

REQUEST FOR BID

This Is Not An Order - Make A Copy For Your File - Return Original

REGIONAL SAN PURCHASING AND MATERIALS SUPPORT 8521 LAGUNA STATION ROAD ELK GROVE, CA 95758-9550	Issue Date	November 14, 2017
	Bid Number	RFB # 8266
C O N T R A C T O R	Return your Bid in envelope, sealed and clearly marked on outside with Bid number and date shown below to:	
	REGIONAL SAN PURCHASING AND MATERIALS SUPPORT 8521 LAGUNA STATION ROAD ELK GROVE, CA 95758-9550 ATTN: RFB# 8266	
	Bids must be received at Regional San Reception and logged in prior to the date and time indicated. Bids will not be accepted after 3:00 P.M. on:	
	December 8, 2017	
For Additional Information Contact		
	Issuing Officer:	Tamblynn Stewart
	PHONE:	(916) 875-9014
Merchandise or Service for Delivery To: Regional San 8521 Laguna Station Road Elk Grove, CA 95758		

FAILURE TO SIGN THIS SECTION MAY DISQUALIFY YOUR RESPONSE

The undersigned offers and agrees to furnish the articles and/or services listed in this document at the prices and terms stated, subject to all of this Request for Bid:

Firm Name	Terms of Sale: Net 30
Signature	F.O.B. Point Destination
Printed Name	
Federal Tax ID Number	
Date	E-Mail:
Telephone:	Fax:

Manual and Hydraulically Actuated Valves

NOTICE TO CONTRACTORS

NOTICE IS HEREBY GIVEN THAT the Regional San invites sealed bids to provide pump equipment necessary for Request for Bid No. 8266 Manual and Hydraulically Activated Valves, to be purchased for the Sacramento Regional Wastewater Treatment Plant at 8521 Laguna Station Road, Elk Grove, CA 95758.

ESTIMATED PURCHASE AMOUNT: \$700,000.00

Sealed Bids for Request for Bid No. 8266 for the purchase of Manual and Hydraulically Actuated Valves will be received:

Regional San
Purchasing & Materials Support
8521 Laguna Station Road
Elk Grove, CA 95758
Until December 8, 2017 at 3:00PM.

Any bidder who wishes their bid to be considered is responsible for making certain that their bid is actually delivered to the aforementioned Purchasing & Materials Support Office. Bids shall be addressed to:

Regional San
Purchasing & Materials Support
8521 Laguna Station Road
Elk Grove, CA 95758
ATTN: RFB No. 8266

All Bids submitted will be publicly opened and declared aloud by District representatives.

The District hereby notifies all bidders that it will affirmatively insure that in any contract entered into pursuant to this advertisement, minority business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, creed, color, national origin, ancestry, sexual orientation, political affiliations of beliefs, sex, age, physical handicap, medical condition, marital status or pregnancy as set forth hereunder.

The District Purchasing Manager reserves the right to reject any or all bids and waive any irregularity in bids received.

Tamblynn Stewart
Senior Contract Services Officer
stewartt@sacsewer.com

KEY ACTION DATES

RFB Issue: November 14, 2017

Bid Due Date: December 8, 2017

Intent to Award: December 22, 2017

Purchase Order Award: January 10, 2018

SPECIFICATIONS

The project involves the purchase of nine valves and actuators with sizes from 24-inch to 60-inch diameter. Refer to Attachment A for requirements.

INTRODUCTION

INVITATION: The Regional San, Purchasing & Material Support, invites Responses which offer to provide the goods and/or services identified on the Cover Sheet, page 1.

DEFINITIONS: We intend to express our expectations clearly, and they are to be legally interpreted in our favor. Certain words are used throughout this document:

We/Us/Our: terms which refer to the Regional San (or Sacramento Regional County Sanitation District), a duly organized public entity. They may also be used as pronouns for various subsets of the District organization, including, as the context will indicate:

The District – Sacramento Regional County Sanitation District (Regional San)

Regional San – Sacramento Regional County Sanitation District

You/Your: terms which refer to businesses having some sort of relationship to or with us. The term may apply differently as the context will indicate. For instance, “you” as a Contractor will have different obligations than “you” as a Bidder or Supplier will have:

Supplier - A business entity which may provide the subject goods and/or services.

Bidder - A business entity submitting a Response to this request for bid. Suppliers which may express interest in this RFB, but which do not submit a Response, have no obligations with respect to the bid requirements.

RFB: This entire document including attachments.

Response: The written, signed and sealed document submitted according to the RFB instructions. Response does not include any verbal or documentary interaction you may have with us apart from submittal of a formal response.

RFB CLARIFICATION: Questions regarding this RFB should be directed in writing to the Issuing Officer specified on the Cover Sheet, page 1. Answers, citing the question, but not identifying the questioner, will be distributed simultaneously to all known prospective Bidders.

RFB Amendment: If it becomes evident that this RFB must be amended, we will issue a formal written amendment to all known prospective Bidders.

Bidder Responsibility: We expect you to be thoroughly familiar with all specifications and requirements of this RFB. Your failure or omission to examine any relevant form, article, site or document will not relieve you from any obligation regarding this RFB. By submitting a Response, you are presumed to concur with all terms, conditions and specifications of this RFB.

AWARD: Award will be made to the lowest responsible bidder.

CONTRACT EXECUTION - This RFB and the Supplier's Response will be made part of any resultant purchase Order and will be incorporated in the Contract as set forth.

Protests: After receipt of the District's "Intent to Award" notice, any bidder who has questions or concerns should immediately contact the Issuing Officer for discussion. Any bidder who believes that they have grounds for a protest must submit a written protest on company letterhead within three (3) business days after the Intent to Award letter has been sent out. Any protest letter must state the specific grounds for protest and the actions being requested of the District.

No protest received after 4 p.m. on the 3rd business day shall be accepted.

If any District holiday falls within the 3 business day protest response period the protest acceptance period will be extended by the holiday(s). For example, if the Intent to Award notice is issued on a Friday, a protest must be received by Wednesday at 4 p.m. Should any of the 3 days be a County holiday the deadline will be extended by the number of holidays occurring during the 3 business day protest response period.

Precedence: In the event of contradictions or conflicts between the provisions of the documents comprising the Contract, they will be resolved by giving precedence in the following order:

- 1) the provisions of the Contract (as it may be amended);
- 2) the provisions of the Bidder's Response (as it may be clarified);
- 3) the provisions of the RFB (as it may be supplemented);
- 4) the provisions of the County Standard Specifications.

CLAIMS: Claims for \$375,000 or less shall be in accordance with Section 20104 of the Public Contract Code.

ISSUING OFFICER: The issuing officer and mailing address to send Bids, questions, and all other correspondence concerning this RFB is:

Tamblynn Stewart
Regional San
8521 Laguna Station Road
Elk Grove, CA 95758
(916) 875-9014
stewartt@sacsewer.com

PROJECT CONTACT (DISTRICT REPRESENTATIVE):

Dane Coyle
Regional San
8521 Laguna Station Road
Elk Grove, CA 95758
Telephone: (916) 875-6862
evr@sacsewer.com

Firm Name Must Appear Here ⇒

SUPPLIER EXAMINATION OF THIS RFB/QUESTIONS: Supplier shall examine carefully the entire RFB and any addenda thereto, and all related materials and data referenced in the RFB or otherwise available, and shall become fully aware of the system needs through discussion and visits with the District.

The District anticipates that Valve Manufacturers (suppliers) will bid on the valve and actuator bid items found on the Cost Response Page (page 14), and that Expansion Joint suppliers will bid on the rubber expansion joint items found on the Cost Response Page (page 14), per the technical specification sections of this RFB.

If suppliers discover an ambiguity, conflict, discrepancy, omission or other errors in the RFB, they shall immediately notify the Issuing Officer of such error in writing and request modification of the document. Modifications shall be made by addenda.

Suppliers requiring clarification of the intent or content of this RFB or on procedural matters regarding the bid process may request clarification by contacting the Issuing Officer identified above.

SUBMISSION OF BIDS: Bids should be prepared in such a way as to provide a straight forward, concise delineation of capabilities to satisfy the requirements of the RFB.

Expensive binding, colored displays, promotional materials, etc., are not necessary or desired. Emphasis should be concentrated on conformance and clarity of content. Supplier bids shall be completed in all respects as indicated. A Bid may be rejected if it is conditional or incomplete, or if it contains irregularities of any kind.

Bids which contain false or misleading statements, or which provide references which do not support an attribute or capability of the proposed system may be rejected. If, in the opinion of the District, such information was intended to mislead the District in its evaluation of the Bid and the attribute, condition or capability as a requirement of the RFB, the bid shall be rejected.

The bid must be signed by an individual who is authorized to bind the bidding firm contractually. The signature should indicate the title or position that the individual holds in the firm. Firms who sign their contracts with the name of the firm must provide the name of the corporate officer for signature validation by the District. An unsigned Bid shall be rejected.

ACCEPTANCE AND REJECTION OF BIDS: The District reserves the right:

- To reject any or all Bids, or any part thereof;
- To waive any informality in the Bid;
- To accept the Bid that is in the best interest of the District.

Regional San's decision shall be final.

BID INQUIRES

Questions regarding this bid should be referred to:

REGIONAL SAN
Purchasing & Material Support
8521 Laguna Station Rd.
Elk Grove, CA 95758
Attn: Tamblynn Stewart
Senior Contract Services Officer
(916) 875-9014
stewartt@sacsewer.com

Questions regarding specifications shall be referred to:

Dane Coyle
Project Manager
(916) 875-6862
evr@sacsewer.com

These inquiries are to be submitted by **December 1, 2017**. Any responses to inquires will be made in the form of a written addendum. The receipt of such an addendum must be acknowledged in accordance with the directions on the addendum. Oral explanations or instructions given before the award of the contract will not be binding.

Bidder Response: Bidder shall include two (2) copies of the bid and mark the original as the “Original” or “Master Copy”.

Interested bidders must complete and return the following pages/sections by the closing date and time shown on the cover page in order to be considered.

- **Cover Page with authorized signature** **Page 1**
- **Regarding Insurance Coverage** **Page 11**
- **Cost Response Page** **Page 12**
- **Exceptions Response Page** **Page 13**
- **Bid Guaranty Bond** **Page 14**

Note: The District will not accept bids by way of facsimile transmission or e-mail. Bids must be signed and received in a sealed envelope on or before December 8, 2017 by 3:00PM. Refer to instructions on the cover page.

2. PRIMARY SPECIFICATIONS

2.1 ADDENDA

Correction of any discrepancies in, or omission from, the drawings, specifications, or other contract documents, or any interpretation thereof, during the bidding period will be made only by addendum issued by the District. A copy of each such addendum issued by the District will be e-mailed to each

Firm Name Must Appear Here ⇒

person receiving a set of these documents, and shall be made a part of the contract. Any other interpretation or explanation of such documents will not be considered binding.

Each bidder shall be responsible that all firms or persons submitting bids to them, i.e., prospective subcontractors, manufacturers, suppliers, etc. are informed of any such addendum.

2.2 GUARANTEE

Supplier agrees to abide by the conditions of the attached guarantee which shall be signed and delivered to the District before the final payment is made.

REGIONAL SAN
STANDARD TERMS AND CONDITIONS BIDS / PROPOSALS / QUOTES

1. PREPARATION OF RESPONSE:

- a. All information requested of the bidder must be entered in the appropriate spaces on the form. Failure to do so may disqualify your offer.
- b. All information must be entered in ink or typewritten. Mistakes may be crossed out and corrections inserted before submission of your response. Corrections must be initialed in ink by the person signing the response.
- c. Corrections and/or modifications received after the specified closing time will not be accepted.
- d. Time of delivery must be stated as the number of calendar days following receipt of the order by the vendor to receipt of the goods or services by the District.
- e. Time of delivery may be a consideration in the award.
- f. Prices will be considered as net if no cash discount is shown.
- g. All responses must be signed by an authorized officer or employee of the responder.
- h. Responses must be submitted prior to the specified date and time. Late responses, telegraphic, fax, or telephone responses will not be accepted.
- i. Submit responses in a sealed envelope with the RFB number, closing date, and time shown.
- j. If any information contained in the response is considered confidential or proprietary by bidder, it must be clearly labeled as such and presented in a sealed envelope within the bidder's response package.
- k. Unless otherwise definitely specified, the unit prices do not include California sales and use tax or Sacramento County sales and use tax.

2. BRAND NAMES:

- a. Brand names and numbers, when used, are for reference to indicate the character or quality desired. Equal items will be considered, provided your offer clearly describes the article. Offers for equal items must State the brand and number, or level of quality. The determination of the District Purchasing Manager as to what items are equal is final and conclusive.
- b. When brand, number, or level of quality is not stated by bidder, the offer will be considered exactly as specified.

3. SAMPLES: NOT USED

4. **AMERICANS WITH DISABILITIES ACT:** As a condition of submitting a response to the Regional San, the bidder certifies that its business entity is in compliance with the “Americans with Disabilities Act” of 1990, as amended. Failure to certify prohibits the award of a purchase order to the bidder.

5. **TAXES:**

- a. Do not include any sales, use, or federal excise taxes in your response.
- b. If your company is outside California and collects sales tax, please State the amount as a separate item if the District is to remit the tax.
- c. Items purchased for resale will show the District's resale permit number on the purchase order.
- d. Regional San is exempted from payment of Federal Excise Tax.
- e. No federal tax shall be included in price. Exemption certificates will be furnished when federal excise tax is exempted.

6. **LIABILITIES:** The bidder shall hold Regional San, their officers, agents, servants, and employees, harmless from liability of any nature or kind because of use of any copyrighted, or un-copyrighted composition, secret process, patented or unpatented invention, articles or appliances furnished or used under this order, and agrees to defend, at its own expense, any and all actions brought against Regional San or bidder because of the unauthorized use of such articles.

7. **CASH DISCOUNTS:** In connection with any cash discount specified on this response, time will be computed from the date of complete delivery of the supplies or equipment as specified, or from date correct invoices are received in the District's Office, whichever is later. For the purpose of earning the discount, payment is deemed to be made on the date of mailing of the County of Sacramento warrant or check.

8. **DEFAULT BY VENDOR:** In case of default by vendor, Regional San may procure the articles or services from other sources and may deduct from any monies due, or that may thereafter become due to the vendor, the difference between the price named in the contract or purchase order and actual cost thereof to Regional San. Prices paid by the District must be considered the prevailing market price at the time such purchase is made. Periods of performance may be extended if the facts as to the cause of delay justify such extension in the opinion of the District Purchasing Manager.

9. **AWARDS:**

- a. Regional San reserves the right to: (1) award response's received on the basis of individual items, or groups of items, or on the entire list of items, (2) reject any or all response's, or any part thereof; (3) waive any informality in the responses; and (4) accept the response that is in the best interest of the District. Regional San decision shall be final.
- b. Preference for California-made materials. Pursuant to Sections 4330-4333 of the Government Code, the District, in awarding the purchase, must prefer supplies partially manufactured, grown or processed in California, price, fitness and quality being equal. In order to receive preference, responses must clearly specify the item(s) for which preference is claimed and the preference applicable.

10. **RIGHT TO AUDIT:** The District reserves the right to verify, by examination of vendors’ records, all invoiced amounts when firm prices are not set forth in the purchase agreement.

11. **ASSIGNMENT: NOT USED**

12. **APPLICABILITY TO HEIRS:** Time is of the essence of each and all the provisions of this agreement and, subject to the limitations of Paragraph 12, the provisions of this agreement shall extend to and be binding upon and inure to the benefits of the heirs, executors, administrators, successors, and assigns of the respective parties hereto.

13. **SPECIAL CONDITIONS:** District standard terms and conditions must govern any contract awarded. If, after award of contract, vendor provides additional terms or conditions, they will be considered void. To the extent not otherwise Stated in the contract, the California Commercial Code shall apply.

14. **CHARGES NOT INCLUDED ON FACE NOT ACCEPTABLE:** No charge will be accepted for packing, boxing, or cartage, except as specified in the Notice of Award. Freight collect shipments will not be accepted. Merchandise will not be accepted if payment is to be made at the time of delivery.

15. **TITLE:** Except as otherwise expressly provided herein, title to and risk of loss on all items shipped by seller to buyer shall pass to the buyer upon buyer’s inspection and acceptance of such items at buyer’s building.

16. **CHANGES WITHOUT NOTICE PROHIBITED:** No changes in price, quantity or merchandise will be recognized by the District without written notice of acceptance thereof prior to shipment.

17. **ALL UNDERSTANDINGS IN WRITING:** It is mutually understood and agreed that no alteration or variation of terms of this award shall be valid unless made in writing and signed by the parties hereto, and that no oral understandings or agreements not incorporated herein, and no alterations or variations of the terms hereof unless made in writing between the parties hereto shall be binding on any of the parties hereto.

18. **FORCE MAJEURE:** The vendor will not be held liable for failure or delay in the fulfillment of conditions of purchase order/contract if hindered or prevented by fire, strikes, or Acts of God.

19. **INSURANCE:** Bids shall include information sufficient to demonstrate the ability to provide the following minimum levels of insurance:

- a. Workers' compensation: Statutory.
- b. Liability arising from other services and operations usually covered under commercial general and automobile liability policies, including products liability; General Liability shall be on an Occurrence basis (as opposed to Claims Made basis). Minimum limits and structure shall be:

General Aggregate:	\$4,000,000
Products Completed Operations Aggregate:	\$4,000,000
Personal & Adv. Injury:	\$2,000,000

Firm Name Must Appear Here =>

Each Occurrence: \$2,000,000

Fire Damage: \$50,000

Automobile Liability: Corporate/business owned vehicles including non-owned and hired, \$1,000,000 Combined Single Limit.

Employer's Liability: \$1,000,000 per accident for bodily injury or disease.

- c. Physical Damage: Coverage for physical damage of District property while in transit and in the care, custody and control of Bidder. Coverage shall be on an all-risk basis, including while in transit. Valuation shall be on a replacement cost basis.

The insurance limits may be adjusted by District at the time of the best and final bid, contract negotiations, or during the service agreement to cover increased costs. Extensions of policy provisions to cover the interest of District and its member agencies, such as additional insured, additional insured products/completed operations, loss payee, cancellation notice, certificates of insurance, and other requirements will be provided during the final contract negotiation. Any deductibles applicable to bidder's insurance shall be the sole responsibility of Bidder.

20. **INDEMNITY:** Bidders are expected to agree to the following indemnity:

To the fullest extent permitted by law, Seller shall indemnify, defend, and hold harmless Sacramento Regional County Sanitation District, the County, their governing Boards, officers, directors, officials, employees, and authorized volunteers and agents, (collectively "Indemnified Parties"), from and against any and all claims, demands, actions, losses, liabilities, damages, and all expenses and costs incidental thereto (collectively "Claims"), including cost of defense, settlement, arbitration, and reasonable attorneys' fees, resulting from injuries to or death of persons, including but not limited to employees of either Party hereto, and damage to or destruction of property or loss of use thereof, including but not limited to the property of either Party hereto, arising out of, pertaining to, or resulting from the acts or omissions of the Seller, its officers, employees, or agents, or the acts or omissions of anyone else directly or indirectly acting on behalf of the Seller, or for which the Seller is legally liable under law excepting only such injury, death, or damage, to the extent it is caused by the negligence of an Indemnified Party. Seller shall not be liable for any Claims arising from the sole negligence or willful misconduct of an Indemnified Party where such indemnification would be invalid under Section 2782 of the Civil Code.

This indemnity shall not be limited by the types and amounts of insurance or self-insurance maintained by the Seller or the Seller's Subcontractors.

Nothing in this Indemnity shall be construed to create any duty to, any standard of care with reference to, or any liability or obligation, contractual or otherwise, to any third party.

The provisions of this Indemnity shall survive the expiration or termination of the Agreement.

Firm Name Must Appear Here ⇒

**REGARDING INSURANCE COVERAGE
To Be Submitted with Bid**

Bidder HEREBY CERTIFIES that the Bidder has reviewed and understands the insurance coverage requirements specified in the Request for Bid No. 8266 – Manual and Hydraulically Actuated Valves. Should the Bidder be awarded a contract for the work, Bidder further certifies that the Bidder can meet the specified requirements for insurance, including insurance coverage of the subcontractors, and agrees to name Regional San and other entities as Additional Insured for the product specified.

Name of Bidder (Person, Firm, or Corporation)

Signature of Bidder’s Authorized Representative

Name & Title of Authorized Representative

Date of Signing

Firm Name Must Appear Here =>

COST RESPONSE PAGE

Quantity	UM	Item Description	Unit Price	Extended Price
1	EA	60-inch butterfly valve with hydraulic actuator with position indicator and transmitter (Valve Suppliers Bid Item per 40 05 57, 40 05 64 and 40 06 60.13)		
4	EA	54-inch butterfly valve with hydraulic actuator with position indicator and transmitter. (Valve Suppliers Bid Item per 40 05 57, 40 05 64 and 40 06 60.13)		
2	EA	36-inch butterfly valve with manual, geared operator. (Valve Suppliers Bid Item per 40 05 57 and 40 05 64)		
2	EA	24-inch butterfly valve with manual, geared operator. (Valve Suppliers Bid Item per 40 05 57 and 40 05 64)		
4	EA	72-inch Rubber Expansion Joint (Expansion Joint Suppliers Bid Item per 40 05 06.13)		
4	EA	60-inch Rubber Expansion Joint (Expansion Joint Suppliers Bid Item per 40 05 06.13)		
4	EA	54-inch Rubber Expansion Joint (Expansion Joint Suppliers Bid Item per 40 05 06.13)		
		TOTAL BID AMOUNT: (Sum of all bid list items above)		
Total Bid Amount in Words:				

The Bidder acknowledges receipt, understanding, and full consideration of the following Addenda:

ADDENDA NO(S). _____
(Indicate none if no Addenda issued)

Firm Name:
Signature:
Printed Name:

Firm Name Must Appear Here =>

BID GUARANTY BOND

KNOW ALL PERSONS BY THESE PRESENTS:

THAT _____, hereinafter called the Principal, and _____, hereinafter called the Surety, are jointly and severally held and firmly bound unto the Regional San, hereinafter called the Obligee, each in the penal sum of 10 percent of the total amount of the bid of the Principal for the work, this sum not to exceed _____ dollars (\$_____) of lawful money of the United States for the payment thereof unto the Obligee, the Principal and Surety jointly and severally bind themselves forever firmly by these presents.

WHEREAS, the Principal is herewith submitting its offer for the fulfillment of Obligee's contract for Manual and Hydraulically Actuated Valves, RFB# 8266.

NOW, THEREFORE, the condition of this obligation is such that if the Principal is awarded the contract, and if the Principal, within the time specified in the bid for such contract, enters into, executes, and delivers to the Obligee an agreement in the form provided herein complete with evidences of insurance, and if the Principal within the time specified in the bid gives to the Obligee the performance and payment bonds on the form provided herein, then this obligation shall be void; otherwise, the Principal and Surety will pay unto the Obligee the difference in money between the total amount of the bid of the Principal and the amount for which the Obligee legally contracts with another party to fulfill the contract if the latter amount be in excess of the former, but in no event shall the Surety's liability exceed the penal sum hereof.

AND IT IS HEREBY DECLARED AND AGREED that the Surety shall be liable under this obligation as Principal, and that nothing of any kind or nature whatsoever that will not discharge the Principal shall operate as a discharge or a release of liability of the Surety.

IT IS HEREBY FURTHER DECLARED AND AGREED that this obligation shall be binding upon and inure to the benefit of the Principal, the Surety, and the Obligee and their respective heirs, executors, administrators, successors and assigns.

SIGNED AND SEALED this _____ day of _____, 2017.

(SEAL)

Principal

Signature for Principal

Title of Signatory

Firm Name Must Appear Here ⇒

(SEAL)

Surety

Signature for Surety

Title of Signatory

PROGRESS PAYMENT PROCEDURES

Progress Payment Requests shall be submitted electronically to the District Purchasing and Materials Support Department.

Payment for all equipment that is identified in the Technical Specifications and on the cost response page of this RFB will be paid according to the following milestones:

- a. Initial submittal = 10%
- b. Final submittal = 5%
- c. Fabrication = 60%
- d. Operation and Maintenance Manual draft = 5%
- e. Operation and Maintenance Manual final = 5%
- f. Delivery = 10% (will likely include stored materials)
- g. Training complete = 5%

APPENDIX A
TECHNICAL SPECIFICATIONS

SECTION 00 01 10

TABLE OF CONTENTS

PART 1 -- PART A - CONTRACT REQUIREMENTS

DIVISION 01 – GENERAL REQUIREMENTS

01 33 00	SUBMITTAL PROCEDURES
01 65 00	PRODUCT DELIVERY REQUIREMENTS
01 78 23	OPERATIONS AND MAINTENANCE DATA
01 79 10	TRAINING

PART 2 -- PART B – TECHNICAL SPECIFICATIONS

DIVISION 40 – PROCESS INTERCONNECTIONS

40 05 06.13	EXPANSION JOINTS AND FLEXIBLE METAL HOSE
40 05 57	ACTUATORS FOR PROCESS VALVES AND GATES
40 05 64	BUTTERFLY VALVES
40 06 60.13	POWER ACTUATED VALVE AND GATE SCHEDULES

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

- A. Submittals include, but are not limited to, product data, shop drawings, test procedures, test results, AutoCAD® generated drawings, requests for substitutions, descriptive data, certificates, methods, schedules, marked contract drawings and specifications, manufacturer's installation and other instructions, and miscellaneous work related items. Submittals also include all other information as may reasonably be required, in the opinion of the District Representative, to demonstrate fully that the materials and equipment to be furnished and the methods of work comply with the provisions and intent of the contract documents. Additional submittal requirements are specified in each individual section of the specifications. Items to be submitted are specified in these individual technical specification sections.
- B. All submittals will be submitted via the Project Controls System (PCS) as described in the Request for Bids. Minimum size lettering height on all submittals shall be 12 point font for text documents, 1/16 inch height for 8-1/2 by 11 inch and 11 by 17 inch documents and 1/8-inch height for documents larger than 11 by 17.
- C. The review of the Supplier's drawings or other descriptive material shall not relieve the Supplier of responsibility for any error or of any obligation for accuracy of dimensions and details, for agreement and conformity with the contract drawings and specifications, or responsibility to fulfill the contract as prescribed and required by this project's RFB Package. If errors or omissions exist in the Supplier's submittals which are not noted by the District during the District's review, it shall be the Supplier's responsibility, at no additional cost to the District, to correct the errors and omissions, to correct field conditions, and to repair any damage inflicted to new or existing equipment and other improvements as a result of the errors or omissions.
- D. Where specified, the Supplier shall furnish submittals to the District Representative for information only. An electronic version and two hard copies these submittals, 1 full size reproducible on 20 lb. white bond for document/drawings larger than 11 by 17 inches shall be transmitted to the District Representative. Designation "For Information Only" does not preclude the District Representative from reviewing or commenting on the submittal contents as specified in this section.
- E. All other submittals shall be submitted by the Supplier to the District Representative for review and comment. An electronic version and two hard copies of these submittals, 1 full size reproducible on 20 lb. white bond for documents/drawings larger than 11 by 17 inches shall be transmitted to the District Representative.

- F. All submittal data including shop drawings will become part of the and O&M data and project records furnished under the OPERATION AND MAINTENANCE DATA Section (01 78 23). All changes or modifications during construction to original equipment submittals must be recorded and become part of the project record and O&M process as outlined in their respective sections.

1.02 DEFINITIONS

A. GENERAL:

- 1. The definitions of types of drawings, diagrams and other forms of submittal documents shall include the terms used in the following paragraphs. Whenever the following terms for drawings or other forms of submittal documents are used in submittal requirements, the definitions in the following paragraphs shall apply. The following set of definitions is not comprehensive. They are included to help clarify the meanings of certain terms applicable to mechanical, electrical, instrumentation and control system documents.

B. INSTRUMENT INSTALLATION DRAWINGS:

- 1. Instrument installation drawings shall show the mounting and piping details of field mounted instruments and instrument racks.

C. BILL OF MATERIALS:

- 1. Materials identified on the drawing and listed by item number, a brief description, manufacturer, model number (and/or page number), serial number (if available), and quantity used. Associated equipment numbers must be shown. The items must match the field installation and the drawing.

1.03 STANDARD COMPLIANCE

- A. When materials or equipment are required to conform to the standards of organizations such as the American National Standards Institute (ANSI), American Society for Testing and Materials (ASTM), National Electrical Manufacturers Association (NEMA) and Underwriter's Laboratories (UL), documents showing or proving conformance shall be submitted.
- B. If an organization uses a label or listing to indicate compliance with a particular standard, the label or listing will be acceptable evidence, unless otherwise specified in the individual sections. In lieu of the label or listing, the Supplier shall submit a certificate from an independent testing organization which is competent to perform acceptable tests and is approved by the District's Representative. The certificate shall state that the item has been tested and found to be in conformance with the specified organization's standard. For materials and equipment whose compliance with organizational standards or specifications is not regulated by an organization using its own listing or label as proof of compliance, a certificate of compliance from the manufacturer shall be submitted for

approval. The certificate shall identify the manufacturer, the product and the referenced standard and shall state that the manufacturer certifies that the product conforms to all requirements of the project specification and of the referenced standards listed.

1.04 SUBMITTAL REVIEW

- A. When review and comment is required of any drawing or information regarding materials and equipment, the Supplier shall post the submittal information to the Project Control System in accordance with the ELECTRONIC COMMUNICATION PROTOCOLS Section (01 31 26). Within a reasonable time as specified in this section after receipt of said submittal, the District Representative will return electronically one copy of the submittal documents indicating one of the following four actions by item number:
1. If review and comment indicates no exceptions, copies will be returned marked "NO EXCEPTIONS TAKEN". Work may begin immediately on incorporating the material and equipment covered by the submittal into the work.
 2. If review and comment indicates limited corrections are required, copies will be returned marked "MAKE CORRECTIONS NOTED". Work may begin immediately on incorporating the material and equipment covered by the submittal document into the work.
 3. If review and comment indicates insufficient or incorrect data has been submitted, copies will be returned marked "AMEND AND RESUBMIT." The Supplier is not authorized to begin incorporating the material and equipment covered by this submittal document into the work until the submittal document is revised, resubmitted and returned marked either "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED".
 4. If review and comment indicates the material and equipment submittal is unacceptable, copies will be returned marked "REJECTED - SEE REMARKS". The Supplier is not authorized to begin incorporating the material and equipment covered by this submittal into the work until a new submittal is made, resubmitted, and returned marked either "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED".
- B. When submittal documents are referred to in these specifications as "approved," "reviewed" or "accepted," this means that they are stamped as in case 1 or 2 above.
- C. Designation of submittal documents "for information only," does not preclude the District's Representative from reviewing or commenting on the submittal contents. Information only submittals returned to the Supplier marked "AMEND AND RESUBMIT" or "REJECTED - SEE REMARKS" shall be revised and resubmitted by the Supplier.

PART 2 -- PRODUCTS

2.01 SHOP DRAWINGS

A. GENERAL:

1. Shop drawings shall include data of all forms which have been custom prepared for this project. This includes detail drawings for structural, architectural, mechanical, piping, , electrical, , instrumentation, control, , assemblies, and systems which are installed or fabricated as a part of this project. All shop drawings shall be drawn in CAD format, as specified in this section, at an approved drawing scale. Also included are drawings and data which show fabrication, layout, setting or erection details. This includes any data which is prepared by the Supplier, subcontractors, vendors, suppliers, manufacturers or their representatives, specifically for this project.
2. Shop drawings shall have drawing numbers, scale, revision date and number, Supplier name, subcontractor name, supplier name, name of detailer or engineer who prepared the document, relation to adjacent structures, materials, drawing cross references, standards references, Supplier's certification stamp, and registered engineer's stamp, if required, shown on them. Maximum sheet size shall be 22 inches by 34 inches. Minimum sheet size for drawings shall be 11 inches by 17 inches, except as allowed by the District Representative.
3. Shop drawings specifically prepared for this project shall be created in Computer-Aided Drawing (CAD) format, using the most current AutoCAD® software, by Autodesk, Inc.

B. CAD DRAWINGS:

1. All drawings shall be prepared in a CAD format, using the most current AutoCAD® software by Autodesk, Inc. If available, provide drawings in Revit format. The following drawings are specifically required in CAD format:
 - a. Panel drawings for bubbler panel.
 - b. Elementary diagrams.
 - c. Electronic assembly drawings.
 - d. Shop drawings which are specifically prepared for this project.
2. All CAD drawings shall comply with the United States National CAD Standard® (NCS). All Supplier submissions requiring CAD shall be in accordance with NCS Version 5.0, or the latest release, and the U.S. National BIM Standard (NBIMS). Additional information or clarification can be obtained from the United States National CAD Standard® (NCS) website at www.nationalcadstandard.org/ncs5. The National Institute of Building Sciences owns the copyright to the work known

as the United States National CAD Standard® (NCS) and reserves all rights to said work under United States and international law.

a. Exceptions to the NCS are as follows:

- 1) All annotation shall be capitalized.
 - 2) All annotation shall be a minimum 1/8-inch Arial for full size drawings (ANSI D or ARCH D) and a minimum 1/16-inch Arial for half size drawings.
 - 3) All arrowheads shall match the font size (1/8-inch Arial for full size and 1/16-inch Arial for half-size) of the annotation in the drawing.
3. The Supplier shall require that the CAD drawings prepared by all subcontractors or vendors meet the requirements of these standards.
 4. The Supplier shall upload the submittal drawing files (in both native and pdf format) to the Program Controls System in accordance with the ELECTRONIC COMMUNICATION PROTOCOLS Section (01 31 26).
 5. Provide drawings in Revit format if available.

C. ELECTRICAL AND CONTROL DOCUMENT REQUIREMENTS:

1. GENERAL:

- a. Additional electrical and control document requirements are specified in the technical specifications.
- b. For each type of drawing specified in the following paragraphs, the Supplier shall submit at least two examples a minimum of 30 days prior to beginning the preparation of any additional electrical and control documents. The purpose of this sample submittal is to allow the District Representative to perform a detailed review of the Supplier's drawings for compliance with contract requirements for format, content, and level of detail. These examples shall receive a "MAKE CORRECTIONS NOTED" or "NO EXCEPTIONS TAKEN" review before the Supplier proceeds with shop drawings which include these types of drawings.

2. CUSTOM SOFTWARE DOCUMENTATION: NOT USED

3. SINGLE-LINE DIAGRAMS: NOT USED

4. ELEMENTARY DIAGRAMS: Unless otherwise specified, electrical elementary diagrams shall be drawn in accordance with the latest issue of Joint Industrial Council (JIC) Electrical Standards for Mass Production Equipment (EMP-1). All circuits and devices of a system shall be shown. A written description of the sequence of operation of the circuit shall be included. Elementary diagrams shall be prepared and submitted for all assemblies and systems for which elementary diagrams have

not been included on the contract drawings, or where only partial elementary diagrams have been included in the contract documents. Elementary diagrams shall be prepared using the format shown in the Control and Logic Diagrams in the Example Wiring Diagrams located in the Contract Drawings following the "X-series" drawings.

5. LOOP DIAGRAMS: NOT USED
6. CONNECTION DIAGRAMS: NOT USED
7. INTERCONNECTION DIAGRAMS: NOT USED
8. ELECTRONIC ASSEMBLY DIAGRAMS: NOT USED
9. INSTRUMENT INSTALLATION DRAWINGS: Instrument installation drawings shall be drawn to an approved scale and shall show the mounting, piping, and wiring details for field and rack mounted instruments. Mounting dimensions, piping slopes, complete bill of material and installation notes shall be shown. Mounting heights, sense of line routing and process line tap heights relative to the instrument shall be shown. Viewing, adjustment, operation, and service access shall be shown. Groupings of instruments shall be drawn to an approved scale. Instrument installation drawings shall be submitted for all field mounted instruments and instrument racks. Installation drawings shall list all applicable equipment numbers.

2.02 MANUFACTURER'S PRODUCT DATA

- A. Product data shall include data of all forms which define design, performance and function of manufactured products or materials. This includes all preprinted literature, performance specifications, drawings, instruction manuals, and data which are available from the original equipment manufacturer and/or supplier. Product data shall also include all software and firmware encoded on programmable device readable media. Product data shall be submitted for all manufactured products and material as specified in this section and in the Technical Specifications, Divisions 01 through 40.
- B. Specific Asset Attribute data related to the product data shall be submitted separately.

2.03 TEST PROCEDURES AND RESULTS – NOT USED

2.04 SAMPLES – NOT USED

2.05 MISCELLANEOUS SUBMITTALS

- A. These include, but are not limited to, descriptions, warranties, guarantees, certifications, maintenance agreements, quality testing reports and similar information, devices and materials.

2.06 PROJECT RECORD DRAWINGS AND DATA – NOT USED

2.07 OPERATION AND MAINTENANCE INSTRUCTIONS

- A. Supplier to provide Operation and Maintenance documentation and instructions for the valves. Operation and maintenance instructions will not be submitted until approved equipment or material submittals are received.

2.08 BURIED UTILITIES – NOT USED

2.09 SCHEDULE – NOT USED

PART 3 -- EXECUTION

3.01 SUBMITTAL REQUIREMENTS

A. GENERAL:

- 1. Submittals shall be reviewed and coordinated by the Supplier before transmittal to the District Representative for quality control purposes. Submittals shall be complete and fully identified by the Supplier.

B. PREPARATION:

- 1. Each submittal shall contain documents which are related to only one material, product or system. Normally, a separate transmittal form shall be used for each specific item or class of material, equipment or system. Exceptions may be allowed only when the items taken together constitute a manufacturer's "package" or are so functionally related that expediency indicates checking or review of the group or "package" as a whole. The Supplier shall mark each submittal document with the submittal number, letter suffix and item number.
- 2. Prior to preparation of each submittal, the Supplier may request an 8-hour pre-submittal meeting, to be attended by the Supplier, District's Representative, and vendor(s) of the major submittal package. The purposes of the pre-submittal meeting will be to discuss how the submittal package will be organized, content of the submittal package, anticipated schedule for submittal and review, major features of the equipment/materials and basic compliance with specified equipment/materials, and coordination needed with related equipment/material submittals.

C. TRANSMITTAL FORM:

- 1. The District Representative will define a submittal numbering scheme which the Supplier shall use. Items omitted, or incorrectly or ambiguously listed on the transmittal form will be deemed to be not included in the submittal. Where items listed in the transmittal by equipment number conflicts with other descriptions contained in the submittal, the listed equipment numbers shall be deemed to be the

intended scope. The Supplier shall bear all costs and damages sustained to the District attributable to omitted, or incorrectly or ambiguously listed submitted items.

2. Submittals shall be transmitted by utilizing the District-furnished web based Project Controls System. Prior to the first submittal, the Supplier shall attend a submittal transmittal meeting to work out all compatibility requirements. Each transmittal shall contain the following information as a minimum:
 - a. Date
 - b. Submittal or re-submittal number
 - c. Contract title and number
 - d. Supplier's name and address
 - e. List of documents being submitted, by preparer, number and version
 - f. Contract documents references (including specific specification section and drawing numbers) for each submittal document
 - g. Previous submittal number and item number for each submittal document
 - h. Notification of deviation(s) from contract documents for each submittal document
 - i. Complete list of equipment numbers and auxiliaries included with each submittal document
 - j. Supplier's certification of having reviewed and coordinated the submittal

D. DOCUMENT IDENTIFICATION:

1. If multiple items are included within a single submittal, each separate document within the submittal shall contain the following information:
 - a. Document (Item) number within this submittal
 - b. Identification of product or material
 - c. Manufacturer's name
 - d. Equipment number

E. RESUBMITTALS:

1. Revise returned submittal documents as indicated and as required. Resubmit using the same submittal procedure as for an initial submittal. All resubmittals shall use

the previous submittal number with a letter suffix and shall refer to the previous item number.

2. Resubmittals shall address all comments from the District Representative. Partial re-submittals may be returned "REJECTED." The Supplier will be responsible for the District Representative's review costs for each re-submittal in excess of the first resubmittal. These costs will be back charged to the Supplier and will be deducted from progress payments.
3. Time extensions will not be granted for delays resulting from the necessity for the Supplier to provide resubmittals due to inaccurate, incomplete or rejected submittals.

F. COORDINATION AND SEQUENCING:

1. Review priority will be based on the schedule unless otherwise requested in writing by the Supplier. The Supplier in scheduling submittals shall submit no more than 10 per week. In the event the Supplier submits more than 10 per week, the District Representative's review time may exceed the review time outlined.
2. All submittals, including shop drawings, shall be submitted in sufficient time to allow the District Representative not less than 30 days for review of such submittals.
3. These review periods do not include any time that the District Representative cannot proceed further with the review because of having to wait for further information or clarification from the Supplier.
4. Normally, initial submittals will be returned to the Supplier within 30 days, and resubmittals will be returned within 20 days, exclusive of any time awaiting clarification or further information. However, the time for return will necessarily vary and may exceed the time described above depending upon the complexity of the submittal, the number of submittals, and the express needs of the Supplier.
5. Submittals for material or equipment which are not specified by name, and which are being submitted as an "or equal" to that specified and submittals for material or equipment with arrangements or requirements that are different than that shown in the contract documents, will normally require 42 days for the review process.

G. SUPPLIER'S RESPONSIBILITIES:

1. The Supplier shall review submittals before they are transmitted to the District Representative to ensure that there are no conflicts with other submittals. The Supplier shall coordinate submittals from subcontractors and suppliers to ensure that they are complete and that there are no conflicts.
2. The Supplier is responsible for errors and omissions in submittals even though the District's Representative reviews the submittal.

3. The District Representative shall be notified in writing at the time the submittal is transmitted of deviations from the requirements of the contract documents. The Supplier is responsible for correcting deviations from the contract documents even though the District Representative has reviewed the submittal, unless the deviations are clearly described in writing in the submittal transmittal form.
4. The Supplier shall be responsible for distributing submittals which have been returned with the District's Representative's action to subcontractor and suppliers. Installation shall not be started until the submittal data with the "No Exceptions Taken" or "Make Corrections Noted" stamp is in the possession of the installer.
5. No changes shall be made by the Supplier in any submittal after it has been approved. The equipment or materials provided shall not deviate from the submittal documents which are stamped with the "No Exceptions Taken" or "Make Corrections Noted" stamp in any way except with written approval by the District Representative.
6. The Supplier shall certify on each submittal document that the submittal has been reviewed, field conditions have been verified and contract documents have been complied with.
7. The Supplier may authorize a material or equipment supplier to deal directly with the District Representative with regard to such submittals; however, ultimate responsibility for the accuracy and completeness of the information contained in the submittal shall remain with the Supplier.

H. REQUESTS FOR SUBSTITUTION:

1. The Supplier may offer to substitute material or equipment if permitted by the technical specifications. The District will consider offers for substitution only if the substitution/or equal submission is made pre-bid as described in the RFB Package. Post-bid the District will not acknowledge or consider such offers from suppliers, distributors, manufacturers, or subcontractors.
2. The Supplier's offers of substitution shall be made in writing to the District Representative in ample time to permit review without delaying the work. Until and unless such substitutions are approved by the District Representative, no deviations from the specifications shall be allowed. Time extensions will not be granted for requests for substitution which are subsequently denied by the District Representative. Time extensions will not be granted for substitutions which are not submitted in a timely manner. Any request for substitutions shall include sufficient data to enable the District Representative to assess the acceptability of the material or equipment for the particular application and requirements.
3. The Supplier shall submit a brief description of the proposed substitution prior to preparing a detailed submittal. The brief description shall be submitted on a Request for Substitution/Construction Incentive Change Proposal (CICP) form. Within 15 working days, the District Representative will review the proposal in concept and

respond. If the District Representative accepts the concept of the substitution, the Supplier may prepare a detailed submittal conforming to the requirements of this section.

4. Any cost differential associated with a request for substitution must be negotiated with the District Representative. These costs or savings must be covered by a change order which modifies the contract documents.

I. DRAWINGS FOR MODIFIED PANELS AND OTHER CONTROL SYSTEM COMPONENTS – NOT USED

3.02 PROPRIETARY INFORMATION

- A. All of the information required herein shall be provided even though it may be considered to be proprietary. If any of the information required herein is considered to be proprietary, the District's standard proprietary agreement shall be executed between the District and the Supplier, prior to contract award, stipulating that all such information will be supplied by the Supplier and kept confidential by the District.
- B. Not more than 90 percent of all work shall be paid for until all proprietary information has been submitted and approved. Proprietary information shall describe the final as-built work. No part of the work covered by the proprietary agreement shall be modified after proprietary submittal acceptance until after updated proprietary information has been submitted by the Supplier and accepted by the District. Updated proprietary information shall fully document all modifications to be implemented. All proprietary data shall be marked "PROPRIETARY" by the Supplier.

3.03 MANAGEMENT OF THE SUBMITTAL PROCESS – NOT USED

****END OF SECTION****

SECTION 01 65 00

PRODUCT DELIVERY REQUIREMENTS

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

- A. Equipment, products and materials shall be shipped, handled, stored, maintained and installed in ways which will prevent damage to the items. Damaged items will not be permitted as part of the work except in cases of minor damage that have been satisfactorily repaired and are acceptable to the District Representative.
- B. Failure of Supplier to properly store and maintain equipment and materials will result in rejection of the equipment or material or a withholding from the progress payment.
- C. Deliveries to the SRWTP must include the contract number and name of the project on all delivery manifests.

1.02 MATERIALS

- A. Materials shall be handled, stored, and installed as recommended by the manufacturer. Pipes with paint, tape coatings, linings or the like shall be stored to protect the coating or lining from physical damage or other deterioration. Plastic pipes including PVC conduit shall be stored with UV protection until placed or installed. Pipes shipped with interior bracing shall have the bracing removed only when recommended by the pipe manufacturer.

1.03 EQUIPMENT

A. PACKAGE AND MARKING:

- 1. All equipment shall be protected against damage from moisture, dust, handling, or other cause during transport from manufacturer's premises to site. Each item or package shall be marked with the number unique to the specification reference covering the item.
- 2. Stiffeners shall be used where necessary to maintain shapes and to give rigidity. Parts of equipment shall be delivered in assembled or subassembled units where possible.

B. IDENTIFICATION:

- 1. Each item of equipment and valve shall have permanently affixed to it a label or tag with its equipment or valve number designated in this contract. Label or tag shall be of stainless steel. Location of label will be easily visible.

C. SHIPPING:

1. Bearing housings, vents and other types of openings shall be wrapped or otherwise sealed to prevent contamination by grit, dirt and water vapor.
2. Damage shall be corrected to conform to the requirements of the contract before the assembly is incorporated into the work. Supplier shall bear the costs arising out of dismantling, inspection, repair and reassembly.

D. FACTORY APPLIED COATINGS:

1. Unless otherwise specified, each item of equipment shall be shipped to the site of the work with the manufacturer's shop applied prime coating which is compatible with the field applied coating. The prime coating shall be applied over clean dry surfaces in accordance with the coating manufacturer's recommendations. The prime coating will serve as a base for field-applied finish coats. Electrical equipment and materials shall be painted by manufacturer as per manufacturer's standards.

E. UNLOADING VALVES:

1. District will unload valves at the Sacramento Regional Wastewater Treatment Plant.
2. Supplier shall provide 2 weeks' notice for valve delivery so Regional San can make sure to have the correct equipment on site to unload the valves.
3. District will deliver the valves to the storage building (currently proposed to be the MSG Building).

F. STORAGE:

1. During the interval between the delivery of equipment to the site and installation, all equipment, unless otherwise specified, shall be stored in an enclosed space affording protection from weather, dust and mechanical damage and providing favorable temperature, humidity and ventilation conditions to ensure against equipment deterioration. Manufacturer's recommendations shall be adhered to in addition to these requirements.
2. Equipment and materials to be located outdoors may be stored outdoors if protected against moisture condensation. Equipment shall be stored at least 6 inches above ground. Temporary power shall be provided to energize space heaters or other heat sources for control of moisture condensation. Space heaters or other heat sources shall be energized without disturbing the sealed enclosure.

G. PROTECTION OF EQUIPMENT AFTER INSTALLATION:

1. After installation, all equipment shall be protected from damage from, including but not limited to, dust, abrasive particles, and dirt; and from the fumes, particulate matter, and splatter from welding, brazing and painting of new or existing piping and

equipment. As a minimum, vacuum cleaning, blowers with filters, protective shieldings, and other dust suppression methods will be required at all times to adequately protect all equipment. The protection of equipment shall also apply to disassembled equipment. During painting operations, all equipment nameplates, grease fittings, and similar openings shall be covered to prevent the entry of paint.

H. PREVENTIVE MAINTENANCE:

1. All equipment in storage and during and after installation shall be maintained by qualified supplier personnel. Supplier shall set up a preventive maintenance program for all equipment. This program shall include as a minimum all manufacturer's recommendations and operation and maintenance manual requirements for the preventive maintenance of each piece of equipment including environmental, lubrication and rotation procedures. Record sheets of the preventive maintenance program shall be submitted to the District Representative monthly).

1.04 SUBMITTALS

- A. Prior to equipment delivery, supplier shall submit pre and post installation preventive maintenance (PM) instructions recommended by the manufacturers for the Valves. Contractor shall conduct an ongoing monthly PM program during construction on all Major Equipment and any minor equipment requiring PM per the manufacturer's recommendations. The PM program shall be witnessed by the District Representative. Supplier shall submit information on the status of all equipment in the PM program.

****END OF SECTION****

SECTION 01 78 23

OPERATION AND MAINTENANCE DATA

PART 1 -- GENERAL

1.01 WORK DESCRIPTION

- A. The work consists of providing equipment operation and maintenance (O&M) data in conformance with the requirements of this specification.
- B. The Seller shall submit O&M data after the subject equipment submittal has been approved. The O&M data submittal will be returned if it is included with the equipment or material submittal.
- C. O&M data submittals shall be prepared and submitted in accordance with this specification and the SUBMITTAL PROCEDURES Section (01 33 00).

1.02 PAYMENT

- A. Payment for any equipment for which O&M data are required shall be as specified in the Request for Bid document..
- B. The O&M data (manuals) shall have a value as specified in the Request for Bid document. For additional work, the O&M data (manuals) value shall be determined by Field Instructions or Change Orders as outlined in the general conditions of this contract. O&M data additional work shall meet all conditions of this section.
- C. The Seller and District shall meet to determine the total number of O&M data (manuals) for the contract. The value of the O&M data (manuals) shall be distributed equally across the total number of O&M data (manuals) for the contract.
- D. A Draft and Final submittal shall be required for each O&M data (manual). The Draft and Final submittals shall each comprise 50% of the calculated value for the respective O&M data (manual). Payment will be provided upon acceptance of each submittal.

PART 2 -- PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. Each document in the O&M data shall include the Equipment Tag Number/Location ID and associated auxiliary Equipment Tag Number that it represents.
- B. O & M data shall include detailed equipment data information.

- C. The manufacturer's standard documents shall be neatly marked with arrows or boxes to indicate the specific information that is applicable to the equipment, assembly, subassembly, or material supplied.
 - 1. Non applicable items shall be crossed out.
 - 2. Highlighting is not acceptable.
- D. All O&M data materials shall be made from original materials. Original materials shall be published literature or computer printouts with resolution of at least 600 dots per inch (dpi). Photo copies, scanned copies, and FAX transmittals are not acceptable.
- E. O&M data shall be organized into one electronic document bookmarked using an Adobe Acrobat PDF format and submitted to the project controls website in accordance with the SUBMITTAL PROCEDURES Section (01 33 00).
- F. The District reserves the right to be the sole authority on quality and legibility of O&M data materials.

2.02 SUBMITTALS

- A. The following information shall be submitted for review in accordance with the SUBMITTAL PROCEDURES Section (01 33 00):
 - 1. A copy of this specification section (with addenda updates) with each paragraph check marked to show specification compliance or marked to show deviations.
 - a. Mark "NA" for requirements that do not apply, and if the submittal does not conform to a requirement, explain the exception.
 - b. A check mark shall denote full compliance with a paragraph as a whole.
 - c. If deviations from the specification are indicated, and therefore requested by the Seller, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph referenced to a detailed written explanation for requesting the deviation. The remaining portions of the paragraph not underlined will signify compliance on the part of the Seller with the specification. The District shall be the final authority for determining acceptability of requested deviations.
 - d. Failure to include a copy of the marked-up specification section, along with justification(s) for any requested deviations to the specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.

B. DELIVERABLES

1. EQUIPMENT SUBMITTAL

- a. Initial shop drawing equipment submittals for individual valves should contain adequate storage, installation, operation, and maintenance information from the manufacturer. This information must be sufficient to allow the District to confirm compliance with the manufacturer's recommendations during the storage, installation, and initial startup and testing of the equipment. Such O&M data information in initial equipment submittals will be checked only to verify that the appropriate documents for these purposes are provided. The O&M data submittals required below are in addition to the initial equipment submittal, even though it contained O&M information. Furthermore, the O&M data submittal requires that approved equipment submittal information be incorporated.

2. O&M DATA DRAFT SUBMITTAL

- a. The Draft O&M data submittals shall be submitted electronically to the Project Control System (PCS) in accordance with the Request for Bid document. The submittals shall be submitted as individual specification sections, and may be submitted one specification section at a time. Each Draft submittal shall be submitted by the Seller within 30 calendar days after District approval of the associated equipment submittal. District review will be completed within 21 calendar days after receipt of each Draft submittal. Unless the submittal is returned marked as "Amend or Resubmit" or "Rejected – See Remarks", District comments will be formally addressed and incorporated into the O&M data in preparation of the training lesson plans and materials for vendor training.

3. O&M DATA FINAL SUBMITTAL

- a. The District will notify the Seller of deficiencies in the Draft submittal due to required changes. Such revisions shall include resolution of any comments from the training sessions. The Seller shall revise and replace, remove, or add documents to correct any such deficiencies. Submission of the O&M data Final submittal shall be submitted and District approved prior to Field Acceptance. The District shall be allowed a review period of 14 calendar days after receipt of Final submittal.
- b. Electronic versions of the O&M data shall be corrected by submitting the document, in its entirety, to the project controls website.

PART 3 -- EXECUTION

3.01 O&M DATA REQUIREMENTS

Each set of O&M data shall be assembled as follows:

A. COVER SHEET:

1. The cover sheet shall show a functional title of the system, equipment or material; list of the Equipment Tag Number(s), including all associated auxiliary Equipment Tag Number(s), and corresponding functional description(s); revision date; and specification reference.

B. TABLE OF CONTENTS:

1. The table of contents shall give a detailed description of what is in each tab, including applicable Equipment Tag Number.

C. WARRANTIES & GUARANTEES:

1. A copy of the manufacturer's warranty and/or guarantee certificate shall be provided with the O&M data. The original certificate shall separately accompany the O&M data.
2. List and explain the various warranties and include the servicing and technical precautions prescribed by the manufacturers or contract documents to keep warranties in force. Where warranty is conditional on the manufacturer's approval of the installer, submit the manufacturer's approval of the installing firm.

D. TECHNICAL DATA:

1. Manufacturer's technical specification and engineering data sheets for each component, part, device and auxiliary equipment which make up the equipment or assembly shall be supplied. Include the manufacture's vibration, temperature, and sound data when specified in the technical specifications. All documents contained in this section shall provide a table of contents of the documents, referencing Equip. Tag No., the manufacturer's name, model numbers, and product numbers. Each document shall be cross-referenced to the items, components and parts described above. Label all documents with appropriate Equip. Tag No.
2. Certified performance curve(s) marked to show the operating conditions specified in the technical specification section.
3. Provide protective device settings and safety information.
4. Equipment data for each equipment tag number contained in the O & M manual. Equipment data shall be supplied as part of the O&M data

E. STANDARD O&M MANUAL:

1. The O&M manuals must explain and illustrate clearly the principles and theory of operation, operating instructions, and preventive and corrective maintenance precautions and procedures to be followed. The O&M manuals and appurtenant materials shall be written entirely in English and all dimensions shall be in English units. The manuals shall include the following information, as applicable:

- a. OPERATING INSTRUCTIONS:

Specific instructions, procedures, and illustrations shall be provided for the following:

- 1) SAFETY PRECAUTIONS: List personnel hazards for equipment and list safety precautions for all operating conditions/modes.
- 2) INSTALLATION AND PRE-OPERATIONAL CHECKOUTS: Provide recommendations and checklists for installation, adjustment, calibration, and troubleshooting to prepare each equipment/system for operation.
- 3) NORMAL OPERATIONS: Provide control diagrams with data and step-by-step procedures to explain operation and control of systems and specific equipment.
- 4) ENVIRONMENTAL CONDITIONS: Provide a list of environmental conditions (temperature, humidity, dust, indoor/outdoor, and other relevant data) which are best suited for each product or piece of equipment and describe conditions under which equipment should not be allowed to run due to applicable industry and regulatory standards and codes.

- b. PREVENTIVE MAINTENANCE (PM):

The following information shall be provided for PM:

- 1) LUBRICATION DATA: Provide the following:
 - Manufacturer's recommended lubrication schedules showing service interval and frequency;
 - Diagrams illustrating equipment lubrication points;
 - A table identifying recommended types and grades of lubricants for specific temperature ranges and applications; and
 - A table identifying equipment lubrication capacities and an estimate of yearly lubricant quantities required for all equipment supplied.
- 2) PM PLAN AND SCHEDULE: Provide the following in a tabular format for each PM:

- The manufacturer's recommended preventative maintenance task;
- Recommended steps or procedures to complete the PM;
- Recommended scheduled interval and frequency for performing the PM;
- The craft responsible and the person's skill level for performing the PM (i.e., operator, mechanic, electrician, or control systems technician);
- The estimated amount of labor required to perform the PM;
- Required materials or parts; and identify the equipment's energy source(s) (i.e., water, heat, light, electrical, etc.).

c. **CORRECTIVE MAINTENANCE:**

Manufacturer's recommendations shall be provided on procedures and instructions for correcting problems and making repairs.

- 1) **TROUBLESHOOTING GUIDES AND DIAGNOSTIC TECHNIQUES:** Provide step-by-step procedures to promptly isolate the cause of typical malfunctions. Describe clearly why the checkout is performed and what conditions are to be sought. Identify tests or inspections and test equipment required to determine whether parts and equipment may be reused or requires replacement.
- 2) **MAINTENANCE AND REPAIR PROCEDURES:** Provide instructions and a list of specialized tools required to restore product or equipment to proper conditions or operating standards. Include the specialized tool's part number and/or detailed fabrication drawing.
- 3) **PARTS LIST:** Provide a complete list of components and parts which make up the equipment or assembly. All parts and components listed shall be identified using arrows or boxes by the original manufacturer's name, part number, and a purchase order number. Enough information shall be provided to allow purchasing of parts from any supplier who may stock them. If listed components or parts are themselves repairable and made up of components and parts, parts lists shall be provided for them to all repairable levels. The parts list shall have the generic title, identification number, and material of construction of each component part of equipment. Include the bearing manufacturer for each bearing.
- 4) **DRAWING:** Disassembly and assembly drawings in Adobe PDF format shall be provided which identify and cross reference all components and parts listed in the parts lists. Exploded or cut views of equipment shall be provided if available as a standard item of the manufacturer's information. When

exploded or cut views are not available, plan and section views shall be provided as a minimum.

- 5) SPECIAL TOOLS LIST: Provide recommended special tools, including description and use, for all equipment supplied. Special tools are defined as needed tools that are not generally commercially available except from the manufacturer. If no special tools are recommended by the manufacturer, provide a statement to that effect.

F. SHOP/REPAIR MANUAL:

1. Provide a Shop or Repair Manual written by the manufacturer specifically for the equipment or assembly. The manual shall include additional troubleshooting tips, routine maintenance hints, and specific repair information not found in a standard O&M manual, includes references to specialized tools and other information uniquely known by the manufacturer.

G. SUPPLEMENTAL DRAWINGS AND INSTRUCTIONS

1. Drawings shall be provided which completely document the equipment, assembly, subassembly or material. As applicable and at a minimum, the following drawings shall be provided:
 - a. Fabrication details
 - b. Shop and vendor drawings
 - c. Layout and dimension drawings
 - d. Installation drawings
 - 1) Drawings shall have adjustments such as calibrations and set points for relays, and control or alarm contact settings

H. SUBMITTAL DATA

1. This section includes approved shop drawings submittal information such as catalog cuts, sales brochures, supplemental drawings, product data, equipment data, system data, or material data not already contained in other sections of the O&M data submittal. Approved shop drawings not related to the operation or maintenance of equipment or processes shall not be included.

****END OF SECTION****

SECTION 01 79 10

TRAINING

PART 1 -- GENERAL

1.01 DESCRIPTION

- A. The Supplier shall make available experienced factory-employed representatives of the manufacturers to provide training for the District's personnel in the operation and maintenance of the valves and actuators.
- B. The manufacturer representatives for operations instruction shall be factory-trained, have a minimum of two years of experience at the manufacturer's factory, and shall be experienced in the installation, operation, startup, and troubleshooting of the valves and actuators.
- C. The manufacturer representatives for maintenance instruction shall, at a minimum, be factory-trained service technicians with a minimum of two years of experience at the manufacturer's factory. The time required for this training shall be as specified for the systems or equipment items.
- D. Qualifications of the individual(s) providing the training shall be provided with the lesson plan submittals.
- E. The number and duration of the vendor training sessions are specified in Attachment B, Vendor Training Sessions. In the case of conflict between Attachment B and the individual technical specification sections, Attachment B shall prevail.
- F. In accordance with the OPERATION AND MAINTENANCE DATA Section (01 78 23), the Draft vendor equipment O&M manuals shall be used as the principal basis for instruction in the training described herein. The vendors shall review contents of the Draft O&M manuals with personnel in detail to explain all aspects of operation and maintenance. The vendors shall prepare and insert data into the O&M manuals (i.e., submitted with the Final O&M manual) when the need for such data becomes apparent during instruction.
- G. Vendor training shall consist of a combination of both classroom and field training. Due to the short time period to install the valves (48 hours), all training will be completed prior to installing the valves.

1.02 SEQUENCE

- A. Coordination and scheduling of the training sessions with District staff shall be initiated immediately after the District issues the Purchase Order for the valves. The District's

representative shall coordinate the training sessions with the Supplier. The training schedule shall be included with any specified commissioning testing schedule.

- B. In accordance with the SUBMITTAL PROCEDURES Section (01 33 00), the Supplier shall submit the training lesson plans and materials at least 60 calendar days prior to the scheduled training session. The District will provide comments to the Supplier within 21 calendar days after receipt of the lessons plans. A formal response to the comments shall be provided to the District within 14 calendar days after receipt of the District comments. Formally agreed upon comments and responses shall be incorporated into the lessons plans and materials.
- C. Unless otherwise specified, all training for the valves and actuators shall be conducted on consecutive working days. At the direction of the District Representative, certain sessions of training may be required to be conducted on specific days of the week to accommodate the attendees' scheduling requirements.
- D. At least 7 calendar days' notice shall be given to the District Representative if the Supplier must postpone any training (including additional training). If any training session is postponed or canceled by the Supplier without at least 7 calendar days' notice, the Supplier shall pay to the District all expenses incurred by the District as a result of the postponement or cancellation. The Supplier is advised that such expenses shall include, but not be limited to, labor for all scheduled attendees, possibly on overtime. At least 21 calendar days' notice shall be required to reschedule any training session postponed at the Supplier's request.

PART 2 -- PRODUCTS

2.01 LESSON PLANS

- A. Formal written lesson plans shall be prepared for each training session and shall include the subject of each training session, qualifications of the individual(s) conducting the training, and the tentative date and time of each training session. Lesson plans shall contain an outline of the material to be presented along with a description of visual aids to be used during the session. Each lesson plan shall contain a time allocation for each subject.
- B. A complete set of lesson plans, training manuals, handouts, visual aids, and reference materials shall be submitted in electronic format, in a form acceptable to the District. In addition, one complete set of original lesson plans, training manuals, handouts, visual aids, and reference materials shall be furnished and will be the property of the District. The documents shall be suitably bound for proper organization and easy reproduction at least one week prior to each training session.
- C. A skeleton lesson plan outline is included as Attachment A, Sample Lesson Plan Outline Contents. At a minimum, lesson plans shall include the information in the outline as well as other information as specified herein.

PART 3 -- EXECUTION

3.01 FORMAT AND CONTENT

- A. During the training, the maintenance instructors shall ensure the methods for performing maintenance activities is compliant with OSHA standards and regulations.
- B. Each training session shall be comprised of time spent both in the classroom and in the field. Attendees may include members of operations, mechanical maintenance, control and instrumentation maintenance, other District personnel, and EchoWater Project personnel. The total hours of training specified shall be divided into sessions which shall be targeted towards the craft attending the session. As a minimum, the following services shall be provided for each item of equipment or system. Additional services shall be provided, where specifically required in the individual technical specification sections.

1. FAMILIARIZATION:

- a. Provide an introduction to center the training on the equipment of concern.
- b. Review catalog, parts lists, drawings, etc., which have been previously provided for the plant files and O&M manuals.
- c. Demonstrate the unit and indicate how all parts of the specifications are met.
- d. Answer questions.

2. SAFETY:

- a. Demonstrate how to acquire, interpret, and apply required process safety information (PSI) for maintenance.
- b. Discuss equipment PSI and lock-out/tag-out (LOTO) procedures.

3. OPERATION:

- a. Demonstrate how to acquire, interpret, and apply standard operating procedures (SOPs) for normal and non-routine modes of operation. The SOPs will reference PSI that explains interlocks and other safety systems.
- b. Review reference literature.
- c. Provide a working knowledge operating theory of the equipment.
- d. Explain the modes of operation such as startup, shutdown, normal operation, and emergency operating procedures.
- e. Discuss, demonstrate, and perform SOPs and monitoring checklists used to make rounds. Discuss and perform startup and shutdown procedures. Formally sign-off the District's personnel on proper use of the equipment.

4. PREVENTIVE MAINTENANCE (PM):

- a. Demonstrate how to acquire, interpret, and apply the PM work orders, SOPs, and LOTO procedures.
- b. Review PM lists including:
 - 1) Reference material including the shop/repair manual.
 - 2) Daily, weekly, monthly, quarterly, semiannual, annual, biennial, or other multiennial PM activities.
 - 3) Routine PM, including specific details on lubrication and maintenance of the equipment and ancillary components for protection against corrosion per industry standards and regulations.
 - 4) Discuss and perform the PM activities.
 - 5) Equipment inspection and troubleshooting procedures including the use of applicable test instruments and the “pass” and “no pass” test instrument readings.
 - 6) Show District personnel what to look for as indicators of equipment problems; operator detection, without test instruments, of specific equipment trouble symptoms.
 - 7) Discuss known wear parts.
 - 8) Required equipment exercise procedures and intervals; perform the required equipment exercise procedures.

5. CORRECTIVE MAINTENANCE (CM):

- a. Provide discussion on the relationship between the corrective issues and the PMs intended to prevent them.
- b. Provide a list of problems from similar installations going back 5 years, if available.
- c. Discuss the repairs necessary to correct these problems.
- d. Demonstrate routine disassembly and assembly of equipment (as judged by the District on a case-by-case basis) for purposes such as operator inspection of equipment.
- e. Discuss overhaul and rebuilding of all components.

6. O&M MANUALS:

- a. Review any other material submitted.
- b. Update material as required.

3.02 DIGITAL RECORDING

- A. The District may retain the services of a commercial digital recording service (or in-house service) to record each training session. After recording, the material will be edited and supplemented with professionally produced graphics to provide a permanent training record.

3.03 LOCATION

- A. Unless otherwise directed, the classroom portion of the training sessions shall take place at the site of the Sacramento Regional Wastewater Treatment Plant.

3.04 TRAINING SCHEDULE

- A. Classes shall be scheduled such that classroom sessions are interspersed with field instruction in a logical sequence. The Supplier shall coordinate the training sessions to prevent overlapping sessions. Sessions shall be arranged so that individual operators and maintenance technicians do not attend more than two sessions per week, or more than four hours per day. Training sessions shall be provided for each work shift listed below during the time periods shown and as coordinated with the District. Pooling of shifts will not be permitted unless a written request is accepted by the District.

Training Sessions

Craft	Day	Time
Operations	Tuesday Wednesday Thursday	Morning session: 7:00 am – 11:00 am Afternoon session: 11:00 am – 3:00 pm
Mechanical Maintenance		
Instrumentation Maintenance		

3.05 ACCEPTANCE

- A. Upon completion of the training for an individual piece of equipment or system, the Supplier shall provide a completed training instruction certification form for the District Representative's signature. These forms will be entered into the District's training management database.

****END OF SECTION****

ATTACHMENT A

SAMPLE LESSON PLAN OUTLINE CONTENTS

Class Title:

Concept/Topic to Teach:

Recommended crafts in attendance:

Industry and Regulatory Standards and Codes Addressed:

General Goal(s):

Specific Objectives:

Required Materials:

Lead-In (start time:finish time):

Step-by-Step Outline of Presentation (with durations):

1. Familiarization
 - a. Introduction
 - b. Purpose and relationships
 - c. Etc.
2. Safety
 - a. Process safety information
 - b. Lock out / Tag out
 - c. Etc.
3. Operation
 - a. Theory of operation
 - b. Modes of operation
 - c. SOPs
 - d. Etc.
4. Preventive Maintenance
 - a. Recommended PMs
 - b. Parts
 - c. Etc.

5. Corrective Maintenance
 - a. Relationship between corrective issues and recommended PMs
 - b. Repairs
 - c. Parts
 - d. Etc.
6. Additional Discussion Points
7. Etc.

Plan for Hands-On Training/Exercises (with durations):

Wrap-Up (Reflect Lead-In) (start time:finish time):

Assessment Based On Objectives:

Connections to Other Training Sessions/Topics:

**Attachment B
Vendor Training Sessions**

Equipment	Specification No.	Initial Vendor Training Hours				Follow-Up Training Hours		
		Operations		Maintenance (Mechanical, Electrical, and/or Instrumentation)		Sessions	Operations	Maintenance
		Sessions	Hrs. Ea.	Sessions	Hrs. Ea.		Hrs. Ea.	Hrs. Ea.
Valves								
Hydraulic Actuators								
Submersible Pumps								
Self-Priming Pumps								

SECTION 40 05 06.13

EXPANSION JOINTS AND FLEXIBLE METAL HOSE

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. SCOPE:

1. This section specifies expansion joints (elastomer and teflon expansion joints, and pump connectors).
2. Provide the following expansion joints:
 - a. Four 72-inch at bypass valves.
 - b. Four 60-inch at suction valves.
 - c. Four 54-inch at pump discharge.

1.02 REFERENCES

- A. REFERENCE STANDARDS: The publications referred to hereinafter form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only. The latest edition of referenced publications in effect at the time of the bid shall govern. In case of conflict between the requirements of this section and the listed standards, the requirements of this section shall prevail.

<u>Reference</u>	<u>Title</u>
ASTM A276-90	Stainless and Heat Resisting Steel Bars and Shapes
EJMA STDS-80	Standards of the Expansion Joint Manufacturers Association, Edition No. 5

B. DEFINITIONS: (Not Used)

1.03 SUBMITTALS

- A. The following information shall be submitted for review in accordance with the SUBMITTAL PROCEDURES Section (01 33 00):
1. A copy of this specification section, with addenda updates, with each paragraph check marked to show specification compliance or marked to show deviation.

2. Design and construction details of expansion joints.
3. Pressure thrust force and spring rate data.
4. Product data, manufacturer's catalog data and details for installation of all expansion joints.

1.04 OPERATIONS AND MAINTENANCE INSTRUCTIONS (NOT USED)

PART 2 -- PRODUCTS

2.01 PERFORMANCE AND SERVICE CONDITIONS

- A. Expansion joints shall be suitable for pressure, temperature, and service as specified in the PIPESPEC sheets included in the COMMON WORK RESULTS FOR PIPING SYSTEMS Section (40 05 03) without crimping of corrugations.

2.02 FABRIC REINFORCED ELASTOMER EXPANSION JOINT

- A. ACCEPTABLE PRODUCTS: Garlock Style 204HP; General Style 1025 or 1075; Goodall Style E-1462 or E-1489; Mason Style EJBN or EJBN-HD; Mercer Style 500 or 510; or equal; modified as required to meet the specifications.
- B. All elastomer expansion joints shall be filled arch construction.
- C. MATERIALS:
 1. Joints shall be of the resilient arch type and shall be standard or tapered as specified herein. Filled arch type shall be used.
 2. Joints shall be constructed of multiple plies of woven fabric impregnated with elastomer and reinforced with steel rings or wire embedded in the body. For temperatures between 180 and 240 degrees F, the tube elastomer shall be chlorobutyl or EPDM. The cover elastomer shall be chlorobutyl, EPDM or neoprene.
 3. Joints shall be provided with galvanized, split backup rings, minimum 3/8 inch thickness. Joints shall also be provided with control restraints to prevent excessive axial elongation and to accept the specified test pressure thrust in the piping system.

PART 3 -- EXECUTION

3.01 GENERAL

A. DESIGN REQUIREMENTS:

1. Expansion joints and anchors are located as shown on the drawings. Location and number of guides shall be determined from standards of the Expansion Joint Manufacturers Association.
2. Expansion joints and connectors shall be installed in accordance with the manufacturer's installation instructions and recommendations, and in accordance with the specifications. The design temperature and pressure shall be rated equal to or higher than the temperature and test pressure listed in the PIPESPEC Sheets included in the COMMON WORK RESULTS FOR PIPING SYSTEMS Section (40 05 03).

3.02 INSTALLATION

A. ALIGNMENT

1. Piping is existing and shall be checked for alignment prior to removing connector and valve.

B. EXPANSION JOINT, COMPENSATOR, CONNECTOR AND HOSE SCHEDULE

1. Expansion joints, compensators, connectors and hoses provided for specific equipment items or piping systems are specified on the following schedule.

EXPANSION JOINT SCHEDULE		
TYPE	MOVEMENT AND USE	SERVICE
Fabric reinforced elastomer expansion joint (FREEJ)	Axial & lateral	Water, secondary effluent, and filtered reclaimed water (Chlorobutyl or EPDM lined)

3.03 TESTING (NOT USED)

3.04 TRAINING (NOT USED)

****END OF SECTION****

SECTION 40 05 57

ACTUATORS FOR PROCESS VALVES

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. SCOPE:

1. This section specifies manual operators and powered actuators for valves and appurtenances.

1.02 REFERENCES

- A. REFERENCE STANDARDS: The publications referred to hereinafter form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only. The latest edition of referenced publications in effect at the time of the bid shall govern. In case of conflict between the requirements of this section and the listed references, the requirements of this section shall prevail.

<u>Reference</u>	<u>Title</u>
ASTM A276	Stainless Steel Bars and Shapes
AWWA C504	Rubber-Seated Butterfly Valves, 3 In. (75 mm) through 72 In. (1,800 mm)
SAE	Society of Automotive Engineers

B. DEFINITIONS:

1. As used in the control valve schedule in the POWER-ACTUATED VALVE SCHEDULE Section (40 06 60.13) operator and actuator types are identified by a 3 to 6 digit code. For actuators with digital bus, use the specification for the first 5 digits and include the digital bus field unit specifications in this section.

OPERATOR & ACTUATOR CODES					
X	X	X	X	X	X
Power Source M – Manual E – Electric P – Pneumatic H – Hydraulic	Transmission C – Cylinder D – Diaphragm G – Gear L – Lever M – Motor S – Acme Stem	Stroke L – Linear M – Multiturn Q – Quarter turn	(Optional) A – AWWA F – Floor box O – Open/close T – Throttling M – Modulating	(Optional) S – Small M -- Medium L – Large	(Optional) D – Digital fieldbus

2. ANTIFRICTION BEARING: The term “antifriiction bearing” shall mean rolling element type bearing.

3. OPEN/CLOSE: To move to the fully open or fully closed position.
4. THROTTLING: To move to the fully open or fully closed position, or to move to and maintain an intermediate position between fully open and fully closed in response to a manually initiated control.
5. MODULATING: To move to the fully open or fully closed position, or to move to intermediate positions in response to a variable control signal.

1.03 SUBMITTALS

- A. The following information shall be submitted for review in accordance with the SUBMITTAL PROCEDURES Section (01 33 00):
 1. A copy of this specification section, with addenda updates, with each paragraph check marked to show specification compliance or marked to show deviations
 2. Manufacturer's information and catalog data showing compliance with this specification and a full description of the product. The product data shall include control valve schedule per the POWER ACTUATED VALVE SCHEDULE Section (40 06 60.13), manual operators, electric, pneumatic, or hydraulic actuators, digital fieldbus network and appurtenances.
 3. Certified shop drawings of the manual gear operators, hydraulic actuator mounting adapter, hydraulic actuator, and assembly drawings of the valve with the mounting adapter and hydraulic actuator installed on the valve.
 4. Spare parts listing in accordance with the OPERATION AND MAINTENANCE DATA Section (01 78 23).

1.04 OPERATION AND MAINTENANCE INSTRUCTIONS

- A. Submit operation and maintenance (O&M) instructions in accordance with the OPERATION AND MAINTENANCE DATA Section (01 78 23) by submitting a copy of the OPERATION AND MAINTENANCE DATA Section (01 78 23) with each paragraph check marked to show compliance. O&M instructions shall be submitted after all submittals specified above have been returned marked "No Exceptions Taken" or "Make Corrections Noted." O&M instructions shall reflect the approved materials and equipment.

PART 2 -- PRODUCTS

2.01 TYPE MGQA OPERATORS

- A. Valves 22FE01 (36"), 22FE02 (36"), 42SE07 (24") and 42SE08 (24") shall be provided with Type MGQA operators.

B. ACCEPTABLE PRODUCTS:

1. Rotork series IW;
2. EIM Type WO or WB;
3. Limitorque series HBC;
4. DynaTorque series DT AWWA;
5. Or equal, modified as required to meet the specifications.

C. MATERIALS/EQUIPMENT:

1. GENERAL:

- a. Type MGQA operators shall be manual gear quarter turn AWWA C504 operators. Torque range: 750 to 120,000 ft-lbs.

2. HOUSING:

- a. Ductile iron, gasketed for weatherproof service. Aluminum housings are not acceptable.

3. GEARING:

- a. Steel worm shaft with bronze worm gear. Provide additional spur and/or right angle gearing as required.

4. INPUT SHAFT:

- a. 304 Stainless steel shaft with antifriction thrust bearings.

5. ROTATION:

- a. Nominal 90 degrees, with externally adjustable travel stops. Provide visual position indicators, with permanent labels to show the open and closed positions on aboveground and overhead applications. Clockwise input shaft rotation equals clockwise output. Counterclockwise to open.

6. SIZE:

- a. Size operator for the full pressure rating of the valve. Maximum handwheel rim pull or input torque shall be in accordance with AWWA C504.

7. OPERATOR:

- a. Valves 22FE01 and 22FE02 shall be provided with a handwheel. Maximum handwheel diameter is 24 inches.

- b. Valves 42SE07 and 42SE08 shall be provided with a 2" AWWA nut.

2.02 TYPE HCQO ACTUATORS

A. GENERAL:

1. Type HCQO actuators are hydraulic cylinder, quarter turn, open/close, double rack and pinion actuators. Size range: 300 in-lbs and greater at 1000 psig.
2. The existing hydraulic power pack, tubing, and controls will be reused. The oil system pressure for the existing hydraulic power pack is 1000 psig.

B. HOUSING:

1. Housing shall be ductile iron with casing relief valve.

C. CYLINDER:

1. Cylinder shall be constructed of chrome plated (0.0003" to 0.0005" finished thickness), heavy wall seamless steel tubing, in accordance with JIC hydraulic standards, and rated for continuous operation at 3000 psi. Cylinder shall be fitted with air bleeders at each end. No leakage past the piston shall be permitted and shall be verified by holding a hydraulic differential pressure of 3000 psi, at an oil temperature between 60 degrees F and 100 degrees F, for a minimum of five minutes. Piston seals shall not adhere to mating surfaces or become damaged upon moving if pressure is applied but cylinder does not operate for periods of at least two months. Pistons shall be self-centering or floating type design to prevent cylinder scoring.

D. RACK AND PINION:

1. Rack and pinion shall be constructed of heat treated chrome alloy steel. Gear teeth shall be of sufficient strength to carry the maximum holding force of each rack at 3000 psi on one pinion tooth. After final machining, the rack and pinion shall be heat treated to a minimum equivalent hardness of Rockwell C-45. Maximum backlash between the rack and the pinion shall not allow a total angular rotation of the pinion gear in excess of 0.5 degrees. The rack or piston shall be provided with wear rings to prevent piston contact with the cylinder walls.

E. SIZING:

1. Size actuator for 1.5 times the valve design torque, at 1000 psig hydraulic pressure. Actuator shall be designed for 3000 psig working pressure and not less than 7500 psig burst pressure. Static proof test actuator at 4500 psig.

F. ROTATION:

1. Rotation shall be 92 degrees.

G. BEARINGS:

1. Timken taper roller bearings shall be used to support the pinion.

H. STROKE ADJUSTERS:

1. Provide externally adjustable 5 degree (+2, -3) stroke adjusters on both opening and closing rotations of the valve.

I. PORTS:

1. Provide SAE straight thread ports.

J. CONNECTION:

1. Female keyed shaft with key at 12:00 O'clock when the valve is in the full open position. Bore shall be sized to fit the full shaft diameter. Reduced shaft diameters are not acceptable.

K. POSITION SWITCHES:

1. Provide position switches to indicate valve open and closed positions. Position switch shall be an environmentally sealed, magnetically operated proximity switch. The switch case shall be Type 303/304 stainless steel. Provide 18 inch, 3 conductor, potted leads. Contacts shall be SPDT silver cadmium oxide, rated 2 amperes at 240 VAC. Sensing range shall be 0.090 inch, with a repeatability of 0.002 inches. Include stainless steel mounting brackets for attachment to the top of the hydraulic actuator.
2. Position switches shall be Go Switch Series 70; or equal, modified as required to meet the specifications.

L. ACCEPTABLE PRODUCTS:

1. Parker Hannifin Series HTR Rotary Actuator; FLO-TORK Spec-Tork Series; modified as required to meet the specifications.

2.03 TYPE HCQM ACTUATORS

A. GENERAL:

1. Type HCQM actuators are hydraulic cylinder, quarter turn, modulating, double rack and pinion actuators. Size range: 300 in-lbs and greater at 1000 psig.
2. The existing hydraulic power pack, tubing, and controls will be reused. The oil system pressure for the existing hydraulic power pack is 1000 psig.

B. HOUSING:

1. Housing shall be ductile iron with casing relief valve.

C. CYLINDER:

1. Cylinder shall be constructed of chrome plated (0.0003” to 0.0005” finished thickness), heavy wall seamless steel tubing, in accordance with JIC hydraulic standards, and rated for continuous operation at 3000 psi. Cylinder shall be fitted with air bleeders at each end. No leakage past the piston shall be permitted and shall be verified by holding a hydraulic differential pressure of 3000 psi, at an oil temperature between 60 degrees F and 100 degrees F, for a minimum of five minutes. Piston seals shall not adhere to mating surfaces or become damaged upon moving if pressure is applied but cylinder does not operate for periods of at least two months. Pistons shall be self-centering or floating type design to prevent cylinder scoring.

D. RACK AND PINION:

1. Rack and pinion shall be constructed of heat treated chrome alloy steel. Gear teeth shall be of sufficient strength to carry the maximum holding force of each rack at 3000 psi on one pinion tooth. After final machining, the rack and pinion shall be heat treated to a minimum equivalent hardness of Rockwell C-45. Maximum backlash between the rack and the pinion shall not allow a total angular rotation of the pinion gear in excess of 0.5 degrees. The rack or piston shall be provided with wear rings to prevent piston contact with the cylinder walls.

E. SIZING:

1. Size actuator for 1.5 times the valve design torque, at 1000 psig hydraulic pressure. Actuator shall be designed for 3000 psig working pressure and not less than 7500 psig burst pressure. Static proof test actuator at 4500 psig.

F. ROTATION:

1. Rotation shall be 92 degrees.

G. BEARINGS:

1. Timken taper roller bearings shall be used to support the pinion.

H. STROKE ADJUSTERS:

1. Provide externally adjustable 5 degree (+2, -3) stroke adjusters on both opening and closing rotations of the valve.

I. PORTS:

1. Provide SAE straight thread ports.

J. CONNECTION:

1. Female keyed shaft with key at 12:00 O'clock when the valve is in the full open position. Bore shall be sized to fit the full shaft diameter. Reduced shaft diameters are not acceptable.

K. CONTROLS:

1. The existing hydraulic controls shall be reinstalled and reconnected to the new valve and actuator.

L. ACCEPTABLE PRODUCTS:

1. Parker Hannifin Series HTR Rotary Actuator; FLO-TORK Spec-Tork Series; modified as required to meet the specifications.

2.04 MOUNTING ADAPTERS

A. MATERIALS/EQUIPMENT:

1. Mounting adapter plates between the valve and hydraulic actuator shall be fabricated from solid carbon steel. Submit mounting adapter design calculations and shop drawings.
2. For mounting adapter sizing purposes, assume the valve is jammed. Size mounting adapters to withstand the maximum operating torque of the operator or actuator, and for a minimum safety factor of 5 based on the yield strength of the material used. For hydraulic actuators, base calculations on 3000 psig hydraulic pressure.
3. Do not attach mounting adapter utilizing valve bonnet bolts, thereby providing for removal of the adapter without taking the valve out of service.
4. For the 54" and 60" valves, provide clearance-fit pins sized to carry the shear loads in the mounting adapter. Bolts or studs shall be used to hold the parts together only. Provide chamfered ends on each pin, and an internal thread on one end for removal.

2.05 NAMEPLATES

- A. Nameplates shall be provided on each item of equipment. Equipment nameplates shall be 16-gauge aluminum bearing the equipment name and equipment number legibly engraved in 3/4 inch high letters. Laser engraving is not acceptable. Nameplates shall be attached to the equipment in an accessible location with stainless steel screws.

PART 3 -- EXECUTION

3.01 GENERAL (NOT USED)

3.02 INSTALLATION

- A. Equipment specified in this section installed in accordance with the manufacturer's instructions.
- B. MANUAL OPERATORS:
 - 1. ACCESSIBILITY:
 - a. Position operators so that they can readily be operated.
 - b. Provide specified handle for operators with centerlines up to 7 feet 6 inches above the operating level. Where these operators are not readily accessible, provide either rigid shaft extensions with universal joints, or flexible shaft extensions so that the handles can be remotely mounted in an accessible location.
 - 2. AWWA NUTS: Provide 2 inch AWWA nuts on buried valves and on valves operated through floor boxes. Extend nut if necessary so nut will be within 6 inches of the valve box cover.
- C. POWERED ACTUATORS:
 - 1. Control valves with powered actuators are specified in the POWER ACTUATED VALVE SCHEDULES Section (40 06 60.13).

3.03 TESTING

- A. Testing of powered actuators shall include the following:
 - 1. Valve operator pre-operational test.
 - 2. Final element calibration test (for analog only).
 - 3. End-to-End I/O test to include verification of communication between the powered actuator and the District's Plant Computer Control System (PCCS).

3.04 TRAINING

- A. Training shall conform to TRAINING Section (01 79 10). The number of training session and hours for each craft shall conform to the requirements of TRAINING Section (01 79 10).

****END OF SECTION****

SECTION 40 05 64

BUTTERFLY VALVES (PRE-PURCHASE)

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. SCOPE:

1. This section specifies requirements for pre-purchase of butterfly valves listed in Table 1 below. Known details of existing valves are also included in Table 1 for reference. The valves are for use on chlorinated final effluent lines from a wastewater treatment plant. The replacement valves shall have the same face to face dimension and bolting arrangement as the existing valves.

Table 1. List of Valves for Pre-Purchase

Valve Tag No	Valve description	Valve size, inch	Face to face dimension, inch	End connection	Existing valve make and model	Actuator
22FE01	WHWS Valve	36	12	Flanged, drilled to ASME B16.1 Class 125	Pratt Triton-XR	Pratt Manual ¼-turn MDT 4 HW
22FE02	WHWS Valve	36	12	Flanged, drilled to ASME B16.1 Class 125	Pratt Triton-XR	Pratt Manual ¼-turn MDT 4 HW
V21305	Effluent Pump # 5 Suction	60	15	Flanged, drilled to ASME B16.1 Class 125	Pratt Triton-XR	Open/Close, Parker Hydraulic; HTR300-0923A-AA19-CXX Cylinder
CV21307	Effluent Pump # 1 Discharge	54	15	Flanged, drilled to ASME B16.1 Class 125	Pratt Triton-XR	Modulating, Pratt Hydraulic

Valve Tag No	Valve description	Valve size, inch	Face to face dimension, inch	End connection	Existing valve make and model	Actuator
CV21309	Effluent Pump # 3 Discharge	54	15	Flanged, drilled to ASME B16.1 Class 125	Pratt Triton-XR	Modulating, Pratt Hydraulic
CV21311	Effluent Pump # 5 Discharge	54	15	Flanged, drilled to ASME B16.1 Class 125	Pratt Triton-XR	Modulating, Parker Hydraulic; HTR300-0921A-AA19-CXX Cylinder
CV21312	Effluent Pump # 6 Discharge	54	15	Flanged, drilled to ASME B16.1 Class 125	Pratt Triton-XR	Modulating, Pratt Hydraulic
42SE07	Effluent Conduit Drainage Valve	24	8	Flanged, drilled to ASME B16.1 Class 125	Pratt XR-70	Pratt Manual ¼-turn MDT 4 with 2" AWWA nut
42SE08	Effluent Conduit Drainage Valve	24	8	Flanged, drilled to ASME B16.1 Class 125	Pratt XR-70	Pratt Manual ¼-turn MDT 4 with 2" AWWA nut

2. The valves shall be supplied for installation by others. Specified installation support, training, and commissioning support shall be included in the scope of work.

1.02 REFERENCES

- A. REFERENCE STANDARDS: The publications referred to hereinafter form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only. The latest edition of referenced publications in effect at the time of the bid shall govern. In case of conflict between the requirements of this section and the listed publications, the requirements of this section shall prevail.

<u>Reference</u>	<u>Title</u>
ASTM A126	Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings

<u>Reference</u>	<u>Title</u>
ASTM A167	Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet and Strip
ASTM A240/A240M	Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications
ASTM A276	Standard Specification for Stainless Steel Bars and Shapes
ASTM A351/A351M	Standard Specification for Castings, Austenitic, for Pressure-Containing Parts
ASTM A395/A395M	Standard Specification for Ferritic Ductile Iron Pressure-Retaining Castings for Use at Elevated Temperatures
ASTM A439	Standard Specifications for Austenitic Ductile Iron Castings
ASTM A536	Standard Specification for Ductile Iron Castings
ASTM A564/A564M	Standard Specification for Hot-Rolled and Cold-Finished Age-Hardening Stainless Steel Bars and Shapes
ASTM A582/A582M	Standard Specification for Free-Machining Stainless Steel Bars
ASTM A743/A743M	Standard Specification for Castings, Iron-Chromium, Iron-Chromium-Nickel, Corrosion Resistant, for General Applications
AWWA C504	Rubber-Seated Butterfly Valves, 3 in. (75mm) Through 72 in. (1,800 mm)

B. DEFINITIONS:

<u>Type</u>	<u>Description</u>
AW150	Eccentric disc AWWA C504 150 psig butterfly valve.

1.03 SUBMITTALS

- A. The following information shall be submitted for review in accordance with the SUBMITTAL PROCEDURES Section (01 33 00):
1. A copy of this specification, with addenda updates, with each paragraph check marked to show specification compliance or marked to show deviations.
 2. Manufacturer's information and catalog data showing compliance with this specification and a full description of the product. Manufacturer's records of tests performed in accordance with AWWA C504 requirements for AWWA style valves.

3. Certified shop drawings for AWWA valves 24 to 72 inches. Shop drawings to include all dimensions for each valve size.
4. Installation instructions.

1.04 OPERATION AND MAINTENANCE INSTRUCTIONS

- A. Submit operation and maintenance (O&M) instructions in accordance with the OPERATION AND MAINTENANCE DATA Section (01 78 23). Submit a copy of the OPERATION AND MAINTENANCE DATA Section (01 78 23) with each paragraph check marked to show compliance. O&M instructions shall be submitted after all submittals specified above have been returned marked "No Exceptions Taken" or "Make Corrections Noted." O&M instructions shall reflect the approved materials and equipment.

1.05 UNIT RESPONSIBILITY

- A. Unit responsibility for the valves and actuators is assigned to the valve manufacturer. The valve manufacturer shall select all components of the system to assure compatibility, ease of construction and efficient maintenance. The valve manufacturer shall coordinate selection and design of all system components such that all equipment furnished under the specification for the equipment system, including equipment specified elsewhere but referenced in the specification, is compatible and operates properly to achieve the performance requirements specified. Agents, representatives or other entities who are not a direct component of the manufacturing corporation shall not be acceptable as a substitute for the manufacturer's corporation in meeting this requirement. This requirement for unit responsibility shall in no way relieve the Supplier of his responsibility for performance of all systems as provided in the RFB Package.
- B. The Supplier shall ensure that all equipment systems provided for the project are products for which unit responsibility has been accepted by the valve manufacturer. Unit Responsibility Certificates shall be signed by an officer of the valve manufacturer's corporation.

PART 2 -- PRODUCTS

2.01 TYPE AW150 VALVES

A. GENERAL:

1. SIZE RANGE: 3 inches to 60 inches
2. Type AW150 valves shall be AWWA C504 butterfly valves, Class 150B. Valves shall provide full bi-directional bubbletight shutoff capability, and shall also provide full bubbletight dead-end service with one flange removed.

B. ACCEPTABLE PRODUCTS:

1. SIZE RANGE: 3 inches to 24 inches
2. GA Industries series 800;
3. Homestead series 820;
4. Val-Matic American-BFV;
5. Or equal, modified as required to meet the specifications.
6. SIZE RANGE: 30 inches to 60 inches
7. Rodney Hunt Streamseal;
8. Mosser series 830;
9. Val-Matic American-BFV;
10. Or equal, modified as required to meet the specifications.

C. MATERIALS:

1. BODY:
 2. Valves shall be of the short body flanged type, and shall have an inside port diameter not less than the inside diameter of the connecting pipe minus one inch. The actual lengths of the valves shall be within 0.0625 inches of the manufacturer's specified length. The body shall be constructed of ASTM A536 ductile iron.
3. DISC:
 - a. SIZE RANGE: 3 inches to 24 inches
 - 1) Valves shall utilize the in-line or eccentric disc design. The disc shall be constructed of ductile iron, ASTM A536 Grade 65-45-12.
 - b. SIZE RANGE: 30 inches to 60 inches
 - 1) Valves shall utilize the eccentric disc design. The disc shall be constructed of ductile iron, ASTM A536 Grade 65-45-12.

4. RESILIENT SEATS:

a. SIZE RANGE: 3 inches to 24 inches

- 1) The interior of the body shall be fully lined with a Buna-N resilient seat, molded and vulcanized to the body.
- 2) Or, the seat shall be a 360 degree uninterrupted seal and shall be retained on the disc or in the body by means of an ASTM A167 or A240/A240M Type 304 stainless steel ring and ASTM A276 or A240/A240M Type 304 stainless steel cap screws. The seat design shall allow for replacement and field adjustment the full 360-degree circumference without dismantling the operator, disc, or shaft. The resilient seat shall be constructed from Buna N.

b. SIZE RANGE: 30 inches to 60 inches

- 1) The seat shall be a 360 degree uninterrupted seal and shall be retained on the disc by means of an ASTM A167 or A240/A240M Type 304 stainless steel ring and ASTM A276 or A240/A240M Type 304 stainless steel cap screws. Seats retained in the body are not acceptable. The seat design shall allow for replacement and field adjustment the full 360-degree circumference without dismantling the operator, disc, or shaft and without removing the valve from the pipeline. Seats that are bonded or vulcanized to the body or disc, or are held in place by epoxy are not acceptable. The resilient seat shall be constructed from Buna N.

5. SEAT MATING SURFACE:

a. SIZE RANGE: 3 inches to 24 inches

- 1) The seat-mating surface shall be constructed of ASTM A276 or A240/A240M Type 304 or 316 stainless steel, and shall be welded to the valve body or disc edge. Sprayed seat mating surfaces are not acceptable.

b. SIZE RANGE: 30 inches to 60 inches

- 1) The seat-mating surface shall be constructed of ASTM A276 or A240/A240M Type 304 or 316 stainless steel, and shall be welded to the valve body. Sprayed seat mating surfaces are not acceptable.

6. SHAFT:

a. SIZE RANGE: 3 inches to 24 inches

- 1) The one-piece shaft or stub shafts shall be constructed of ASTM A276 or A240/A240M Type 304 or 316 stainless steel, or ASTM A564 Type 17-4 PH stainless steel, and shall be turned, ground, and polished.

b. SIZE RANGE: 30 to 60 inches

- 1) The stub shafts shall be constructed of ASTM A276 or A240/A240M Type 316 stainless steel, or ASTM A564 Type 17-4 PH stainless steel, and shall be turned, ground, and polished. The shaft shall be provided with a machined groove in the top end of the shaft, indicating the precise disc position on the shaft.

7. SHAFT SEAL:

- a. Shaft seals shall be self-adjusting Buna-N chevron type, or adjustable Teflon impregnated packing type.

8. BEARINGS:

- a. Upper and lower bearings shall be self-lubricating sleeve bearings.

9. FASTENERS:

- a. All fasteners shall be stainless steel.

10. DIRECTION:

- a. Counterclockwise to open.

11. COATINGS:

- a. The interior and exterior ductile iron or steel surfaces of the valves shall be coated with Carboline Carboguard 891 epoxy coating or Amerlock Series 400 epoxy coating applied to a minimum 10 mils DFT in not less than two coats. Surface preparation shall be in accordance with the coating manufacturer's recommendations.

12. TESTING:

- a. Each valve shall be tested at the factory in accordance with AWWA C504. District representatives shall witness tests at the factory.

2.02 OPERATORS

- A. Manual operators and powered actuators shall be as specified in this specification section and the ACTUATORS FOR PROCESS VALVES Section (40 05 57).
- B. Powered operators shall be as specified in the POWER ACTIVATED VALVE SCHEDULES Section (40 06 60.13) and the ACTUATORS FOR PROCESS VALVES Section (40 05 57).

PART 3 -- EXECUTION

3.01 GENERAL (NOT USED)

3.02 INSTALLATION

- A. Valves will be installed by others with the shafts in the same orientation as the existing valves. Supplier/manufacturer shall furnish a Certificate of Proper Installation (Manufacturer's Installation Certification).
- B. Valves and operators will be installed in accordance with the manufacturer's recommendations.

3.03 TESTING

- A. Valves will be tested with the piping system.
- B. Valves larger than 48-inch shall require a performance test.
- C. Tests for the operators shall be as specified in the ACTUATORS FOR PROCESS VALVES (Section 40 05 57).

3.04 TRAINING (NOT USED)

****END OF SECTION****

SECTION 40 06 60.13

POWER ACTUATED VALVE SCHEDULES

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. SCOPE:

1. This section is a schedule of the power actuated valves for this work.

1.02 REFERENCES (NOT USED)

1.03 SUBMITTALS

- ###### **A. The following information shall be submitted for review in accordance with the SUBMITTAL PROCEDURES Section (01 33 00):**

1. Power actuated valve schedule shall be submitted as specified in the ACTUATORS FOR PROCESS VALVES Section (40 05 57).

1.04 OPERATION AND MAINTENANCE INSTRUCTIONS (NOT USED)

PART 2 -- PRODUCTS

2.01 VALVE SIZING (NOT USED)

PART 3 -- EXECUTION

3.01 GENERAL

- ###### **A. Valve types are defined in their respective specification sections.**
- ###### **B. Actuator types are defined in the ACTUATORS FOR PROCESS VALVES Section (40 05 57).**
- ###### **C. For schedule, see next page.**

3.02 INSTALLATION (NOT USED)

3.03 TESTING (NOT USED)

3.04 TRAINING (NOT USED)

3.05 POWER ACTUATED VALVE SCHEDULE

Valve Number	Service	Valve Size, in.	Valve Type	Actuator Type	Max ΔP , ft of water	Max Flow, mgd	Duty
V21305	Effluent Pump # 5 Suction	60	AW150	HCQO	100	150	Open-Close
CV21307	Effluent Pump # 1 Discharge	54	AW150	HCQM	100	150	Modulating
CV21309	Effluent Pump # 3 Discharge	54	AW150	HCQM	100	150	Modulating
CV21311	Effluent Pump # 5 Discharge	54	AW150	HCQM	100	150	Modulating
CV21312	Effluent Pump # 6 Discharge	54	AW150	HCQM	100	150	Modulating

****END OF SECTION****