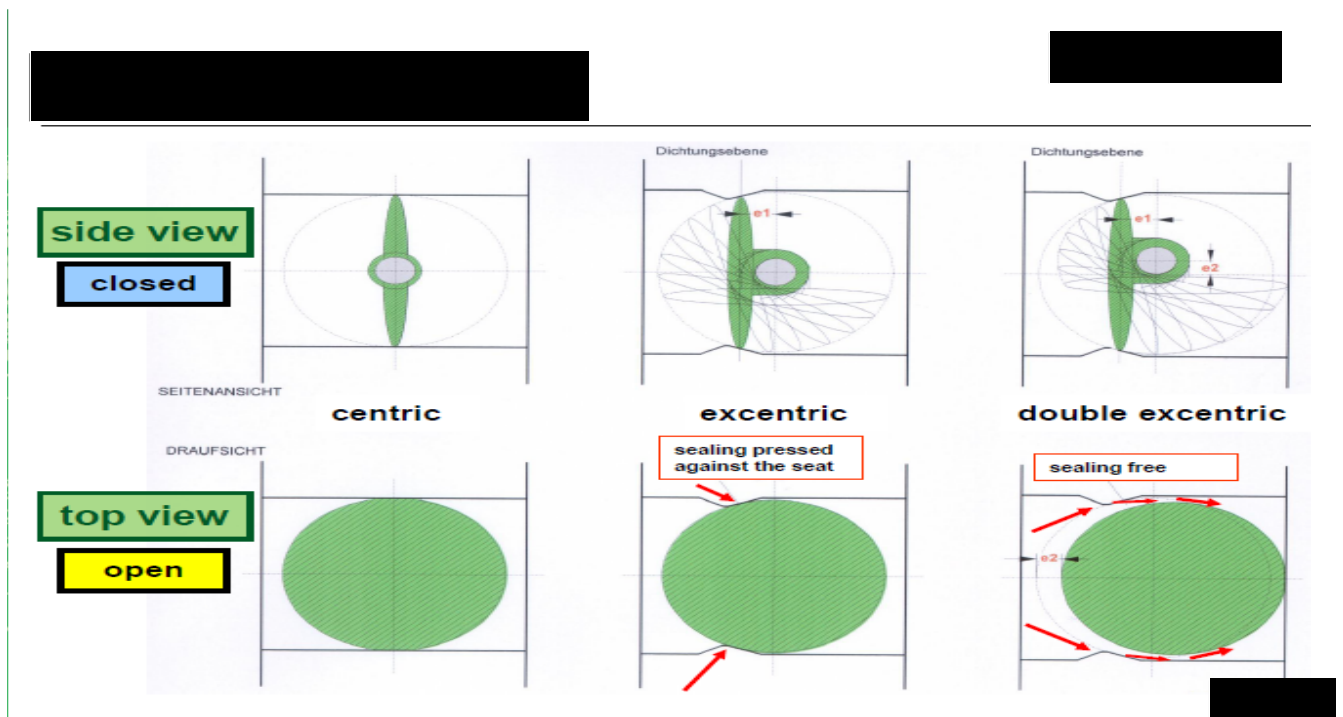
**DOUBLE OFFSET BUTTERFLY VALVE**

The following is a brief overview on the high spec [redacted] butterfly valve and a few of its key attributes and characteristics.

**Valve Characteristics that Require Exemption:**

Double Offset Butterfly Design with NSF61 and NSF372 Required: No US manufacturers of this design. Note NSF 61 and NSF372 (NSF = National Sanitary Foundation) are requirements demonstrating safe drinking water and no lead products.

The double offset design assures a 100% leak free valve over many decades. A leak-free design is needed to isolate both the upstream and downstream water sources. The modern double offset design prevents the elastomeric seal from being compressed when the valve is in the open position. Current AWWA designs are single offset or zero offset whereby the disc compresses the elastomeric seal and are very highly prone over time to a compression set of the elastomeric seal. The compression set or permanent indentation(s) of the elastomeric seal become a leak path.

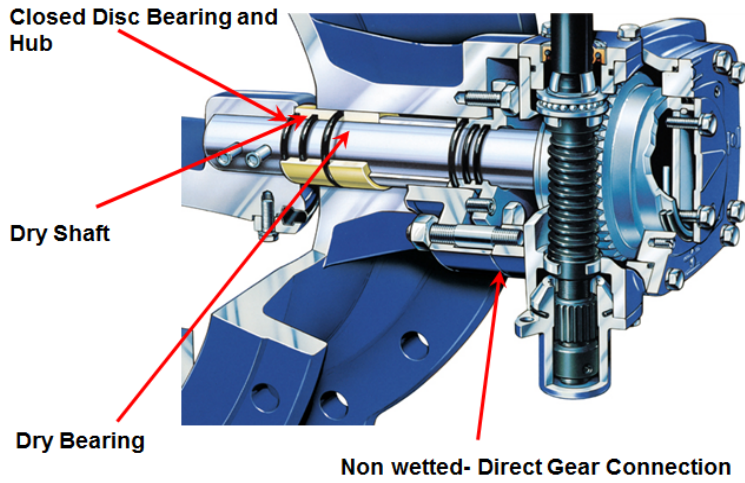


High Velocity Design: AWWA C504 Standards (AWWA= American Water Works Association) to which municipal potable drinking water valves are designed to comply with, are designed to a maximum flow rate of 16 feet per second. The [REDACTED] Butterfly Valves are designed to line-break conditions of over 50 feet per second. This means that should a water line break occur, the [REDACTED] is designed to handle the higher velocities associated with emergency condition isolation. No US designed or manufactured valve meets this criteria.

High Velocity Elastomeric Seal: The [REDACTED] elastomeric seal is rated to over 300 feet per second. As noted in item (2) above, the high pipeline velocities that exist in emergency conditions produce very high localized velocities when the valve is being closed at shutdown (think thumb over the end of a garden hose). The [REDACTED] is designed to handle both pipeline high velocities as well as localized velocities. This is attribute is not measured or required US AWWA valves.

A corrosion free zone of both a dry shaft and disc hub versus a wetted valve shaft. This allows the actuator to be removed without needing to dewater the pipeline. In contrast, wetted shaft and hub subject to increased input torque requirements, corrosion and bearing failure.

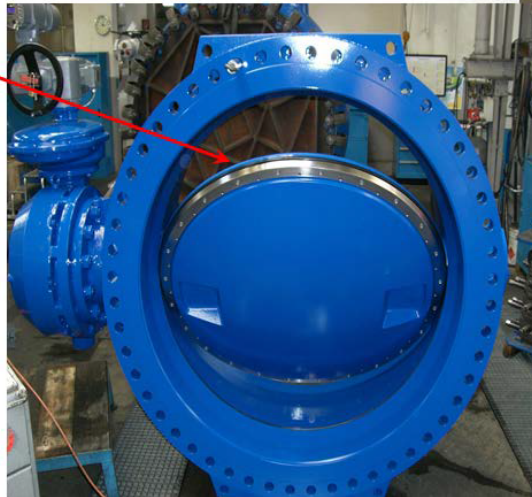




All sizes have a very quickly field replaceable seal (if ever needed). Seal replacement in less than an hour to a few hours max on very large valves (not days). Very easy- nothing complex. Factory skill and labor not needed.

## Sealing System

If needed, the elastomeric seal can be quickly replaced without dismantling the valve from the pipeline



The [redacted] Butterfly Valve is supported in the United States by [redacted] as well as by factory personnel and REPS located across the country.