TO: James L. App, City Manager

FROM: Doug Monn, Public Works Director

SUBJECT: Water Treatment Plant Membrane Procurement

DATE: March 5, 2013

NEEDS: For the City Council to consider a Water Treatment Plant Membrane Filtration System contract to Pall Corporation.

FACTS:

1. The City will construct a water treatment plant to utilize Lake Nacimiento water.
2. The City is designing a 2.4 million gallon per day (MGD) water treatment plant for construction at its Thunderbird wellfield.
3. One principal component of the proposed water treatment plant is the membrane filtration system.
4. A Pre-engineered membrane system is the most cost effective approach for a water treatment plant of this size.
5. On April 3, 2012 the City Council authorized AECOM to proceed with the design of a surface water treatment plant centered on pre-engineered membrane filtration skids.
6. Pall Corporation manufactured the City's existing pre-engineered 1-MGD microfiltration system that has been in use for over five years to treat Ronconi well water.
7. The City's experience with Pall filtration equipment is consistent with their reputation for providing membranes of industry-leading quality, reliability and durability.
8. The City and Pall Corporation recently finalized the technical specifications and procurement contract for the membrane filtration system for the Phase I Nacimiento Water Treatment plant.
9. Palls price quote is consistent with the engineer's estimate and project budgeting.
10. The Nacimiento Water Treatment Plant design is progressing and is nearly 60% complete. Selection of a membrane supplier is essential to completing the design.
11. Utilizing Pall membranes for the new treatment plant will: (1) provide industry leading filtration technology and reliability (2) limit the amount of additional training City treatment plant operators will need to operate the new facility (3) simplify report preparation to health regulators (4) limit the quantity of spare membranes the City will be required to keep on hand (5) require only one point of contact for all membrane equipment service and supplies.
12. Failure to secure the membrane equipment now would delay final design and start-up of the plant.

ANALYSIS &
CONCLUSION:

Nacimiento water requires specific water treatment protocols due to the raw-water quality and seasonal variations. For example, winter can result in turbidity spikes resulting from precipitation runoff. Similarly, summer water deliveries can have high levels of organic matter and taste and odor causing compounds. Further, there are periodic episodes of high iron and manganese.

The City has firsthand knowledge of the effectiveness and reliability of Pall Corporation's pre-engineered filtration system. Ronconi well water has been treated with a Pall system for over five years using a 1-MGD system marketed as the AP6. This well water requires specialized treatment because it is "under the influence" of surface water and like Nacimiento water, is high in manganese. The City's treatment plant performs remarkably well and the operators find the system to be user friendly and reliable.

Water filter membranes vary significantly among the manufacturers, and are not interchangeable commodities. Pall membranes are known for fiber durability, ability to handle varying influent water quality, high effluent quality, and overall reliability for their pre-engineered systems. The heart of the Phase I Nacimiento plant will consist of two Pall AP6-X systems operating in parallel. The AP6-X is virtually identical to the AP6 (currently owned and operated by the City) except that it contains additional filter modules and has a greater hydraulic capacity. This sizing will result in the new plant being capable of 2.4-MGD.

The City and AECOM have evaluated the Pall Corporation price quote and compared it to the initial engineer's estimate and have concluded that pricing is fair and competitive. Using Pall Corporation as the City's membrane system supplier for the treatment plant will provide numerous advantages and is in the best interest of the City. It is beneficial to continue using technology that has a proven track record, maintains consistent operational and maintenance procedures reducing the likelihood of error, limits the number of spares and suppliers needed to run the City's water treatment plants, and satisfies the City's water quality goals and limited budget.

As provided in Public Contract Section 3400, the Public Works Director has reviewed the facts and found that the Pall equipment can be listed in the bid documents and no substitutions allowed for the purpose of matching equipment that is in use on another City facility. This rule benefits the City by simplifying training, operations and equipment repairs.

POLICY
REFERENCE: 2010 Urban Water Management Plan; Integrated Water Resource Plan; Nacimiento Water Project Entitlement Contract

FISCAL
IMPACT:

Award of the Membrane Filtration System contract would obligate the City to $50,000 for Stage I (design and bid phase service). Commitment to expend the balance of the membrane filtration plant bid amount (Stages II, III, IV) is

predicated on, and included in, the award of the general construction contract for the planned water treatment plant. The total of all four stages is $1.585M per the attached bid.

The City has planned for this project and it has been included in the current Capital Improvement Projects Budget at $12.4M (FY 15/16). The funding for this project will come from Water Operations Funds with a total current balance of $18.6M.

OPTIONS:

A. Adopt Resolution No. 13-xxx authorizing the City Manager to enter into a contract with Pall Corp for $1.585M and to authorize assignment of the Stage II Work to the general contractor at the time of such award. Sufficient funds have been appropriated from the Nacimiento Water Fund to the Nacimiento Water Treatment plant fund account number 226.910.5452.544 to cover the costs of this contract. The total cash balance of $18.6M for all Water Funds includes the $12.4M in Fund 606 Nacimiento Water Fund.

B. Amend, modify or reject the above option.

Prepared by: Christopher Alakel, Water Resources Manager

Attachments: (2)

1) Procurement Contract and Bid form Pall Corporation
2) Resolution

SECTION 004100 BID FORM

ARTICLE 1 – BID RECIPIENT

This Bid is submitted to:

City of El Paso de Robles
Public Works Department
1000 Spring Street
Paso Robles, CA 93446

Attn: Doug Monn, Public Works Director

ARTICLE 2 – BIDDER'S ACKNOWLEDGMENTS

2.01 Bidder accepts the provisions of the Agreement as to liquidated damages in the event of its failure to furnish the Goods and Special Services in accordance with the schedule set forth in the Agreement.

2.02 Bidder accepts the provisions of the Agreement as to the assignment of the Contract for furnishing Goods and Special Services.

2.03 Bidder will comply with all state, federal and local legal requirements applicable to the City's project, including and without limitation to other requirements, compliance with Title VI of the Civil Rights Act of 1964, the California Labor Code Section 1735 provision barring discrimination, the Copeland (Anti-kickback) Act, the Contract Work Hours and Safety Standards Act, and the California Department of Industrial Relations requirements to pay prevailing wages, including weekly certified payrolls, and the State Apprenticeship Requirements in Labor Code Section 1777.5., to the extent that Bidder performs work or services under this contract that are subject to these Labor Code requirements.

The minimum rates of wages applicable to the work to be done at the project site have been determined in accordance with the provisions of Sections 1770, et seq., of the California Labor Code. These rates are set forth in schedules located at the City's office at the address above. These schedules are available for review by any interested party on request. Prevailing wages shall be posted at the job site.

2.04. Bidder acknowledges that in accordance with the provisions of California Public Contract Code Section 22300, securities may be substituted for any monies which the OWNER may withhold pursuant to the terms of the Contract to insure performance.

2.05. Bidder acknowledges that in accordance with Public Contract Code Section 3400, the OWNER has made a finding that particular materials, products, things, or services are

designated by specific brand or trade names in order to match other products in use or obtain necessary items available only from one source.

ARTICLE 3 – BIDDER'S REPRESENTATIONS

3.01. In submitting this Bid, Bidder represents, as set forth in the Agreement, that:

A. Bidder has examined and carefully studied the Bidding Documents, the other related data identified in the Bidding Documents, and the following Addenda, receipt of all of which is hereby acknowledged.

Addendum No.	Addendum Date
not applicable	*not applicable*

B. If specified, or if in Bidder's judgment, any local condition may affect cost, progress or the furnishing of Goods and Special Services, Bidder has visited the Project Site and become familiar with and is satisfied as to the local conditions that may affect cost, progress, or the furnishing of Goods and Special Services.

C. Bidder is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress and the furnishing of Goods and Special Services.

D. Bidder has carefully studied and correlated the information known to Bidder, and information and observations obtained from Bidder's visits, if any, to the Site of the Work with the Bidding Documents.

E. Bidder has given ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by ENGINEER is acceptable to Bidder.

F. The Bidding Documents are generally sufficient to identify and convey understanding of all terms and conditions for furnishing the Goods and Special Services for which this Bid is submitted.

ARTICLE 4 – BASIS OF AWARD; BASIS OF BID

4.01. Award of the Contract, if a contract is awarded, will be on the basis of material and equipment specified or described in the Bidding Documents without consideration of possible "or-equal" items. Whenever it is specified or described in the Bidding Documents that an "or-equal" item of material or equipment may be furnished or used by

CONTRACTOR if acceptable to ENGINEER, application for such acceptance will not be considered by ENGINEER until after the Effective Date of the Agreement. The procedure for submittal of any such application by CONTRACTOR and consideration by ENGINEER is set forth in the General Conditions and supplemented in Section 01015, "Project Requirements."

4.02 Bidder will furnish the Goods and Special Services in accordance with the Contract Documents for the following price(s). Bidder shall include the cost of shipping, sales and use taxes in the Bid Price for Goods and Special Services.

BASE BID FOR GOODS AND SPECIAL SERVICES

Bid Item	Description	Unit	Estd Qty	Unit Price	Amount
1	Stage I Work:	LS	1	--	$50,000
2	Stage II Work:				
2a	Membrane Filtration System	LS	1	--	$1,428,000
2b	Manufacturer Field Services	LS	1	--	$50,000
3	Stage III Work: Support During System Performance Testing				
3a	Round-Trip Travel to Site	Trips	2	$____	$6,000
3b	Service Days On-Site	Days	4	$____	$6,000
4	Stage IV Work: Long Term Operation & Maintenance Services				
4a	Round-Trip Travel to Site	Trips	~~10~~ 20 VC	$____	$30,000
4b	Service Days On-Site	Days	~~10~~ 20 VC	$____	$15,000
	TOTAL BASE BID for Goods and Special Services				$1,585,000
	Replacement Membrane Modules to be provided during Stage II	LS	1	$__	$2450* CPI Adjusted

* To only be used during calculation of price adjustment of prorated module price.

ARTICLE 5 – TIME OF COMPLETION

5.01. Bidder agrees that the furnishing of Goods and Special Services will conform to the schedule set forth in Article 5 of the Agreement.

SIGNATURE OF BIDDER

If a Partnership

By _____
(firm name)

_____
(signature of general partner)

Business address _____

_____

Phone No. _____

Date _____, 20___

If a Corporation

By Pall Corporation
(corporation name)

By _____
(signature of authorized person)

V.P. Pall Corp. Group Controller
(title)

Business address 25 Habor Park Dr.
Port Washington, NY 11050

Phone No. 516-484-3600

Date February 12, 20 13

If a Joint Venture (Other party must sign below.)

If a Partnership

By_____
(firm name)

_____
(signature of general partner)

Business address_____

_____

Phone No._____

Date_____, 20____

If a Corporation

By_____
(corporation name)

By_____
(signature of authorized person)

_____
(title)

Business address_____

_____

Phone No._____

Date_____, 20____

END OF SECTION

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

STANDARD GENERAL CONDITIONS FOR PROCUREMENT CONTRACTS

Prepared by

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly by

ACEC
American Council of Engineering Companies

AGC of America
The Associated General Contractors of America
Quality People. Quality Projects.

ASCE American Society of Civil Engineers

National Society of Professional Engineers
Professional Engineers in Private Practice

AMERICAN COUNCIL OF ENGINEERING COMPANIES

AMERICAN SOCIETY OF CIVIL ENGINEERS

ASSOCIATED GENERAL CONTRACTORS OF AMERICA

PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE
A Practice Division of the
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

These Standard General Conditions for Procurement Contracts have been prepared for use with the Suggested Instructions to Bidders for Procurement Contracts (EJCDC P-200, 2010 Edition), the Agreement Between Buyer and Seller for Procurement Contracts (EJCDC P-520, 2010 Edition), and the Guide to Preparation of Supplementary Conditions for Procurement Contracts (EJCDC P-800, 2010 Edition). Their provisions are interrelated and a change in one may necessitate a change in the others. Additional information concerning the use of the EJCDC Procurement Documents may be found in the Commentary on Procurement Documents (EJCDC P-001, 2010 Edition).

National Society of Professional Engineers
1420 King Street, Alexandria, VA 22314-2794
(703) 684-2882
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American Council of Engineering Companies
1015 15th Street N.W., Washington, DC 20005
(202) 347-7474
http://www.acec.org

American Society of Civil Engineers
1801 Alexander Bell Drive, Reston, VA 20191-4400
(800) 548-2723
http://www.asce.org

Associated General Contractors of America
2300 Wilson Boulevard, Suite 400, Arlington, VA 22201-3308
(703) 548-3118
www.agc.org

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STANDARD GENERAL CONDITIONS FOR PROCUREMENT CONTRACTS

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Whenever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to the singular or plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.

2. *Agreement*—The written instrument signed by both Buyer and Seller covering the Goods and Special Services and which lists the Contract Documents in existence on the Effective Date of the Agreement.

3. *Application for Payment*—The form acceptable to Buyer which is used by Seller in requesting progress and final payments and which is accompanied by such supporting documentation as is required by the Contract Documents.

4. *Bid*— The offer or proposal of a Seller submitted on the prescribed form setting forth the prices for the Goods and Special Services to be provided.

5. *Bidder*—The individual or entity that submits a Bid directly to Buyer.

6. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).

7. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and Bid Form with any supplements.

8. *Buyer*—The individual or entity purchasing the Goods and Special Services.

9. *Change Order*—A document which is signed by Seller and Buyer and authorizes an addition, deletion, or revision to the Contract Documents or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement. Change Orders may be the result of mutual agreement by Buyer and Seller, or of resolution of a Claim.

10. *Claim*—A demand or assertion by Buyer or Seller seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

11. *Contract*—The entire and integrated written agreement between Buyer and Seller concerning the Goods and Special Services. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*—Those items so designated in the Agreement. Shop Drawings and other Seller submittals are not Contract Documents, even if accepted, reviewed, or approved by Engineer or Buyer.

13. *Contract Price*—The moneys payable by Buyer to Seller for furnishing the Goods and Special Services in accordance with the Contract Documents as stated in the Agreement.

14. *Contract Times*—The times stated in the Agreement by which the Goods must be delivered and Special Services must be furnished.

15. *Drawings*—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Goods and Special Services to be furnished by Seller. Shop Drawings and other Seller submittals are not Drawings as so defined.

16. *Effective Date of the Agreement*—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

17. *Engineer*—The individual or entity designated as such in the Agreement.

18. *Field Order*—A written order issued by Engineer which requires minor changes in the Goods or Special Services but which does not involve a change in the Contract Price or Contract Times.

19. *General Requirements*—Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications.

20. *Goods*—The tangible and movable personal property that is described in the Contract Documents, regardless of whether the property is to be later attached to realty.

21. *Goods and Special Services*—The full scope of materials, equipment, other items, and services to be furnished by Seller, including Goods, as defined herein, and Special Services, if any, as defined herein. This term refers to both the Goods and the Special Services, or to either the Goods or the Special Services, and to any portion of the Goods or the Special Services, as the context requires.

22. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

23. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to the Contract Times.

24. *Notice of Award*—The written notice by Buyer to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Buyer will sign and deliver the Agreement.

25. *Notice to Proceed*—A written notice given by Buyer to Seller fixing the date on which the Contract Times commence to run and on which Seller shall start to perform under the Contract.

26. *Point of Destination*—The specific address of the location where delivery of the Goods shall be made, as stated in the Agreement.

27. *Project*—The total undertaking of which the Goods and Special Services may be the whole, or only a part.

28. *Project Manual*—The documentary information prepared for bidding and furnishing the Goods and Special Services. A listing of the contents of the Project Manual is contained in its table of contents.

29. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Goods and Special Services and which establish the standards by which such portion of the Goods and Special Services will be judged.

30. *Seller*—The individual or entity furnishing the Goods and Special Services.

31. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Seller and submitted by Seller to illustrate some portion of the Goods and Special Services.

32. *Special Services*—Services associated with the Goods to be furnished by Seller as required by the Contract Documents.

33. *Specifications*—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the furnishing of the Goods and Special Services, and certain administrative requirements and procedural matters applicable thereto.

34. *Successful Bidder*—The Bidder submitting a responsive Bid, to whom Buyer makes an award.

35. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.

36. *Work Change Directive*—A written statement to Seller issued on or after the Effective Date of the Agreement and signed by Buyer ordering an addition, deletion, or other revision in the Contract Documents with respect to the Goods and Special Services. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

1.02 *Terminology*

A. The words and terms discussed in Paragraphs 1.02.B and 1.02.C are not defined, but have the indicated meanings when used in the Bidding Requirements or Contract Documents.

B. *Intent of Certain Terms or Adjectives:*

1. The Contract Documents include the terms "as allowed," "as approved," "as ordered," "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Goods and Special Services. It is intended that such exercise of professional judgment, action, or determination will be commercially reasonable and will be solely to evaluate, in general, the Goods and Special Services for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective shall not be effective to assign to Engineer any duty or authority to supervise or direct the furnishing of Goods or Special Services or any duty or authority to undertake responsibility contrary to any other provision of the Contract Documents.

2. The word "non-conforming" when modifying the words "Goods and Special Services," "Goods," or "Special Services," refers to Goods and Special Services that fail to conform to the Contract Documents.

3. The word "receipt" when referring to the Goods, shall mean the physical taking and possession by the Buyer under the conditions specified in Paragraph 8.01.B.3.

4. The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

5. The word "furnish," when used in connection with the Goods and Special Services shall mean to supply and deliver said Goods to the Point of Destination (or some other

specified location) and to perform said Special Services fully, all in accordance with the Contract Documents.

C. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds*

A. When Seller delivers the executed counterparts of the Agreement to Buyer, Seller also shall deliver such bonds as Seller may be required to furnish.

2.02 *Evidence of Insurance*

A. When Seller delivers the executed counterparts of the Agreement to Buyer, Seller shall deliver to Buyer, with copies to each additional insured identified by name in the Supplementary Conditions, certificates of insurance and endorsements ~~(and other evidence of insurance which either of them or any additional insured may reasonably request)~~ which Seller is required to purchase and maintain in accordance with Article 4.

2.03 *Copies of Documents*

A. Buyer shall furnish Seller up to five printed or hard copies of the Contract Documents. Additional copies will be furnished upon request at the cost of reproduction.

2.04 *Commencement of Contract Times; Notice to Proceed*

A. The Contract Times will commence to run on the date stated in the City's Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. The City shall also deliver an electronic copy of the Notice to Proceed to Seller on the same date that the Contract Times will commence to run as stated in the Notice to Proceed. ~~In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.~~

2.05 *Designated Representatives*

A. Buyer and Seller shall each designate its representative at the time the Agreement is signed. Each representative shall have full authority to act on behalf of and make binding decisions in any matter arising out of or relating to the Contract.

2.06 *Progress Schedule*

A. ~~Within 15 days after the Contract Times start to run, Seller shall submit to Buyer and Engineer an acceptable progress schedule of activities, including at a minimum, Shop Drawing and~~

~~Sample submittals, tests, and deliveries as required by the Contract Documents. No progress payment will be made to Seller until an acceptable schedule is submitted to Buyer and Engineer.~~

~~B. The progress schedule will be acceptable to Buyer and Engineer if it provides an orderly progression of the submittals, tests, and deliveries to completion within the specified Milestones and the Contract Times. Such acceptance will not impose on Buyer or Engineer responsibility for the progress schedule, for sequencing, scheduling, or progress of the work nor interfere with or relieve Seller from Seller's full responsibility therefor. Such acceptance shall not be deemed to acknowledge the reasonableness and attainability of the schedule.~~

2.07 *Preliminary Conference*

A. Within 20 days after the Contract Times start to run, a conference attended by Seller, Buyer, Engineer and others as appropriate will be held to establish a working understanding among the parties as to the Goods and Special Services and to discuss the schedule referred to in Paragraph 2.06.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

2.08 *Safety*

A. Buyer and Seller shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss. When Seller's personnel, or the personnel of any subcontractor to Seller, are present at the Point of Destination or any work area or site controlled by Buyer, the Seller shall be responsible for the compliance by such personnel with any applicable requirements of Buyer's safety programs that are made known to Seller.

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT AND AMENDING

3.01 *Intent*

A. The Contract Documents are complementary; what is called for by one is as binding as if called for by all.

~~B. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce or furnish the indicated Goods and Special Services will be provided, whether or not specifically called for, at no additional cost to Buyer.~~

C. Clarifications and interpretations of, or notifications of minor variations and deviations in, the Contract Documents, will be issued by Engineer as provided in Article 9.

3.02 *Standards, Specifications, Codes, Laws and Regulations*

A. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws and Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws and Regulations in effect at the

time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

B. No provision of any such standard, specification, manual or code, or any instruction of a supplier shall be effective to change the duties or responsibilities of Buyer or Engineer, or any of their subcontractors, consultants, agents, or employees from those set forth in the Contract Documents, nor shall any such provision or instruction be effective to assign to Buyer or Engineer, or any of their consultants, agents, or employees any duty or authority to supervise or direct the performance of Seller's obligations or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies:*

1. *Seller's Review of Contract Documents Before the Performance of the Contract*: Before performance of the Contract, Seller shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Seller shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Seller discovers or has actual knowledge of and shall obtain a written interpretation or clarification from Engineer before proceeding with the furnishing of any Goods and Special Services affected thereby.

2. *Seller's Review of Contract Documents During the Performance of the Contract:* If, during the performance of the Contract, Seller discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any Law or Regulation applicable to the performance of the Contract, any standard, specification, manual or code, or of any instruction of any Supplier, Seller shall promptly report it to Engineer in writing. Seller shall not proceed with the furnishing of the Goods and Special Services affected thereby until an amendment to or clarification of the Contract Documents has been issued.

3. Seller shall not be liable to Buyer or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Seller had actual knowledge thereof.

B. *Resolving Discrepancies:* Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

1. the provisions of any standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or

2. the provisions of any Laws or Regulations applicable to the furnishing of the Goods and Special Services (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Clarifying Contract Documents*

A. The Contract Documents may be amended to provide for additions, deletions, and revisions to the Goods and Special Services or to modify contractual terms and conditions by a Change Order.

B. Buyer may issue a Work Change Directive providing for additions, deletions, or revisions to the Goods and Special Services, in which case (1) the Contract Price shall be equitably adjusted to account for any reasonable and necessary credits to Buyer for any such deletion, or for costs (including reasonable overhead and profit) incurred by Seller to accommodate such an addition or revision and (2) the Contract Times shall be equitably adjusted to account for any impact on progress and completion of performance. Such adjustments subsequently shall be duly set forth in a Change Order.

C. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Goods and Special Services may be authorized, by one or more of the following ways:

1. A Field Order;

2. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 5.06.D.3); or

3. Engineer's written interpretation or clarification.

ARTICLE 4 – BONDS AND INSURANCE

~~4.01 *Bonds*~~

~~A. Seller shall furnish to Buyer performance and payment bonds, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of all of Seller's obligations under the Contract Documents. These bonds shall remain in effect until 1) one year after the date when final payment becomes due or 2) completion of the correction period specified in Paragraph 8.03, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Seller shall also furnish such other bonds as are required by the Contract Documents.~~

~~B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.~~

C. If the surety on any bond furnished by Seller is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 4.01.B, Seller shall promptly notify Buyer and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 4.01.B and 4.02.

4.02 *Insurance*

A. Seller shall provide insurance of the types and coverages and in the amounts stipulated in the Supplementary Conditions.

B. Failure of Buyer to demand certificates of insurance or other evidence of Seller's full compliance with these insurance requirements or failure of Buyer to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Seller's obligation to maintain such insurance.

C. Upon assignment of this Contract, Seller shall comply with the written request of assignee to provide certificates of insurance to assignee.

D. Buyer does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Seller.

E. The insurance and insurance limits required herein shall not be deemed as a limitation on Seller's liability under the indemnities granted to Buyer in the Contract Documents.

4.03 *Licensed Sureties and Insurers*

A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Buyer or Seller **(other than Seller's products liability insurance)** shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

ARTICLE 5 – SELLER'S RESPONSIBILITIES

5.01 *Supervision and Superintendence*

A. Seller shall supervise, inspect, and direct the furnishing of the Goods and Special Services competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform its obligations in accordance with the Contract Documents. Seller shall be solely responsible for the means, methods, techniques, sequences, and procedures necessary to perform its obligations in accordance with the Contract Documents. Seller shall not be responsible for the negligence of Buyer or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure that is shown or indicated in and expressly required by the Contract Documents.

5.02 *Labor, Materials and Equipment*

A. Seller shall provide competent, qualified and trained personnel in all aspects of its performance of the Contract.

B. All Goods, and all equipment and material incorporated into the Goods, shall be as specified, and unless specified otherwise in the Contract Documents, shall be:

1. new, and of good quality;

2. protected, assembled, connected, cleaned, and conditioned in accordance with the original manufacturer's instructions; and

3. shop assembled to the greatest extent practicable.

5.03 *Laws and Regulations*

A. Seller shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of its obligations in accordance with the Contract Documents. Except where otherwise expressly required by such Laws and Regulations, neither Buyer nor Engineer shall be responsible for monitoring Seller's compliance with any Laws or Regulations.

B. If Seller furnishes Goods and Special Services knowing or having reason to know that such furnishing is contrary to Laws or Regulations, Seller shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) **caused by such violation of Laws or Regulations**. It shall not be Seller's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this provision shall not relieve Seller of Seller's obligations under Paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance shall be the subject of an adjustment in Contract Price or Contract Times. If Buyer and Seller are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 9.06.

5.04 *Or Equals*

A. Whenever the Goods, or an item of material or equipment to be incorporated into the Goods, are specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular supplier or manufacturer, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no "or-equal" item is permitted, other items of material or equipment or material or equipment of other suppliers or manufacturers may be submitted to Buyer for Engineer's review.

1. If in Engineer's sole discretion, such an item of material or equipment proposed by Seller is functionally equal to that named and sufficiently similar so that no change in related work will be required, it may be considered by Engineer as an "or-equal" item.

2. For the purposes of this paragraph, a proposed item of material or equipment may be considered functionally equal to an item so named only if:

   a. in the exercise of reasonable judgment, Engineer determines that: 1) it is at least equal in quality, durability, appearance, strength, and design characteristics; 2) it will reliably perform at least equally well the function imposed by the design concept of the completed Project as a functioning whole; 3) it has an acceptable record of performance and availability of responsive service; and

   b. Seller certifies that if approved: 1) there will be no increase in any cost, including capital, installation or operating costs, to Buyer; and 2) the proposed item will conform substantially to the detailed requirements of the item named in the Contract Documents.

B. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraph 5.04.A. Engineer will be the sole judge of whether to accept or reject such a proposal or submittal. No "or-equal" will be ordered, manufactured or utilized until Engineer's review is complete, which will be evidenced by an approved Shop Drawing. Engineer will advise Buyer and Seller in writing of any negative determination. Notwithstanding Engineer's approval of an "or-equal" item, Seller shall remain obligated to comply with the requirements of the Contract Documents.

C. *Special Guarantee:* Buyer may require Seller to furnish at Seller's expense a special performance guarantee or other surety with respect to any such proposed "or-equal."

D. *Data:* Seller shall provide all data in support of any such proposed "or-equal" at Seller's expense.

5.05 *Taxes*

A. Seller shall be responsible for all taxes and duties arising out of the sale of the Goods and the furnishing of Special Services. All taxes are included in the Contract Price, except as noted in the Supplementary Conditions.

5.06 *Shop Drawings and Samples*

A. Seller shall submit Shop Drawings and Samples to Buyer for Engineer's review and approval in accordance with the schedule required in Paragraph 2.06.A. All submittals will be identified as required and furnished in the number of copies specified in the Contract Documents. The data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Seller proposes to provide.

B. Where a Shop Drawing or Sample is required by the Contract Documents, any related work performed prior to Engineer's approval of the pertinent submittal will be at the sole expense and responsibility of Seller.

C. *Submittal Procedures:*

1. Before submitting each Shop Drawing or Sample, Seller shall have determined and verified:

   a. all field measurements (if required), quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto; and

   b. that all materials are suitable with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the furnishing of Goods and Special Services.

2. Seller shall also have reviewed and coordinated each Shop Drawing or Sample with the Contract Documents.

3. Each submittal shall bear a stamp or include a written certification from Seller that Seller has reviewed the subject submittal and confirmed that it is in compliance with the requirements of the Contract Documents. Both Buyer and Engineer shall be entitled to rely on such certification from Seller.

4. With each submittal, Seller shall give Buyer and Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both in a written communication separate from the submittal and by specific notation on each Shop Drawing or Sample.

D. *Engineer's Review:*

1. Engineer will provide timely review of Shop Drawings and Samples.

2. Engineer's review and approval will be only to determine if the Goods and Special Services covered by the submittals will, after installation or incorporation in the Project, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole.

3. Engineer's review and approval shall not relieve Seller from responsibility for any variation from the requirements of the Contract Documents unless Seller has complied with the requirements of Paragraph 5.06.C.4 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Seller from responsibility for complying with the requirements of Paragraph 5.06.C.1.

E. *Resubmittal Procedures:*

1. Seller shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Seller shall direct specific attention in writing to any revisions other than the corrections called for by Engineer on previous submittals.

5.07 *Continuing Performance*

A. Seller shall adhere to the progress schedule established in accordance with Paragraph 2.06.A., and the Goods shall be delivered and the Special Services furnished within the Contract Times specified in the Agreement, or established by the Construction Contractor pending agreement on modified Contract Times with Seller.

B. Seller shall carry on furnishing of the Goods and Special Services and adhere to the progress schedule during all disputes or disagreements with Buyer. No furnishing of Goods and Special Services shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraphs 11.03 or 11.04, or as Buyer and Seller may otherwise agree in writing.

5.08 *Seller's Warranties ~~and Guarantees~~*

A. Seller warrants ~~and guarantees~~ to Buyer that upon delivery the title to the Goods conveyed shall be proper, its transfer rightful, and free from any security interest, lien, or other encumbrance..

B. **Limited Warranties**–moved to 00730

B. ~~Seller warrants and guarantees to Buyer that all Goods and Special Services will conform with the Contract Documents, including any Samples approved by Engineer, and the Goods will be free from defects in material and workmanship. Owner and Engineer shall be entitled to rely on Seller's warranty and guarantee. This warranty shall not apply to any equipment that is specified or otherwise demanded by the Buyer and is not manufactured or selected by the Seller, as to which Seller hereby assigns to Buyer, to the extent assignable, any warranties made to Seller. Seller shall be liable to Owner for performance of the Membrane Filtration System as a whole, provided that the Membrane Filtration System is constructed and operated in accordance with written information received from Seller~~

C. Seller's warranty ~~and guarantee~~ hereunder excludes defects or damage caused by:

1. abuse, improper modification, or maintenance, installation or operation not in accordance with the Contract Documents or written information provided by Seller, by persons other than Seller; or

2. corrosion or chemical attack, unless corrosive or chemically-damaging conditions were disclosed by Buyer in the Contract Documents and the Contract Documents required the Goods to withstand such conditions;

3. use in a manner contrary to Seller's written instructions for installation, operation, and maintenance or negligence of persons other than Seller;

4. normal wear and tear under normal usage~~.~~**;**

5. foreign debris, casualty, or accident; and

6. Damage caused by chemical action or abrasive materials other than those normally involved in operation of the Membrane Filtration System for its intended purpose, misuse or improper installation (unless installed by or on behalf of Seller).".

In no event shall Seller be liable for any Goods repaired, or altered by someone other than Seller other than pursuant to written authorization by Seller.

D. Seller's obligation to furnish the Goods and Special Services in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Goods and Special Services that are non-conforming, or a release of Seller's obligation to furnish the Goods and Special Services in accordance with the Contract Documents:

1. observations by Buyer or Engineer;

2. recommendation by Engineer or payment by Buyer of any progress or final payment;

3. use of the Goods by Buyer;

4. any acceptance by Buyer (subject to the provisions of Paragraph 8.02.D.1) or any failure to do so;

5. the issuance of a notice of acceptance by Buyer pursuant to the provisions of Article 8;

6. any inspection, test or approval by others; or

7. any correction of non-conforming Goods and Special Services by Buyer.

E. Buyer shall promptly notify Seller of any breach of Seller's warranties ~~or guarantees~~.

F. Seller makes no implied warranties under this Contract.

5.09 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, Seller shall indemnify, defend and hold harmless Buyer and Engineer, and the officers, directors, members, partners, employees, agents, consultants, contractors, and subcontractors of each and any of them from and against all **third party** claims, costs, losses, liability, penalties, fines, actions, causes of action, judgments and

damages (including reasonable attorneys' fees) ~~provided that any such claim, cost, loss, or damages attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Goods themselves), including the loss of use resulting therefrom~~ caused by the breach of contract, violation of statute, negligence, or willful misconduct of Seller or any individual or entity directly or indirectly employed by Seller or anyone for whose acts Seller may be liable in connection with the Goods or Special Services. **Seller's duty to defend Buyer and Engineer and the officers, directors, members, partners, employees, agents, consultants, contractors, and subcontractors of each and any of them shall arise immediately upon Buyer's written tender of each third party claim, cost, loss, liability, penalty, fine, action, cause of action, judgment or damage.**

B. **To the fullest extent permitted by Laws and Regulations, Buyer shall indemnify and hold harmless Seller and its officers, directors, members, employees, agents, , contractors, and subcontractors of each and any of them from and against all third party claims, costs, losses, and damages (including reasonable attorneys' fees) arising out of or relating to the performance of Buyer's obligations under the Contract Documents, but only to the extent caused by any grossly negligent act or willful misconduct of Buyer, or any individual or entity directly or indirectly employed by Buyer or anyone for whose acts Buyer may be liable.**

In any and all claims against Buyer or any of their respective assignees, consultants, agents, officers, directors, members, partners, employees, agents, consultants, contractors, or subcontractors, by any employee (or the survivor or personal representative of such employee) of Seller, any subcontractor, any supplier, or any individual or entity directly or indirectly employed by any of them to furnish any of the Goods and Special Services, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 5.09.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for seller or any such subcontractor, supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of Seller under Paragraph 5.09.A shall not extend to the liability of Engineer and Engineer's officers, directors, partners, employees, agents, and consultants arising out of:

1. the preparation or approval of, or the failure to prepare or approve, maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or

2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

5.10 *Delegation of Professional Design Services*

A. Seller will not be required to provide professional design services unless such services are specifically required by the Contract Documents or unless such services are required to carry out

Seller's responsibilities for furnishing the Goods and Special Services. Seller shall not be required to provide professional services in violation of applicable law.

B. If professional design services or certifications by a design professional related to the Goods and Special Services are specifically required of Seller by the Contract Documents, Buyer and Engineer will specify the performance and design criteria that such services must satisfy. Seller shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Goods and Special Services designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

C. Buyer and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Buyer and Engineer have specified to Seller all performance and design criteria that such services must satisfy.

D. Pursuant to this Paragraph 5.10, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 5.06.D.2.

E. Seller shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

ARTICLE 6 – SHIPPING AND DELIVERY

6.01 *Shipping*

A. Seller shall select the carrier and bear all costs of packaging, transportation, insurance, special handling and any other costs associated with shipment and delivery.

6.02 *Delivery*

A. Seller shall deliver the Goods **F.O.**B. the Point of Destination in accordance with the Contract Times set forth in the Agreement, or other date agreed to by Buyer and Seller.

B. Seller shall provide written notice to Buyer at least 10 days before shipment of the manner of shipment and the anticipated delivery date. The notice shall also include any instructions concerning special equipment or services required at the Point of Destination to unload and care for the Goods. Seller shall also require the carrier to give Buyer at least 24 hours notice by telephone prior to the anticipated time of delivery.

C. Buyer will be responsible and bear all costs for unloading the Goods from carrier.

D. Buyer will assure that adequate facilities are available to receive delivery of the Goods during the Contract Times for delivery set forth in the Agreement, or another date agreed by Buyer and Seller.

E. No partial deliveries shall be allowed, unless permitted or required by the Contract Documents or agreed to in writing by Buyer.

6.03 *Risk of Loss*

A. Risk of loss, and insurable interests transfer from Seller to Buyer **after delivery of Goods to Buyer and after** Buyer **has examined and accepted** the Goods.

B. Notwithstanding the provisions of Paragraph 6.03.A, if Buyer rejects the Goods as non-conforming, the risk of loss on such Goods shall remain with Seller until Seller corrects the non-conformity or Buyer accepts the Goods. ~~If rejected Goods remain at the Point of Destination pending modification and acceptance, then Seller shall be responsible for arranging adequate protection and maintenance of the Goods at Seller's expense.~~

6.04 *Progress Schedule*

A. Seller shall adhere to the progress schedule established in accordance with Paragraph 2.06 as it may be adjusted from time to time as provided below.

1. Seller shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.06) proposed adjustments in the progress schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the progress schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 7. Adjustments in Contract Times may only be made by a Change Order.

ARTICLE 7 – CHANGES: SCHEDULE AND DELAY

7.01 *Changes in the Goods and Special Services*

A. Buyer may at any time, without notice to any surety, **request** an addition, deletion, or other revision to the Contract Documents with respect to the Goods and Services, within the general scope of the Contract, by a Change Order or Work Change Directive**; provided however that no changes to the Contract Documents will be binding on Seller unless memorialized in a Change Order**. Upon **full execution of the applicable Change Order** ~~receipt of any such document~~, Seller shall promptly proceed with performance pursuant to the revised Contract Documents (except as otherwise specifically provided)**, provided, however, that if Buyer and Seller cannot agree on the adjustment to the Contract Price or Contract Time in time to avoid material delay to the Project, Seller will proceed with the changes as directed by Buyer and the parties will negotiate in good faith to finalize the Change Order.**

B. ~~If Seller concludes that a Work Change Directive issued by Buyer affects the Contract Price or Contract Times, then Seller shall notify Buyer~~ **prior to performance of Work Change Directive**~~, and submit written supporting data to Buyer within 45 days after such receipt. If Seller fails to notify Buyer within 15 days, Seller waives any Claim for such adjustment. If Buyer and Seller are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 9.06.~~

C. Seller shall not suspend performance while Buyer and Seller are in the process of making such changes and any related adjustments to Contract Price or Contract Times.

7.02 *Changing Contract Price or Contract Times*

A. The Contract Price or Contract Times may only be changed by a Change Order.

B. Any Claim for an adjustment in the Contract Price or Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 9.06.

C. If Seller is prevented from delivering the Goods or performing the Special Services within the Contract Times for any unforeseen reason beyond its control and not attributable to its actions or inactions, then Seller shall be entitled to an adjustment of the Contract Times to the extent attributable to such reason. Such reasons include but are not limited to acts or neglect by Buyer, inspection delays, fires, floods, epidemics, abnormal weather conditions, acts of God, other like matters. If such an event occurs and delays Seller's performance, Seller shall notify Buyer in writing within 15 days of knowing or having reason to know of the beginning of the event causing the delay, stating the reason therefor.

D. Seller shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Seller. Delays attributable to and within the control of Seller's subcontractors or suppliers shall be deemed to be delays within the control of Seller.

E. If Seller is prevented from delivering the Goods or furnishing the Special Services within the Contract Times due to the actions or inactions of Buyer, Seller shall be entitled to any reasonable and necessary additional costs arising out of such delay to the extent directly attributable to Buyer.

F. Neither Buyer nor Seller shall be entitled to any damages arising from delays which are beyond the control of both Buyer and Seller, including but not limited to fires, floods, epidemics, abnormal weather conditions, acts of God, and other like matters.

ARTICLE 8 – BUYER'S RIGHTS

8.01 *Inspections and Testing*

A. *General:*

1. The Contract Documents specify required inspections and tests. Buyer shall have the right to ~~perform, or~~ cause to be performed, specified inspections and require specified tests of the Goods at Seller's facility, and at the Point of Destination. Seller shall allow Buyer a reasonable time for such inspections or tests of the Goods at the Point of Destination.

2. ~~Seller shall reimburse Buyer for all expenses, except for travel, lodging, and subsistence expenses of Buyer's and Engineer's representatives, for inspections and tests specified in the Contract Documents. If as the result of any such specified testing the Goods are determined to be non-conforming, then Seller shall also bear the travel, lodging, and subsistence expenses of Buyer's and Engineer's representatives, and all expenses of re-inspection or retesting.~~

3. ~~Buyer shall bear all expenses of inspections and tests that are not specified in the Contract Documents (other than any re-inspection or retesting resulting from a determination of non-conformity, as set forth in Paragraph 8.01.A.2 immediately above); provided, however, that if as the result of any such non-specified inspections or testing the Goods are determined to be non-conforming, then Seller shall bear all expenses of such inspections and testing, and of any necessary re-inspection and retesting.~~

4. Seller shall provide Buyer timely written notice of the readiness of the Goods for all inspections, tests, or approvals which the Contract Documents specify are to be observed by Buyer prior to shipment.

5. Buyer will give Seller timely notice of all specified tests, inspections, and approvals of the Goods which are to be conducted at the Point of Destination.

6. If, on the basis of any inspections or testing, the Goods appear to be conforming, Buyer will give Seller prompt notice thereof. If on the basis of said inspections or testing, the Goods appear to be non-conforming, Buyer will give Seller prompt notice thereof and will advise Seller of the remedy Buyer elects under the provisions of Paragraph 8.02.

7. Neither payments made by Buyer to Seller prior to any tests or inspections, nor any tests or inspections shall constitute acceptance of non-conforming Goods, or prejudice Buyer's rights under the Contract.

B. Inspection on Delivery:

1. Buyer or Engineer will visually inspect the Goods upon delivery solely for purposes of identifying the Goods and general verification of quantities and observation of apparent condition in order to provide a basis for a progress payment. Such visual inspection will not be construed as final or as receipt of any Goods and Special Services that, as a result of subsequent inspections and tests, are determined to be non-conforming.

2. ~~Within~~ Buyer shall promptly, and not later than thirty days ~~of~~ **after** delivery, provide Seller with written notice of Buyer's determination regarding conformity of the Goods.

In the event Buyer does not provide such notice, it will be presumed that the Goods appear to be conforming and that Buyer has acknowledged their receipt upon delivery.

3. If, on the basis of the visual inspection specified in Paragraph 8.01.B.1, the Goods appear to be conforming, Buyer's notice thereof to Seller will acknowledge receipt of the Goods.

C. Final Inspection:

1. After all of the Goods have been incorporated into the Project, tested in accordance with such testing requirements as are specified, and are functioning as indicated, Buyer or Engineer will make a final inspection.

2. If, on the basis of the final inspection, the Goods are conforming, Buyer's notice thereof will constitute Buyer's acceptance of the Goods.

3. If, on the basis of the final inspection, the Goods are non-conforming, Buyer will identify the non-conformity in writing.

8.02 *Non-Conforming Goods and Special Services*

A. If, on the basis of inspections and testing prior to delivery, the Goods and Special Services are found to be non-conforming, or if at any time after Buyer has acknowledged receipt of delivery and before the expiration of the correction period described in Paragraph 8.03, Buyer determines that the Goods and Special Services are non-conforming, then Seller shall promptly, without cost to Buyer and in response to written instructions from Buyer, either correct such non-conforming Goods and Special Services, or, if Goods are rejected by Buyer, remove and replace the non-conforming Goods with conforming Goods, including all work required for reinstallation.

B. Buyer's Rejection of Non-Conforming Goods:

1. If Buyer elects to reject the Goods in whole or in part, Buyer's notice to Seller will describe in sufficient detail the non-conforming aspect of the Goods. If Goods have been delivered to Buyer, Seller shall promptly, and within the Contract Times, remove and replace the rejected Goods.

2. Seller shall bear all costs, losses and damages attributable to the ~~removal and~~ replacement of the non-conforming Goods as provided in Paragraph 8.02.E.

3. Upon rejection of the Goods, Buyer retains a security interest in the Goods to the extent of any payments made and expenses incurred in their testing and inspection**, and Seller shall execute such security agreements, UCC-1, or other documents as Buyer may reasonably request**.

C. Remedying Non-Conforming Goods and Special Services:

1. If Buyer elects to permit the Seller to modify the Goods to correct the non-conformance, then Seller shall promptly provide a schedule for such modifications and shall make the Goods conforming within a reasonable time.

2. If Buyer notifies Seller in writing that any of the Special Services are non-conforming, Seller shall promptly provide conforming services acceptable to Buyer. ~~If Seller fails to do so, Buyer may delete the Special Services and reduce the Contract Price a commensurate amount.~~

D. Buyer's Acceptance of Non-Conforming Goods:

Instead of requiring correction or removal and replacement of non-conforming Goods discovered either before or after final payment, Buyer may accept the non-conforming Goods **and Buyer and Seller will negotiate an adjustment in the Contract Price (which may, subject to negotiation, include all of the following: fees and charges for re-inspection, retesting and for any engineers, architects, attorneys and other professionals,** to account for such nonconforming Goods.) ~~Seller shall bear all reasonable costs, losses, and damages attributable to Buyer's evaluation of and determination to accept such non-conforming Goods as provided in Paragraph 8.02.E.~~

E. ~~Seller shall pay all claims, costs, losses, and damages, including but not limited to all fees and charges for re-inspection, retesting and for any engineers, architects, attorneys and other professionals, and all court or arbitration or other dispute resolution costs arising out of or relating to the non-conforming Goods and Special Services. Seller's obligations shall include the costs of the correction or removal and replacement of the non-conforming Goods and the replacement of property of Buyer and others destroyed by the correction or removal and replacement of the non-conforming Goods, and obtaining conforming Special Services from others.~~

F. *Buyer's Rejection of Conforming Goods:*

If Buyer asserts that Goods and Special Services are non-conforming and such Goods and Special Services are determined to be conforming, or if Buyer rejects as non-conforming Goods and Special Services that are later determined to be conforming, then Seller shall be entitled to reimbursement from Buyer of costs incurred by Seller in inspecting, testing, correcting, removing, or replacing the conforming Goods and Special Services, including but not limited to fees and charges of engineers, architects, attorneys and other professionals, and all court or arbitration or other dispute resolution costs associated with the incorrect assertion of non-conformance or rejection of conforming Goods and Special Services.

8.03 *Correction Period*

A. Seller's responsibility for correcting all non-conformities in the Goods and Special Services will extend for a period of one year after the earlier of the date on which Buyer has placed the Goods in continuous service or the date of final payment, ~~or for such longer period of time as may be~~

~~prescribed by Laws or Regulations~~ or by the terms of the warranty requirements of the Contract Documents.

ARTICLE 9 – ROLE OF ENGINEER

9.01 *Duties and Responsibilities*

A. The duties and responsibilities and the limitations of authority of Engineer are set forth in the Contract Documents.

9.02 *Clarifications and Interpretations*

A. Engineer will issue with reasonable promptness such written clarifications or interpretations of the Contract Documents as Engineer may determine necessary, which shall be consistent with or reasonably inferable from the overall intent of the Contract Documents. Such written clarifications and interpretations will be binding on Buyer and Seller. If either Buyer or Seller believes that a written clarification or interpretation justifies an adjustment in the Contract Price or Contract Times, either may make a Claim therefor.

9.03 *Authorized Variations*

A. Engineer may authorize minor deviations or variations in the Contract Documents by: 1) written approval of specific variations set forth in Shop Drawings when Seller has duly noted such variations as required in Paragraph 5.06.C.4, or 2) a Field Order.

9.04 *Rejecting Non-Conforming Goods and Special Services*

A. Engineer will have the authority to disapprove or reject Goods and Special Services that Engineer believes to be non-conforming. Engineer will also have authority to require special inspection or testing of the Goods or Special Services as provided in Paragraph 8.01 whether or not the Goods are fabricated or installed, or the Special Services are completed.

9.05 *Decisions on Requirements of Contract Documents*

A. Engineer will be the initial interpreter of the Contract Documents and judge of the acceptability of the Goods and Special Services. Claims, disputes and other matters relating to the acceptability of the Goods and Special Services or the interpretation of the requirements of the Contract Documents pertaining to Seller's performance will be referred initially to Engineer in writing with a request for a formal decision in accordance with this paragraph.

B. When functioning as interpreter and judge under this Paragraph 9.05, Engineer will not show partiality to Buyer or Seller and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity. The rendering of a decision by Engineer pursuant to this Paragraph 9.05 with respect to any such Claim, dispute, or other matter (except any which have been waived by the making or acceptance of final payment as provided in Paragraph 10.07) will be a condition precedent to any exercise by Buyer or Seller of such rights

or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any such Claim, dispute, or other matter.

9.06 *Claims and Disputes*

A. ~~*Notice*: Written notice of each Claim relating to the acceptability of the Goods and Special Services or the interpretation of the requirements of the Contract Documents pertaining to either party's performance shall be delivered by the claimant to Engineer and the other party to the Agreement within 15 days after the occurrence of the event giving rise thereto, and written supporting data shall be submitted to Engineer and the other party within 45 days after such occurrence unless Engineer allows an additional period of time to ascertain more accurate data.~~

B. ~~*Engineer's Decision*: Engineer will review each such Claim and render a decision in writing within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any.~~

C. ~~If Engineer does not render a formal written decision on a Claim within the time stated in Paragraph 9.06.B., Engineer shall be deemed to have issued a decision denying the Claim in its entirety 31 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any.~~

D. ~~Engineer's written decision on such Claim or a decision denying the Claim in its entirety that is deemed to have been issued pursuant to Paragraph 9.06.C, will be final and binding upon Buyer and Seller 30 days after it is issued unless within 30 days of issuance Buyer or Seller appeals Engineer's decision by initiating the mediation of such Claim in accordance with the dispute resolution procedures set forth in Article 13.~~

E. ~~If Article 13 has been amended to delete the mediation requirement, then Buyer or Seller may appeal Engineer's decision within 30 days of issuance by following the alternative dispute resolution process set forth in Article 13, as amended; or if no such alternative dispute resolution process has been set forth, Buyer or Seller may appeal Engineer's decision by 1) delivering to the other party within 30 days of the date of such decision a written notice of intent to submit the Claim to a court of competent jurisdiction, and 2) within 60 days after the date of such decision instituting a formal proceeding in a court of competent jurisdiction.~~

F. ~~No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 9.06.~~

G. ~~The parties agree to endeavor to avoid or resolve Claims through direct, good faith discussions and negotiations whenever practicable. Such discussions and negotiations should at the outset address whether the parties mutually agree to suspend the time periods established in this Paragraph 9.06; if so, a written record of such mutual agreement should be made and jointly executed.~~

ARTICLE 10 - PAYMENT

10.01 *Applications for Progress Payments*

A. Seller shall submit to Buyer for Engineer's review Applications for Payment filled out and signed by Seller and accompanied by such supporting documentation as is required by the Contract Documents and also as Buyer or Engineer may reasonably require. The timing and amounts of progress payments shall be as stipulated in the Agreement.

B. During Stage II, Seller shall submit its Applications for Payment to both Buyer and City.

~~1. The first application for Payment will be submitted after review and approval by Engineer of all Shop Drawings and of all Samples required by the Contract Documents.~~

~~2. The second Application for Payment will be submitted after receipt of the Goods has been acknowledged in accordance with Paragraph 8.01.B and will be accompanied by a bill of sale, invoice, or other documentation reasonably satisfactory to Buyer warranting that Buyer has rightfully received good title to the Goods from Seller and that, upon payment, the Goods will be free and clear of all liens. Such documentation will include releases and waivers from all parties with viable lien rights. In the case of multiple deliveries of Goods, additional Applications for Payment accompanied by the required documentation will be submitted as Buyer acknowledges receipt of additional items of the Goods.~~

~~10.01.B. Initial Acceptance of Schedules. Unless otherwise provided in the Contract Documents, at least ten days before submission of the first Application for Payment, a conference attended by SELLER, ENGINEER, and others as appropriate will be held to review for acceptability to ENGINEER as provided below the schedules submitted in accordance with paragraph 10.01 C. SELLER shall have an additional ten days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to SELLER until acceptable schedules are submitted to ENGINEER.~~

~~1. The progress schedule will be acceptable to ENGINEER if it provides an orderly progression of the Goods and Special Services to completion within any specified Milestones and Contract Times. Such acceptance will not impose on ENGINEER responsibility for the progress schedule, for sequencing, scheduling, or progress of the Goods and Special Services nor interfere with or relieve SELLER from SELLER'S full responsibility therefore.~~

~~2. SELLER'S schedule of all submittals will be acceptable to ENGINEER if it provides a workable arrangement for reviewing and processing the required submittals.~~

~~10.01.C. Applications for Progress Payments.~~

~~1. At least 10 days before the date established for each progress payment (but not more often than once a month), SELLER shall submit to ENGINEER for review an Application for~~

~~Payment filled out and signed by SELLER covering the Goods and Special Services completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not delivered to the Point of Destination but suitably stored at another location agreed to in writing by the ENGINEER, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that BUYER has received the materials and equipment free and clear of all Liens caused by or through SELLER and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect BUYER'S interest therein, all of which must be satisfactory to BUYER.~~

~~2. Beginning with the second Application for Payment, each Application shall include an affidavit of SELLER stating that all previous progress payments received on account of the Goods and Special Services have been applied on account to discharge SELLER'S legitimate obligations associated with prior Applications for Payment.~~

10.02 *Review of Applications for Progress Payments*

A. Engineer will, within ten days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Buyer, or return the Application to Seller indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Seller may make the necessary corrections and resubmit the Application.

1. Engineer's recommendation of payment requested in the first Application for Payment will constitute a representation by Engineer, based on Engineer's review of the Application for Payment and the accompanying data, that the Shop Drawings and Samples have been reviewed and approved as required by the Contract Documents and Seller is entitled to payment of the amount recommended.

2. Engineer's recommendation of payment requested in the Application for Payment submitted upon Buyer's acknowledgment of receipt of the Goods will constitute a representation by Engineer, based on Engineer's review of the Application for Payment and the accompanying data Seller is entitled to payment of the amount recommended. Such recommendation will not constitute a representation that Engineer has made a final inspection of the Goods, that the Goods are free from non-conformities, acceptable or in conformance with the Contract Documents, that Engineer has made any investigation as to Buyer's title to the Goods, that exhaustive or continuous inspections have been made to check the quality or the quantity of the Goods beyond the responsibilities specifically assigned to Engineer in the Contract Documents or that there may not be other matters or issues between the parties that might entitle Seller to additional payments by Buyer or Buyer to withhold payment to Seller.

3. Engineer may refuse to recommend that all or any part of a progress payment be made, or Engineer may nullify all or any part of any payment previously recommended if, in

Engineer's opinion, such recommendation would be incorrect or if on the basis of subsequently discovered evidence or subsequent inspections or tests Engineer considers such refusal or nullification necessary to protect Buyer from loss because the Contract Price has been reduced, Goods are found to be non-conforming, or Seller has failed to furnish acceptable Special Services.

10.03 *Amount and Timing of Progress Payments*

A. Subject to Paragraph 10.02.A., the amounts of the progress payments will be as provided in the Agreement. Buyer shall, within 30 days **during Stages I, III, IV** and **within 45 days during Stage II**, after receipt of each Application for Payment with Engineer's recommendation ~~within 45 days for Stage II)~~ pay Seller the amount recommended; ~~but, in the case of the Application for Payment upon Buyer's acknowledgment of receipt of the Goods, said 30-day period may be extended for so long as is necessary (but in no event more than 60 days) for Buyer to examine the bill of sale and other documentation submitted therewith~~. Buyer shall notify Seller promptly of any deficiency in the documentation and shall not unreasonably withhold payment.

10.04 *Suspension of or Reduction in Payment*

A. Buyer may suspend or reduce the amount of progress payments, even though recommended for payment by Engineer, under the following circumstances:

1. Buyer has reasonable grounds to conclude that Seller will not furnish the Goods or the Special Services in accordance with the Contract Documents, and

2. Buyer has requested in writing assurances from Seller that the Goods and Special Services will be delivered or furnished in accordance with the Contract Documents, and Seller has failed to provide adequate assurances within ten days of Buyer's written request.

B. If Buyer refuses to make payment of the full amount recommended by Engineer, Buyer will provide Seller and Engineer prompt written notice stating the reason for such action and promptly pay Seller any amount remaining after deduction of the amount withheld. Buyer shall promptly pay Seller the amount withheld when Seller corrects the reason for such action to Buyer's satisfaction.

10.05 *Final Application for Payment*

A. After Seller has corrected all non-conformities to the reasonable satisfaction of Buyer and Engineer, furnished all Special Services, and delivered all documents required by the Contract Documents, Engineer will issue to Buyer and Seller a notice of acceptance. Seller may then make application for final payment following the procedure for progress payments. The final Application for Payment will be accompanied by all documentation called for in the Contract Documents, a list of all unsettled Claims, and such other data and information as Buyer or Engineer may reasonably require.

10.06 *Final Payment*

A. If, on the basis of final inspection and the review of the final Application for Payment and accompanying documentation, Engineer is reasonably satisfied that Seller has furnished the Goods and Special Services in accordance with the Contract Documents, and that Seller's has fulfilled all other obligations under the Contract Documents, then Engineer will, within ten days after receipt of the final Application for Payment, recommend in writing final payment subject to the provisions of Paragraph 10.07 and present the Application to Buyer. Otherwise, Engineer will return the Application to Seller, indicating the reasons for refusing to recommend final payment, in which case Seller shall make the necessary corrections and resubmit the Application for payment. If the Application and accompanying documentation are appropriate as to form and substance, Buyer shall, within 30 days after receipt thereof, pay Seller the Final Payment amount, less any sum Buyer is entitled to set off, including but not limited to liquidated damages to which Buyer is entitled.

10.07 *Waiver of Claims*

A. The making and acceptance of final payment will constitute:

1. a waiver of all Claims by Buyer against Seller, except Claims arising from unsettled liens, from non-conformities in the Goods or Special Services appearing after final payment, **or for latent defects in any of the Goods or Special Services, warranty, indemnity or from Seller's continuing obligations under the Contract Documents**; and

2. a waiver of all Claims by Seller against Buyer other than those previously made in accordance with the requirements herein and listed by Seller as unsettled as required in Paragraph 10.05.A, and not resolved in writing.

ARTICLE 11 – CANCELLATION, SUSPENSION, AND TERMINATION

11.01 *Cancellation*

A. Buyer has the right to cancel the Contract, without cause at any time prior to delivery of the Goods by written notice. Cancellation pursuant to the terms of this paragraph shall not constitute a breach of contract by Buyer. Upon cancellation:

1. Buyer shall pay Seller for the direct costs incurred in producing any Goods that Seller has specially manufactured for the Project, plus a fair and reasonable amount for overhead and profit.

2. For Goods that are not specially manufactured for the Project, Seller shall be entitled to a restocking charge of 10 percent of the unpaid Contract Price of such Goods.

11.02 *Suspension of Performance by Buyer*

A. Buyer has the right to suspend performance of the Contract for up to a maximum of ninety days, without cause, by written notice. Upon suspension under this paragraph, Seller shall be entitled to an increase in the Contract Times and Contract Price caused by the suspension, provided that performance would not have been suspended or delayed for causes attributable to Seller.

11.03 *Suspension of Performance by Seller*

A. Subject to the provisions of Paragraph 5.07.B, Seller may suspend the furnishing of the Goods and Special Services only under the following circumstance:

1. Seller has reasonable grounds to conclude that Buyer will not perform its future payment obligations under the Contract; and,

2. Seller has requested in writing assurances from Buyer that future payments will be made in accordance with the Contract, and Buyer has failed to provide such assurances within ten days of Seller's written request.

11.04 *Breach and Termination*

A. **Termination for Cause. Either Party shall have the right to terminate this Agreement, in whole or in part, for cause by written notice to the other Party at any time if the defaulting Party fails to perform any of its material obligations contained in this Agreement (including, without limitation, the payment of the money), unless such breach is cured, or a mutually agreed plan to cure is accepted by the non-defaulting Party, within fifteen (15) days of delivery of written notice of such default to the defaulting Party**; provided, however, that if the nature of such breach cannot reasonably be cured within such fifteen (15) day period, the defaulting Party shall not be deemed to be in breach if the Parties shall within such fifteen (15) day period enter into a written agreement as to how the breach will be cured, and the defaulting Party commences such cure and thereafter diligently prosecute the same to completion. ~~Buyer's Breach:~~

~~1. Buyer shall be deemed in breach of the Contract if it fails to comply with any material provision of the Contract Documents, including but not limited to:~~

~~a. wrongful rejection or revocation of Buyer's acceptance of the Goods,~~

~~b. failure to make payments in accordance with the Contract Documents, or~~

~~c. wrongful repudiation of the Contract.~~

~~2. Seller shall have the right to terminate the Contract for cause by declaring a breach should Buyer fail to comply with any material provisions of the Contract. Upon termination, Seller shall be entitled to all remedies provided by Laws and Regulations.~~

~~a. In the event Seller believes Buyer is in breach of its obligations under the Contract, Seller shall provide Buyer with reasonably prompt written notice setting forth in sufficient detail the reasons for declaring that it believes a breach has occurred. Buyer shall have seven days from receipt of the written notice declaring the breach (or such longer period of time as Seller may grant in writing) within which to cure or to proceed diligently to cure such alleged breach.~~

B. ~~Seller's Breach:~~

C. Seller shall be deemed in breach of the Contract if it fails to comply with any material provision of the Contract Documents, including, but not limited to:

b. failure to deliver the Goods or perform the Special Services in accordance with the Contract Documents,

c. wrongful repudiation of the Contract, or

d. delivery or furnishing of non-conforming Goods and Special Services.

3. Buyer may terminate Seller's right to perform the Contract for cause by declaring a breach should Seller fail to comply with any material provision of the Contract Documents. Upon termination, Buyer shall be entitled to all remedies provided by Laws and Regulations.

a. In the event Buyer believes Seller is in breach of its obligations under the Contract, and except as provided in Paragraph 11.04.B.2.b, Buyer shall provide Seller with reasonably prompt written notice setting forth in sufficient detail the reasons for declaring that it believes a breach has occurred. Seller shall have seven days from receipt of the written notice declaring the breach (or such longer period of time as Buyer may grant in writing) within which to cure or to proceed diligently to cure such alleged breach.

b. If and to the extent that Seller has provided a performance bond under the provisions of Paragraph 4.01, the notice and cure procedures of that bond, if any, shall supersede the notice and cure procedures of Paragraph 11.04.B.2.a.

ARTICLE 12 – LICENSES AND FEES

12.01 *Intellectual Property and License Fees*

A. Unless specifically stated elsewhere in the Contract Documents, Seller is not transferring any intellectual property rights~~,~~ **or** patent rights~~, or licenses~~ for the Goods delivered. ~~However, in the event the Seller is manufacturing to Buyer's design, Buyer retains all intellectual property rights in such design.~~

B. Seller shall, and hereby does, **grant to Buyer, a non-exclusive, non-transferable, royalty free** license to use all **the intellectual property included in the Special Goods and Services to the**

extent necessary and solely for Purchaser's use of the Goods, unless specified otherwise by the Contract Documents. **Pall shall provide a backup copy of the PLC software upon execution of a confidentiality agreement.** LRB: need Pall to provide a draft confidentiality agreement so the PLC software is delivered with the other equipment.

12.02 *Seller's Infringement*

A. **Subject to Paragraph 12.01.A, and except to the extent related to 12.03, Seller shall** indemnify, defend and hold harmless Buyer, Engineer and their officers, directors, members, partners, employees, agents, consultants, contractors, and subcontractors from and against all claims, costs, losses, damages, and judgments (including but not limited to all reasonable **attorneys'** fees and charges of engineers, architects, attorneys and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement or alleged infringement of any **third party's** United States or foreign patent or copyright by any of the Goods as delivered hereunder **when used in accordance with Seller's written direction or specifications.**

B. In the event of suit or threat of suit for intellectual property infringement, Buyer will promptly notify Seller **in writing within twenty (20) days after** receiving notice thereof.

C. Seller shall promptly defend the claim or suit, including negotiating a settlement. Seller shall have control over such claim or suit, and Seller shall bear all expenses and to satisfy any adverse judgment thereof.

1. If Seller fails to defend such suit or claim after written notice by Buyer, Seller will be bound in any subsequent suit or claim against Seller by Buyer by any factual determination in the prior suit or claim.

2. If Buyer fails to provide Seller the opportunity to defend such suit or claim after written notice by Seller, Buyer shall be barred from any remedy against Seller for such suit or claim.

D. If a determination is made that Seller has infringed upon intellectual property rights of another, Seller **shall, at Buyer's option,** obtain the necessary licenses for Buyer's benefit, or replace the Goods and provide related design and construction as necessary to avoid the infringement at Seller's own expense

12.03 *Buyer's Infringement*

A. Buyer shall indemnify and hold harmless Seller, and its officers, directors, partners, employees, agents, consultants, contractors, and subcontractors from and against all claims, costs, losses, damages, and judgments (including but not limited to all reasonable fees and charges of engineers, architects, attorneys and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement or alleged infringement of any third party's United States or foreign patent or copyright caused by Buyer's use of the Goods **in a manner different from that shown in the Contract Documents; a modification of the Goods by someone other than Seller without Seller's authorization (installation of the**

Goods by Contractor is authorized by Seller); or the use of the Goods in combination with other materials or equipment in any process different from that shown in the Contract Documents or ~~unless intent of such use was known to Seller and Seller had reason to know such infringement would result).~~

B. In the event of suit or threat of suit for intellectual property infringement, Seller must **in writing within twenty (20) days** after receiving notice thereof promptly notify Buyer.

C. Upon written notice from Seller, Buyer shall be given the opportunity to defend the claim or suit, including negotiating a settlement. Buyer shall have control over such claim or suit, provided that Buyer agrees to bear all expenses and to satisfy any adverse judgment thereof.

1. If Buyer fails to defend such suit or claim after written notice by Seller, Buyer will be bound in any subsequent suit or claim against Buyer by Seller by any factual determination in the prior suit or claim.

2. If Seller fails to provide Buyer the opportunity to defend such suit or claim after written notice by Buyer, Seller shall be barred from any remedy against Buyer for such suit or claim.

12.04 *Reuse of Documents*

A. Neither Seller nor any other person furnishing any of the Goods and Special Services under a direct or indirect contract with Seller shall: (1) acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media versions; or (2) reuse any of such Drawings, Specifications, other documents, or copies thereof on any other project without written consent of Buyer and Engineer and specific written verification or adaptation by Engineer. This prohibition will survive termination or completion of the Contract. Nothing herein shall preclude Seller from retaining copies of the Contract Documents for record purposes.

12.05 *Electronic Data*

A. Unless otherwise stated in the Supplementary Conditions, copies of data furnished by Buyer or Engineer to Seller, or by Seller to Buyer or Engineer that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.

B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. The transferring party will correct any errors detected within the 60-day acceptance period.

C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

ARTICLE 13 – DISPUTE RESOLUTION

13.01 *Dispute Resolution Method*

A. ~~Either Buyer or Seller may initiate the mediation of any Claim decided in writing by Engineer under Paragraph 9.06.B or 9.06.C before such decision becomes final and binding.~~ **In the event of a dispute under this Agreement which cannot be resolved in the normal course of business (a "Dispute"), the parties shall follow the dispute resolution process as set forth herein (the "Dispute Resolution Procedure"). A Party may declare that a Dispute exists by written notice to the other Party ("Dispute Notice"). Within 10 business days after receipt of the Dispute Notice by the receiving Party, each Party will escalate the Dispute to a senior executive in its organization who has not been directly involved in the Dispute (an "Executive"). Each Party shall provide to its Executive: a copy of this Agreement and a summary of the relevant facts and areas of disagreement related to the Dispute. The Executives from each Party shall meet in person to discuss the Dispute at least once at the Site, unless such Executives mutually agree in writing to an alternative procedure or location. If an Executive intends to be accompanied at a meeting by an attorney, the other Executive shall be given at least three business days' written notice of such intention and may also be accompanied by an attorney. If the Executives do not resolve the Dispute within 30 days after receipt of the Dispute Notice, then the Dispute will be submitted to private, non-binding mediation with a mutually agreed upon mediator.** The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the other party to the Contract. ~~Timely submission of the request shall stay the Engineer's decision from becoming final and binding.~~

B. Buyer and Seller shall participate in the mediation process in good faith. ~~The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.~~ **The Parties shall select a single qualified mediator, knowledgeable in the industry, who is not affiliated with or related to either Party. The mediator shall hold a hearing as soon as practicable after his appointment (the "Hearing Date") during which each Party shall present its version of the matter, supported, if desired, by a brief statement of the issue(s); testimony, relevant documents, its assessment of damages, and its argument. At least 10 days before the Hearing Date, each Party shall provide to the mediator all of the documents provided to its Executive pursuant to clause (a) above. The Parties shall have the right to be represented by one or more attorneys of their choice at any mediation proceeding. The Parties shall share the costs of the mediator equally. Each Party will bear its own costs of mediation.**

C. ~~If the mediation process does not result in resolution of the Claim, then Engineer's written decision under Paragraph 9.06.B or a denial pursuant to Paragraph 9.06.C shall become final and~~

~~binding 30 days after termination of the mediation unless, within that time period, Buyer or Seller:~~ **Within five business days of the Hearing Date, the mediator will provide to each Party, on a confidential basis, his/her written views of the strengths and weaknesses of their respective positions. The Parties will reconvene with the mediator within 15 days of the Hearing Date and attempt to resolve the matter. If the Parties cannot achieve resolution within 48 hours of this second meeting, the mediator will, within ten additional days, issue a written, non-binding decision on the Dispute. If either Party is unwilling to accept the non-binding decision of the mediator, either Party may elect to pursue resolution through litigation.**

D. All statutory or contractual limitations that limit a Party's right to litigate will be stayed for the duration of the Dispute Resolution Procedure. The Parties shall continue to perform all obligations under this Agreement during any dispute resolution procedure.

E. The Dispute Resolution Procedure and all documents, negotiations, discussions and disclosures related to or made in connection therewith shall be considered confidential, shall be treated as compromise and settlement negotiations for purposes of Federal Rule of Evidence 408 and any state law, and shall not and may not be used by any Party (including either Party's successors, affiliates, subsidiaries, and assigns, representatives, officers, directors, employees or shareholders) in or in connection with any arbitration or judicial, administrative or regulatory proceeding in any country for any reason. Except as provided in clause (f) below, all offers, promises, communications and statements, whether oral or written, and any other actions during the course of such negotiation by either Party are confidential, privileged and may not be disclosed (including by the mediator); and (ii) are inadmissible, are not discoverable and may not be used (or referred to) for any purpose, including impeachment or any other testimony, in any such proceeding.

F. Notwithstanding the foregoing: (i) an executed written settlement agreement by the Parties will be considered binding and may be enforced by the Parties to the settlement agreement; and (ii) information disclosed to or known by a Party through sources other than the Dispute Resolution Procedure, or that is otherwise discoverable or admissible, shall not be rendered confidential, privileged, inadmissible or not discoverable solely as a result of its use in the Dispute Resolution Procedure provided that the mediator will be disqualified as a witness, consultant or expert for either Party.

~~1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions, or~~

~~2. agrees with the other party to submit the Claim to another dispute resolution process, or~~

~~3. if no dispute resolution process has been provided for in the Supplementary Conditions, delivers to the other party written notice of the intent to submit the Claim to a court of competent jurisdiction, and within 60 days of the termination of the mediation institutes such formal proceeding.~~

ARTICLE 14 - MISCELLANEOUS

14.01 *Giving Notice*

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if: 1) delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or 2) if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

14.02 *Controlling Law*

A. This Contract is to be governed by the law of the state in which the Point of Destination is located.

B. In the case of any conflict between the express terms of this Contract and the Uniform Commercial Code, as adopted in the state whose law governs, it is the intent of the parties that the express terms of this Contract shall apply.

14.03 *Computation of Time*

A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day shall be omitted from the computation.

14.04 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents, and the provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

14.05 *Survival of Obligations*

A. All ~~representations,~~ indemnifications, warranties ~~and guarantees~~ made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Goods and Special Services and termination or completion of the Agreement.

14.06 *Entire Agreement*

A. Buyer and Seller agree that this Agreement is the complete and final agreement between them, and supersedes all prior negotiations, representations, or agreements, either written or oral. This

Agreement may not be altered, modified, or amended except in writing signed by an authorized representative of both parties.

SECTION 007300 SUPPLEMENTARY CONDITIONS

SCOPE. These Supplementary Conditions amend or supplement the Standard General Conditions for Procurement Contracts (Section 007000) and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

The terms used in these Supplementary Conditions have the meanings indicated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings indicated below, which are applicable to both the singular and plural thereof.

SC-1. DEFINITIONS AND TERMINOLOGY.

SC-1.01. Defined Terms.

Delete Paragraph 1.01.A.33 of the General Conditions in its entirety and replace with the following paragraph:

33. *Successful Bidder* – The Bidder to whom BUYER makes an award.

Add the following new definitions to Paragraph 1.01.A. of the General Conditions:

BUYER – Shall be synonymous with OWNER.

OWNER – City of Paso Robles, California.

without exception - The term "without exception", when used in the Contract Documents following the name of a Supplier or a proprietary item of equipment, product, or material, shall mean that the sources of the product are limited to the listed Suppliers or products and that no like, equivalent, or "or-equal" item and no substitution will be permitted.

CONTRACTOR OR CONSTRUCTION CONTRACTOR – General Contractor who will be constructing the Water Treatment Plant Project. Not under Contract by this document.

SUPPLIER – Shall be synonymous with the SELLER.

MS Supplier – Membrane System Supplier shall be synonymous with SELLER.

SUBSTANTIAL COMPLETION – Seller's work shall be considered substantially complete when the Membrane Filtration System is installed and operational and capable of being operated through the SCADA system, as demonstrated by successful completion of the System Demonstration Testing specified in Specification 466133. All startup activities (with the exception of performance

testing), training of personnel, and submission of O&M Manuals shall be completed prior to the date of Substantial Completion.

Technical Specifications – Shall include but not be limited to specification sections 405000, 405080, and 466133.

SC-2. PRELIMINARY MATTERS.

SC-2.04 Designated Representatives. Insert the following text at the end of Paragraph A:

"; provided, however, that Change Orders increasing the Contract Price may require approval by the City Council."

SC-2.06 Progress Schedules. Delete this section in its entirety.

SC-3. CONTRACT DOCUMENTS: INTENT AND AMENDING.

SC-3.04 Amending and Clarifying Contract Documents. Modify Paragraph 3.04.B of the General Conditions as follows:

In the 4th Line, insert "subject to the Seller's approval" after "authorized"

SC-4. BONDS AND INSURANCE.

Delete Article 4 of the General Conditions in its entirety, and insert the following text in its place:

ARTICLE 4 – BONDS AND INSURANCE

SC-4.01. Performance and Other Bonds.

A. SELLER shall furnish a Performance Bond in an amount at least equal to one hundred (100) percent of the Contract Price for the Goods and Special Services included in Stage II as security for the faithful performance of all of SELLER'S obligations under the Contract Document, and a Payment Bond in accordance with Civil Code sections 9550 et seq. to secure payment of all SELLER'S obligations under the Contract Documents to be performed in Stage II. Seller will deliver the bonds to Buyer within ten days of the date it receives a Notice to Proceed with the Goods and Special Services to be performed during Stage II.

B. All Bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety

Bond Branch, U.S. Department of the Treasury. All Bonds signed by an agent must be accompanied by a certified copy of such agent's authority to act.

C. If the surety on any Bond furnished by SELLER is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 4.01.B, SELLER shall within 20 days thereafter substitute another Bond and surety, both of which shall comply with the requirements of Paragraphs 4.01.B and 4.02, at no additional cost to the OWNER.

SC-4.02. Licensed Sureties and Insurers.

A. All Bonds and insurance required by the Contract Documents to be purchased and maintained by SELLER shall be obtained from surety or insurance companies that are duly licensed or authorized in the State of California to issue Bonds or insurance policies for the limits and coverages so required.

SC-4.03 Seller's Insurance.

A. Without limiting Contractor's indemnification of City, and within ten (10) days after award of the Contract, Contractor shall obtain, provide and maintain at its own expense during the term of this Agreement, policies of insurance of the type and amounts described below and in a form satisfactory to City.

B. **Workers' Compensation Insurance.** Contractor shall maintain Workers' Compensation Insurance (Statutory Limits) and Employer's Liability Insurance (with limits of at least one million dollars ($1,000,000)) for Contractor's employees in accordance with the laws of the State of California, Section 3700 of the Labor Code. In addition, Contractor shall require each subcontractor to similarly maintain Worker's Compensation Insurance and Employer's Liability Insurance in accordance with the laws of the State of California, Section 3700 for all of the subcontractor's employees.

C. Contractor shall submit to City, along with the certificate of insurance, a Waiver of Subrogation endorsement in favor of the City, its elected and appointed officers, agents, officials, employees and volunteers.

D. **General Liability Insurance.** Contractor shall maintain commercial general liability insurance with coverage at least as broad as Insurance Services Officer form CG 00 01, in an amount not less than one million ($1,000,000) per occurrence, two million dollars ($2,000,000) general aggregate, for bodily injury, personal injury, and property damage, including without limitation, blanket contractual

liability, products liability, and a one million ($1,000,000) completed operations aggregate. Products liability will be covered under a separate policy, but required limits will be provided.

E. **Automobile Liability Insurance.** Contractor shall maintain automobile insurance at least as broad as Insurance Services Office form CA 00 01 covering bodily injury and property damage for all activities of the Contractor arising out of or in connection with Work to be performed under this Agreement, including coverage for any owned, hired, non-owned or rented vehicles, in an amount not less than one million ($1,000,000) combined single limit for each accident.

F. **Umbrella or Excess Liability Insurance.** At the option of the Contractor, primary limits may be less than required, with an Umbrella or Excess Liability Policy providing the additional limits needed. This form of insurance will be acceptable provided that the Primary and Umbrella or Excess Liability Policies both provide the insurance coverage's herein required, and the Umbrella or Excess Liability Policy provides bodily injury, personal injury and property damage liability coverage at least as broad as the primary coverage's set forth above, including commercial general liability and employers liability. Such policy or policies shall include the following terms and conditions:

1. A drop down feature requiring the policy to respond in the event that any primary insurance that would otherwise have applied proves to be uncollectable in whole or in part for any reason;

2. Pay on behalf of wording as opposed to reimbursement;

3. Concurrency of effective dates with primary policies; and

4. Policies shall "follow form" to the underlying primary policies.

5. Insureds under primary policies shall also be insureds under the Umbrella or Excess Policies.

G. OTHER PROVISIONS OR REQUIREMENTS

1. **Proof of Insurance.** Contractor shall provide certificates of insurance to City as evidence of the insurance coverage required herein. Insurance certificates and endorsements must be approved by City prior to commencement of performance. Current certification of insurance shall be kept on file with City at all times during the term of this Agreement.

2. **Duration of Coverage.** Contractor shall procure and maintain for the duration of the contract insurance against claims for injuries to persons or damages to property, which may arise from or in connection with the performance of the work hereunder by Contractor, his agents, representatives,

employees or subcontractors. Contractor must maintain general liability and umbrella or excess liability insurance for as long as there is a statutory exposure to completed operations claims. City, its elected and appointed officers, agents, officials, employees and volunteers shall continue as additional insureds under such policies.

3. **City Rights of Enforcement.** In the event any policy of insurance required under this Agreement does not comply with these requirements or is canceled and not replaced, City has the right but not the duty to obtain the insurance it deems necessary and any premium paid by the City will be promptly reimbursed by Contractor, or City will withhold amounts sufficient to pay premium from Contractor payments. In the alternative, City may cancel this Agreement.

4. **Acceptable Insurers.** All insurance policies shall be issued by an insurance company currently authorized by the Insurance Commissioner to transact business of insurance in the State of California, with an assigned policyholder's Rating of A- (or higher) and Financial Size Category Class VII (or larger) in accordance with the latest edition of Best's Key Rating Guide, unless otherwise approved by the City.

5. **Waiver of Subrogation.** All insurance coverage maintained or procured pursuant to this Agreement shall be endorsed to waive subrogation against the City, its elected and appointed officers, agents, officials, employees and volunteers or shall specifically allow Contractor or others providing insurance evidence in compliance with these specifications to waive their right of recovery prior to a loss. Contractor hereby waives its own right of recovery against City, and shall require similar written express waivers and insurance clauses from each of its subcontractors.

6. **Enforcement of Contract Provisions (non estoppel).** Contractor acknowledges and agrees that any actual or alleged failure on the part of the City to inform Contractor of non-compliance with any requirement imposes no additional obligations on the City nor does it waive any rights hereunder.

7. **Requirements not Limiting.** Requirements of specific coverage features or limits contained in this Section are not intended as a limitation on coverage, limits or other requirements, or a waiver of any coverage normally provided by any insurance. Specific reference to a given coverage feature is for purposes of clarification only as it pertains to a given issue and is not intended by any party or insured to be all inclusive, or to the exclusion of other coverage, or a waiver of any type.

8. **Notice of Cancellation.** Contractor agrees to provide, or require its insurance agent or broker to provide City with thirty (30) days notice of cancellation

(except for nonpayment for which ten (10) days notice is required) or nonrenewal of coverage for each required coverage.

9. **Additional Insured Status.** Commercial general liability policies shall provide or be endorsed to provide that City, its elected and appointed officers, agents, officials, employees and volunteers shall be additional insureds under such policies. This provision shall also apply to any umbrella or excess liability policies. Additional insured endorsement shall use the standard ISO for CG 2010 with an edition date prior to 1992. If unable to obtain the CG 2010 prior to 1992, a combination of CG 2010 and CG 2037 may be submitted to the City for consideration. Commercial general liability policies shall apply on a primary, non-contributory basis.

10. **City's Right to Revise Requirements.** The City reserves the right at any time during the term of the Agreement to change the amounts and types of insurance required by giving the Contractor ninety (90) days advance written notice of such change. If such change results in substantial additional costs to the Contractor, the City and Contractor may negotiate Contractor's compensation.

11. **Self-insured Retentions.** Any self-insured retentions must be declared to and approved by the City. City reserves the right to require that self-insured retentions be eliminated, lowered, or replaced by a deductible. Self-insurance will not be considered to comply with these specifications unless approved by the City.

12. **Timely Notice of Claims.** Contractor shall give City prompt and timely notice of claims made or suits instituted that arise out of or result from Contractor's performance under this Agreement, and that involve or may involve coverage under any of the required liability policies.

13. **Injury or Illness Reports.** The Contractor shall furnish the City with a copy of the Employers Report of Injury immediately following any incident requiring the listing of said report on the OSHA Log during the prosecution of the Work under this contract. The Contractor shall also furnish the City with a copy of the Employer's Report of Injury involving any subcontractor on this Project.

14. **Additional Insurance.** Contractor shall also procure and maintain at its own cost and expense, any additional kinds of insurance, which in its own judgment may be necessary for its proper protection and prosecution of this Agreement.

SC-4.04. Acceptance of Bonds and Insurance; Option to Replace.

A. If Buyer has any objection to the coverage afforded by Seller or to other provisions of the Bonds or insurance required to be purchased and maintained by SELLER in accordance with Article 4 on the basis of non-conformance with the Contract Documents, Seller shall provide Buyer with such additional information in respect of insurance provided as Buyer may reasonably request. If Seller does not purchase or maintain all of the Bonds and insurance required by the Contract Documents, Buyer may, without prejudice to any other right or remedy, elect to obtain equivalent Bonds or insurance to protect its interests at the expense of Seller, and a Change Order shall be issued to adjust the Contract Price accordingly, provided such failure to provide or maintain coverage required hereunder remains uncured 10 days after Buyer has given Seller written notice of such failure.

SC-5.07.

Delete Article 5.07.A, and replace with the following:

A. Seller shall adhere to the progress schedule established in the Agreement and the Goods shall be delivered and the Special Services furnished within the Contract Times specified in the Agreement.

Continuing Performance. In Article 5.07.B; at the end of the first sentence, insert the following:

"and Buyer shall continue to make undisputed payments to Seller for work performed in accordance with the Contract Documents."

SC-5.08. SELLER'S Warranties and Guarantees.

Delete Article 5.08.B and replace with the following:

~~1.~~ "B. Seller warrants and guarantees to Buyer that all Goods and Special Services will conform with the Contract Documents, including any Samples approved by Engineer, and the Goods will be free from defects in material and workmanship. Owner and Engineer shall be entitled to rely on Seller's warranty and guarantee. This warranty shall not apply to any equipment that is specified or otherwise demanded by the Buyer and is not manufactured or selected by the Seller, as to which Seller hereby assigns to Buyer, to the extent assignable, any warranties made to Seller. Seller shall be liable to Owner for performance of the Membrane Filtration System as a whole, provided that the Membrane Filtration System is constructed and operated in accordance with information received from Seller."

~~a.~~ Seller's liability under this Limited Membrane Warranty is limited to replacing (FOB Point of Destination) or repairing products that become defective during the Module Warranty Period. For

definition of a defective module or modules, see Document 466133, Part 3 (Manufacturer's Services) I (Warranties Stage II) . 2. Seller shall credit Buyer for the value of defective Goods if Seller is unable to provide Goods that conform with the Contract Documents within a reasonable time.

SC-5.09. Indemnification. Add to Article 5.09:

D. Indemnification by SELLER. In addition to any remedy authorized by law, OWNER may retain so much of the money due the Seller under and by virtue of the contract as City may reasonably consider necessary to protect it until disposition has been made of such actually filed suits or asserted claims by any third party for damages that would be subject to the indemnification requirements under paragraph 5.09.A of the General Conditions, provided, however, that City will release funds withheld under this section upon Seller's unconditional acceptance of Buyer's tender of defense and indemnity and receipt of a written consent by Seller's surety to the release of funds.

SC-6.02. Delivery. Add a new Article 6.02.F to the General Conditions, as follows:

"F. Upon receipt of Owner's Notification to Proceed with Fabrication of Equipment, Seller shall commence fabrication of equipment. The place of delivery specified therein shall be firm and fixed, provided that Owner may notify Seller no later than 45 days prior to the scheduled shipment date of the products of an alternate point of delivery. Provided the parties agree to a Change Order to take into account any additional cost [or delay] incurred by Seller in implementing this change, the alternate place of delivery shall become the agreed place of delivery for all purposes under this Agreement."

SC-6.03. Risk of Loss. Replace the entire section with the following:

"A. Risk of loss and insurable interests transfer from Seller to Buyer upon delivery of Goods to Buyer after Buyer has examined and accepted the Goods."

SC-7.01 Changes in Goods and Services

Delete Article 7.01.B and replace with the following:

"B. Buyer shall give Seller a minimum of ten (10) days notice of any changes in the Goods and Special Services ordered by Buyer. If Seller contends that any such change or action by Buyer has more than an incidental effect on the Contract Price, Contract Times or Seller's warranties to Buyer, Seller shall notify Buyer within 15 days after the occurrence of the event giving rise thereto, and written

supporting data will be submitted to Buyer within 30 days after such occurrence. If Seller fails to do so, Seller waives any Claim for such adjustment."

SC-7.03 Changing Contract Price or Contract Times

Make the following revisions to Article 7.03.B:

In the 3rd Line, insert "reasonable" before "control"
In the 6th Line, insert ", but are not limited to" before "fire"

SC-9.06 Role of Engineer - Claims and Disputes. Delete this section in its entirety and replace with the following:

"A. It is the intent of this section that disputes between the parties arising under and by virtue of the contract be brought to the attention of the parties and Engineer at the earliest possible time in order that the matters may be resolved, if possible, or other appropriate action promptly taken. The parties agree to endeavor to avoid or resolve Claims through direct, good faith discussions and negotiations whenever practicable. Such discussions and negotiations should at the outset address whether the parties mutually agree to suspend the time periods established in this Paragraph 9.06; if so, a written record of such mutual agreement should be made and jointly executed.

B. For Claims arising under and by virtue of the contract, including any act or failure to act by the Engineer, Seller shall provide a signed, written initial Notice of Potential Claim to the Engineer within fifteen (15) calendar days from the date the Claim first arose. The initial notice of potential claim shall set forth the facts and circumstances giving rise to the Claim, which shall remain consistent through the dispute. The notice shall be certified with reference to the California False Claims Act, Government Code Sections 12650-12655. Seller shall number the disputes chronologically, and use the identifying number on all communications related to the Claim.

C. For Claims arising under and by virtue of the contract, Buyer shall provide a signed, written initial Notice of Potential Claim to Seller within fifteen (15) calendar days from the date the Claim first arose. The initial notice of potential claim shall set forth the facts and circumstances giving rise to the Claim, which shall remain consistent through the Claim. For purposes of this section SC 9.06.C, a dispute by Buyer will be deemed to have first arisen after Buyer has informed Seller of the occurrence giving rise to the Claim and Seller has failed or refused to respond to or resolve issues raised by Buyer in a notice of default within 15 days of the date of the notice.

D. Within fifteen days of submitting the initial notice of potential claim, the party raising the dispute shall provide a signed supplemental notice of potential claim to the Engineer that contains the following information:

1. The facts and circumstances that gave rise to the potential Claim.

2. The provisions of the Contract Documents that relate to the Claim.

3. The estimated cost of the potential Claim, including an itemized breakdown of individual costs and the basis on which the estimate was prepared.

4. If a party claims that the dispute materially affects the time or cost required for providing the Goods and Specialize Services and seeks an adjustment of the Contract Times or Contract Price on account of the Claim, the party shall provide a time, and cost, impact analysis illustrating the effect of the events giving rise to the dispute on the Project schedule.

E. The information provided under paragraphs C and D, above, shall set forth the factual and contractual basis for the potential Claim.

F. Failure of Seller or Buyer to give notice and provide the information required under this Section 9.06 shall constitute a failure to pursue diligently and exhaust the administrative procedures in the contract, and a waiver of the potential Claim and right to pursue a claim for adjustment of the Contract Price and/or Contract Times on account of the events giving rise to the dispute.

G.. Disputes and potential Claims that are not resolved through direct negotiations shall be resolved in accordance with Section 13 of EJCEC P-700, Dispute Resolution and 20104 et seq. of the Public Contract Code.

SC-10.01. Applications for Progress Payments. DELETE subparagraphs 1 and 2 from the General Conditions, Paragraph 10.01.A.

SC-10.01. Applications for Progress Payments. ADD the following new paragraphs to the General Conditions, immediately following Paragraph 10.01.A.

10.01.B. Initial Acceptance of Schedules. Unless otherwise provided in the Contract Documents, at least ten days before submission of the first Application for Payment, a conference attended by SELLER, ENGINEER, and others as appropriate will be held to review for acceptability to ENGINEER as provided below the schedules submitted in accordance with paragraph 10.01 C. SELLER shall have an additional ten days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to SELLER until acceptable schedules are submitted to ENGINEER.

1. The progress schedule will be acceptable to ENGINEER if it provides an orderly progression of the Goods and Special Services to completion within any specified

Milestones and Contract Times. Such acceptance will not impose on ENGINEER responsibility for the progress schedule, for sequencing, scheduling, or progress of the Goods and Special Services nor interfere with or relieve SELLER from SELLER'S full responsibility therefore.

2. SELLER'S schedule of all submittals will be acceptable to ENGINEER if it provides a workable arrangement for reviewing and processing the required submittals.

10.01.C. Applications for Progress Payments.

1. At least 10 days before the date established for each progress payment (but not more often than once a month), SELLER shall submit to ENGINEER for review an Application for Payment filled out and signed by SELLER covering the Goods and Special Services completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not delivered to the Point of Destination but suitably stored at another location agreed to in writing by the ENGINEER, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that BUYER has received the materials and equipment free and clear of all Liens caused by or through SELLER and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect BUYER'S interest therein, all of which must be satisfactory to BUYER.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of SELLER stating that all previous progress payments received on account of the Goods and Special Services have been applied on account to discharge SELLER'S legitimate obligations associated with prior Applications for Payment.

SC-12.04 Reuse of Documents

Delete Article 12.04.B and replace with the following:

"B. Buyer shall not reuse any Drawings, Specifications, other documents, or copies thereof produced by Seller for this project on any other project without written consent of Seller."

Delete Article 12.04.C and replace with the following:

"C. The prohibition in SC-12.04.A and SC-12.04.B will survive termination or completion of the Contract. Nothing herein shall preclude Buyer or Seller from retaining copies of the Contract Documents for record purposes."

SC-14.02 Controlling Law. Replace with the following:

"A. This Contract is to be governed by the law of the State of California, with the exception of its choice of law principles."

END OF SECTION

SECTION 005200A AGREEMENT FOR GOODS AND SPECIAL SERVICES (STAGES I, III, AND IV)

THIS AGREEMENT FOR GOODS AND SPECIAL SERVICES (Stages I, III, and IV) is between City of El Paso de Robles, California, ("OWNER", "BUYER") and _____ ("SUPPLIER", "SELLER").

OWNER and SUPPLIER, in consideration of the mutual covenants set forth herein, agree as follows:

ARTICLE 1 – THE PROJECT

1.01 The Project for which the Goods and Special Services to be provided under the Contract Documents is generally described as the design and construction of a 2.4 MGD surface water treatment plant for the OWNER's Nacimiento water supply at the City of El Paso de Robles' existing Thunderbird Well Field.

ARTICLE 2 – THE GOODS AND SPECIAL SERVICES

2.01 SUPPLIER shall furnish the Goods and Special Services as specified or indicated in the Contract Documents based on the acceptance by OWNER of SUPPLIER'S Bid. The Goods and Special Services are described in detail in the Contract Documents, and are generally described as follows: designing, furnishing, installation assistance, support to the OWNER during the system performance testing, and long term operation and maintenance services for the drinking water membrane filtration system. The Goods and Special Services will be divided into four stages. This contract covers the work described in the contract documents for Stages I, III, and IV. Goods and special services provided as part of Stage II are included in a separate contract.

Stage I Work. Stage I includes designing the membrane filtration system, providing design support to the ENGINEER, reviewing construction bid documents, preparing a construction contractor information package, and attending coordination / review meetings with the ENGINEER/OWNER. Stage I work will be performed during the design and bidding phase for the Project.

Stage II Work. Stage II will commence upon award of a general construction contract to the CONSTRUCTION CONTRACTOR. Coincident with that award, the Membrane Filtration System Procurement Contract will be assigned to the CONSTRUCTION CONTRACTOR. Stage II includes preparing remaining submittals, furnishing and delivering the complete membrane filtration system, coordinating with the CONSTRUCTION CONTRACTOR, providing construction field services, programming the membrane filtration system control system, assisting during equipment and system startup and testing, and training.

Stage III Work. Stage III includes system performance testing to be performed by OWNER after Substantial Completion of the construction contract. Stage III will begin upon final completion of the Stage II (construction) contract.

Stage IV Work. Stage IV includes Long-Term Operation and Maintenance Services. A complete description of the Work is set forth in the Contract Documents. Stage IV will begin upon final completion of the Stage II (construction) contract.

ARTICLE 3 – ENGINEER

3.01 The Contract Documents for the Goods and Special Services have been prepared by AECOM Technical Services, 1360 E. Spruce Avenue, Suite 101, Fresno, CA, 93720, who is hereinafter called ENGINEER and who is to assume all duties and responsibilities, and have the rights and authority assigned to ENGINEER in the Contract Documents in connection with the furnishing of Goods and Special Services.

ARTICLE 4 – LOCATION OF THE WORK

4.01 The place where the Goods are to be delivered and Special Services are to be furnished is defined in the General Conditions as the Location of the Work and is designated as:

City of El Paso de Robles
Water Treatment Plant
1600 Ramada Drive
City of El Paso de Robles, California

ARTICLE 5 – CONTRACT TIMES

5.01 Milestones. All time limits for Milestones, if any, for the delivery of Goods and the furnishing of Special Services are as stated in the Contract Documents or as agreed to by the Parties and are of the essence of the Contract, pursuant to the conditions as stated in paragraph 5.03.

5.02 Days and Dates for Furnishing Goods and Special Services. SUPPLIER shall deliver the Goods and furnish Goods and Special Services to the OWNER according to following schedule:

Stage I Milestone Schedule

Item No.	Item	Estimated Milestone Date
1	Submit Initial Technical Information Submittal	Within 42 calendar days (6 weeks) of notice to proceed with Stage 1 of the contract
2	Submit Final Technical Information Submittal	Within 21 days (3 weeks) after receipt of comments from ENGINEER on Initial Technical Submittal
3	Submit Draft CONSTRUCTION CONTRACTOR Information Package	Within 60 days (8 weeks) after receipt of comments from ENGINEER on Initial Technical Submittal
4	Submit Final CONSTRUCTION CONTRACTOR Information Package	Within 14 days (2 weeks) after receipt of comments from ENGINEER on Draft CONSTRUCTION CONTRACTOR Information Package

5.03 Liquidated Damages

A. Time is of the essence of this Agreement. OWNER will suffer financial loss if the Goods and Special Services are not furnished within the times specified in Paragraph 5.02 above, plus any extensions thereof allowed in accordance with Article 7 of the General Conditions. Timely performance of services by others involved in the Project is dependent upon SUPPLIER'S performance in accordance with the Milestones set forth in Paragraph 5.02.

B. SUPPLIER acknowledges that it is and will be impracticable to determine the actual damage that the CITY will sustain in the event of and by reason of such delay. It is therefore agreed that the SUPPLIER will pay to the CITY the sum stated below for each and every calendar day's delay in completing the specified tasks solely attributable to SUPPLIER, up to a maximum amount of $50,000. **Notwithstanding anything to the contrary set forth in any of the Contract Documents, Buyer and Seller agree that the Liquidated Damages provided for in this Section 5.03 are Buyer's sole and exclusive remedy for Seller's failure to meet any Milestones or Contract Times, (other than delays of more than 60 calendar days). Should SUPPLIER fail to complete the specified tasks solely attributable to SUPPLIER and such delay continues for longer than 60 calendar days after the delivery date milestones, CITY shall have the option to terminate the contract for cause in accordance with the conditions of Paragraph 11.04 of Section 007000, and SUPPLIER shall not be assessed further liquidated damages.** The SUPPLIER agrees to pay such liquidated damages as herein provided, and in case the same are not paid, agrees that the CITY may deduct the amount thereof from any monies due or that may become due the SUPPLIER under the Agreement. SUPPLIER'S Surety shall be liable for all liquidated damages not paid by SUPPLIER.

Item No.	Item	Liquidated Damages Per Day
Stage I – Pay to Owner		
2	Submit Final Technical Information Submittal	$250
4	Submit Final Construction Contractor Information Package	$250

C. Liquidated damages will be assessed for each day each milestone activity is delayed.

ARTICLE 6 – CONTRACT PRICE

6.01 OWNER shall pay SUPPLIER, in current funds, for furnishing the Goods and Special Services in accordance with the Contract Documents the sum of $_____ as follows:

For Stage I work in its entirety: _____

For Stage III Work in its entirety: _____

For Stage IV Work in its entirety: _____

The Contract Price for each Stage will be subject to adjustment based equal to 100% of the change in the Consumer Price Index – All Urban Consumers (US City Average) at the time when the City issues a Notice to Proceed for each Stage. The base point for the CPI adjustment will be the latest CIP index published as of the execution date of this Agreement. Adjustment shall be no greater than 5% for any 12 month period.

ARTICLE 7 – PAYMENT PROCEDURES

7.01 Submittal and Processing of Payments. SUPPLIER shall submit Applications for Payment in accordance with Article 10 of the General Conditions.

7.02 Progress Payments. OWNER shall make progress payments on account of the Contract Price on the basis of SUPPLIER'S Applications for Payment as recommended by ENGINEER in accordance with Article 10 of the General Conditions. The sum of progress payments, based on the schedule of values accepted by ENGINEER, shall not exceed the Maximum Amount allowed for each Milestone, as follows:

Item	Milestone	Maximum Amount
Stage I		
1	Final Technical Information Submittal	75 percent of Stage I Contract Price (Bid Item 1)
2	Final Construction Contractor Information Package	25 percent of Stage I Contract Price (Bid Item 1)
Stage III		
1	Travel and On-Site Support Services	Bid Item 3a and 3b amounts to be invoiced monthly based on completed work progress
Stage IV		
1	Long-Term O&M Services	Bid Item 4a and 4b amounts to be invoiced monthly based on completed work

7.03 Payment for Stage II work will be made under the separate agreement for Stage II services.

ARTICLE 8 – INTEREST

8.01 All monies not paid when due as provided in Article 10 of the General Conditions shall bear interest at the rate of 10 percent per annum, or the legal rate of interest, whichever is less.

ARTICLE 9 – SUPPLIER'S REPRESENTATIONS

9.01 In order to induce OWNER to enter into this Agreement, SUPPLIER makes the following representations:

A. SUPPLIER has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.

B. If specified or if, in SUPPLIER'S judgment, any local condition may affect cost, progress or the furnishing of the Goods and Special Services, SUPPLIER has visited the Site and become familiar with and is satisfied as to the local conditions that may affect cost, progress or the furnishing of the Goods and Special Services.

C. SUPPLIER is familiar with and is satisfied as to all local federal, state and local Laws and Regulations that may affect cost, progress and the furnishing of the Goods and Special Services.

D. SUPPLIER has carefully studied and correlated the information known to SUPPLIER, and information and observations obtained from SUPPLIER's visits, if any, to the Site, with the Contract Documents.

E. SUPPLIER has given ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that SUPPLIER has discovered in the Contract Documents, and the written resolution thereof by ENGINEER is acceptable to SUPPLIER.

F. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for furnishing Goods and Special Services.

ARTICLE 10 – CONTRACT DOCUMENTS

10.01 Contents.

A. The Contract Documents consist of the following:

1. This Agreement for Special Goods and Services, Stages I, III and IV
2. General Conditions, EJCDC Document No. P-700, as modified
3. Supplementary Conditions
4. Technical Specifications (405000, 405080, and 466133) prepared by AECOM, including
    1. Figure 1 (Process Flow Diagram)
    2. Figure 2 (Membrane Building Floor Plan)
    3. Figure 3 (Hydraulic Profile)
    4. Figure 4 (Communications Block Diagram)
5. Exhibits to this Agreement (enumerated as follows):
    a. SUPPLIER'S Bid Form (Section 004100).
    b. Insurance Certificates and Endorsements, required by Contract Documents.

The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:

a. Notice to Proceed

b. Written Amendment(s)

c. Change Order(s)

d. Field Order(s)

C. All of the documents listed in paragraph 10.01.A are incorporated into and made part of this Agreement as if fully set forth herein.

D. There are no Contract Documents other than those listed above in this Article 10.

E. The Contract Documents may only be amended, or supplemented as provided in Paragraph 3.04 of the General Conditions.

ARTICLE 11 – MISCELLANEOUS

11.01 Defined Terms. Terms used in this Agreement will have the meanings indicated in the General Conditions and the Supplementary Conditions.

11.02 Not Used.

11.03 Successors and Assigns. OWNER and SUPPLIER each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, its partners, successors, assigns and legal representatives in respect to all covenants, agreements and obligations contained in the Contract Documents.

11.04 Severability. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon OWNER and SUPPLIER. The Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

11.05 Cancellation. Buyer has the right to cancel the Contract, without cause, at any time upon giving 5 (five) days written notice to Seller. Cancellation pursuant to the terms of this paragraph shall not constitute a breach of contract by Buyer. Upon cancellation:

1. Buyer shall pay Seller for Goods specially manufactured for the Project, plus any documented reasonable direct and indirect costs incurred by Seller in producing such Goods not recovered by payment for the reasonable value of the Goods.

2. For Goods which are not specially manufactured for the Project, Seller shall be entitled to a restocking charge of 10 percent of the unpaid Contract Price of such Goods.

3. For Services performed in accordance with the Contract Documents prior to the date of cancellation, Buyer shall pay Seller the actual cost of the Services performed and accepted, which shall not exceed the portion of the Contract Price for Services.

11.06 Labor Code Requirements

The Project is subject to the provisions of Part 7 of Division 2 of the California Labor Code (Sections 1720 and following). Supplier will comply with these provisions to the extent that Seller performs work or services under this contract that are subject to these Labor Code requirements.

11.07 Limitations.

A. In no event, will Buyer and Seller be liable for, and Buyer and Seller hereby waive against each other, and against the other's affiliates and their respective officers, directors, members, partners, employees, agents, consultants, and subcontractors, any and all claims for or entitlement to incidental, indirect, or consequential damages, including without limitation, loss of profit, or loss of revenue arising out of, resulting from, or related to the Contract or a party's performance hereunder, whatever the claim (tort, breach of contract or warranty or otherwise) and whatever the forum. Upon assignment the terms of this Paragraph 11.07.A shall be binding upon the assignee with respect to Seller and assignor.

B. Without limiting the generality of the foregoing, Buyer and Seller further agree that the total liability of each party to the other for claims, costs, losses, and damages arising from this Contract or a party's performance hereunder shall be limited to the amount established in this Agreement as the Contract Price.

REST OF THIS PAGE IS BLANK

11.08 Insurance. In the event OWNER tenders a claim to SUPPLIER'S insurance and tender is rejected based on scope of coverage, SUPPLIER shall provide OWNER an electronic copy of the applicable policies for OWNER's review subject to a signed confidentiality agreement.

IN WITNESS WHEREOF, OWNER and SUPPLIER have signed this Agreement in duplicate. One counterpart each has been delivered to OWNER and SUPPLIER. All portions of the Contract Documents have been signed or identified by OWNER and SUPPLIER or on their behalf.

This Agreement will be effective on _____, 20____.

OWNER: _____	SUPPLIER: _____
By: _____	By: _____
[Corporate Seal]	[Corporate Seal]
Attest: _____	Attest: _____
Address for giving notice:	Address for giving notice:
_____	_____
_____	_____
_____	_____

END OF SECTION

SECTION 005200 AGREEMENT FOR GOODS AND SPECIAL SERVICES (STAGE II)

THIS AGREEMENT is between City of El Paso de Robles, California, ("OWNER", "BUYER") and _____ ("SUPPLIER", "SELLER").

OWNER and SUPPLIER, in consideration of the mutual covenants set forth herein, agree as follows:

ARTICLE 1 – THE PROJECT

1.01 The Project for which the Goods and Special Services are to be provided under the Contract Documents is generally described as the design and construction of a 2.4 MGD surface water treatment plant for the OWNER's Nacimiento water supply at the City of Paso Robles' existing Thunderbird Well Field.

ARTICLE 2 – THE GOODS AND SPECIAL SERVICES

2.01 SUPPLIER shall furnish the Goods and Special Services as specified or indicated in the Contract Documents based on the acceptance by OWNER of SUPPLIER'S Bid. The Goods and Special Services are described in detail in the Contract Documents, and are generally described as follows: designing, furnishing, installation assistance, operational testing, maintenance and service of a drinking water membrane filtration system as described in the Contract Documents. The Goods and Special Services will be divided into four stages. This contract covers the work described in the Contract Documents for Stage II. Goods and Special Services provided as part of stages I, III, and IV are included in a separate contract.

A. Stage II Work

Stage II will commence upon award of a general construction contract to the CONSTRUCTION CONTRACTOR. Coincident with that award, the Membrane Filtration System Procurement Contract will be assigned to the CONSTRUCTION CONTRACTOR. Stage II includes preparing remaining submittals, furnishing and delivering the complete membrane filtration system, coordinating with the CONSTRUCTION CONTRACTOR, providing construction field services, programming the membrane filtration system control system, assisting during equipment and system startup and testing, and training.

ARTICLE 3 – ENGINEER

3.01 The Contract Documents for the Goods and Special Services have been prepared by AECOM Technical Services, 1360 E. Spruce Avenue, Suite 101, Fresno, CA, 93720, who is hereinafter called ENGINEER and who is to assume all duties and responsibilities, and have the rights and authority assigned to ENGINEER in the Contract Documents in connection with the furnishing of Goods and Special Services.

ARTICLE 4 – LOCATION OF THE WORK

4.01 The place where the Goods are to be delivered and Special Services are to be furnished is defined in the General Conditions as the Location of the Work and is designated as:

City of Paso Robles
Water Treatment Plant
1600 Ramada Drive
City of Paso Robles, California

ARTICLE 5 – CONTRACT TIMES

5.01 Milestones. All time limits for Milestones, if any, for the delivery of Goods and the furnishing of Special Services are as stated in the Contract Documents or as agreed to by the Parties and are of the essence of the Contract., pursuant to the conditions as stated in paragraph 5.03.

5.02 Days and Dates for Furnishing Goods and Special Services. SUPPLIER shall deliver the Goods and furnish Goods and Special Services to the OWNER according to following schedule:

Stage II Milestone Schedule

Item No.	Item	Milestone Date (estimated)
- -	Stage II NTP	TBD
1	Deliver All Equipment within 45-Day Delivery Window	Within 112 days (16 weeks) after shop drawing approval and notice to proceed with equipment fabrication.
2	(Projected) Substantial Completion of Construction	TBD
3	(Projected) Final Completion	TBD

5.03 Liquidated Damages

A. Time is of the essence of this Agreement. OWNER and/or CONSTRUCTION CONTRACTOR will suffer financial loss if the Goods and Special Services are not furnished within the times specified in Paragraph 5.02 above, plus any extensions thereof allowed in accordance with Article 7 of the General Conditions. Timely performance of services by others involved in the Project is dependent upon SUPPLIER'S performance in accordance with the Milestones set forth in Paragraph 5.02.

B. SUPPLIER acknowledges that it is and will be impracticable to determine the actual damage that the CITY will sustain in the event of and by reason of such delay. It is therefore agreed that the SUPPLIER will pay to the CITY the sum stated below for each and every calendar day's delay in completing the specified tasks solely attributable to SUPPLIER, up to a maximum amount of $100,000. **Notwithstanding anything to the contrary set forth in any of the Contract**

Documents, Buyer and Seller agree that the Liquidated Damages provided for in this Section 5.03 are Buyer's sole and exclusive remedy for Seller's failure to meet any Milestones or Contract Times (other than delays of more than 50 calendar days). Should SUPPLIER fail to complete the specified tasks solely attributable to SUPPLIER and such delay continues for longer than 50 calendar days after the milestone, CITY shall have the option to terminate the contract for cause in accordance with the conditions of Paragraph 11.04 of Section 007000. . The SUPPLIER agrees to pay such liquidated damages as herein provided, and in case the same are not paid, agrees that the CITY may deduct the amount thereof from any monies due or that may become due the SUPPLIER under the Agreement. SUPPLIER'S Surety shall be liable for all liquidated damages not paid by SUPPLIER.

Item No.	Item	Liquidated Damages Per Day
Pay to CONSTRUCTION CONTRACTOR		
1	Delivery of All Equipment as directed by Contractor (The Delivery Window).	$2,500

C. Liquidated damages will be assessed for each day each milestone activity is delayed.

ARTICLE 6 – CONTRACT PRICE

6.01 OWNER shall pay SUPPLIER, in current funds, for furnishing the Goods and Special Services in accordance with the Contract Documents the sum of $_____ as indicated in the Bid Form.

6.02 The Contract Price for Stage II services shall be subject to escalation equal to 100% of the change in the Consumer Price Index - All Urban Consumers (US City Average) at the time when notice to proceed with fabrication is issued by the CONTRACTOR. The base point for the CPI escalation calculation will be the latest CPI index published as of the execution date of this agreement. Escalation shall be no greater than 5% for any 12 month period.

ARTICLE 7 – PAYMENT PROCEDURES

7.01 Submittal and Processing of Payments. SUPPLIER shall submit Applications for Payment in accordance with Article 10 of the General Conditions. Applications for payment will be processed by CONSTRUCTION CONTRACTOR as provided in the General Conditions of the Contract for Construction.

7.02 Progress Payments. OWNER shall make progress payments on account of the Contract Price on the basis of SUPPLIER'S Applications for Payment as recommended by

ENGINEER in accordance with Article 10 of the General Conditions. The sum of progress payments shall not exceed the Maximum Amount allowed for each Milestone, as follows:

Item	Milestone	Maximum Amount
1	NTP to Manufacture Equipment	30 percent of Bid Item 2a
2	Deliver All Equipment	**55** percent of Bid Item 2a
3	Certify Equipment Installation is Completed and Acceptable, and Deliver Final O&M Manuals	**0** percent of Bid Item 2a
4	Successful Completion of System Demonstration Testing	**15** percent of Bid Item 2a
5	Manufacturer Field Services	Bid Item 2b amount to be invoiced and paid based on completed work progress

7.03 Final Payment. Upon completion of the Goods and Special Services included in this Agreement in accordance with the Contract Documents and receipt of the final Application for Payment in accordance with Article 10.05 of the General Conditions, and accompanied by ENGINEER'S recommendation of payment in accordance with Article 10.06 of the General Conditions, OWNER shall pay the remainder of the Contract Price as recommended by ENGINEER.

ARTICLE 8 – INTEREST

8.01 All monies not paid when due as provided in Article 10 of the General Conditions shall bear interest at the rate of 10 percent per annum, or the legal rate of interest, whichever is less.

ARTICLE 9 – SUPPLIER'S REPRESENTATIONS

9.01 In order to induce OWNER to enter into this Agreement, SUPPLIER makes the following representations:

A. SUPPLIER has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.

B. If specified or if, in SUPPLIER'S judgment, any local condition may affect cost, progress or the furnishing of the Goods and Special Services, SUPPLIER has visited the Site and become familiar with and is satisfied as to the local conditions that may affect cost, progress or the furnishing of the Goods and Special Services.

C. SUPPLIER is familiar with and is satisfied as to all local federal, state and local Laws and Regulations that may affect cost, progress and the furnishing of the Goods and Special Services.

D. SUPPLIER has carefully studied and correlated the information known to SUPPLIER, and information and observations obtained from SUPPLIER's visits, if any, to the Site, with the Contract Documents.

E. SUPPLIER has given ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that SUPPLIER has discovered in the Contract Documents, and the written resolution thereof by ENGINEER is acceptable to SUPPLIER.

F. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for furnishing Goods and Special Services.

ARTICLE 10 – CONTRACT DOCUMENTS

10.01 Contents.

A. The Contract Documents consist of the following:

1. This Agreement for Goods and Special Services, Stage II
2. Performance Bond
3. Payment Bond
4. General Conditions, EJCDC Document No. P-700, as modified
5. Supplementary Conditions
6. Technical Specifications (405000, 405080, and 466133) prepared by AECOM, including
    1. Figure 1 (Process Flow Diagram)
    2. Figure 2 (Membrane Building Floor Plan)
    3. Figure 3 (Hydraulic Profile)
    4. Figure 4 (Communications Block Diagram)
7. Exhibits to this Agreement (enumerated as follows):
    a. Exhibit A-1 to Agreement between OWNER and SUPPLIER dated _____, Assignment of Contract; Consent to Assignment; and Acceptance of Assignment.

b. Exhibit A-2 to Agreement between OWNER and SUPPLIER dated _____, Agreement to Assignment by SUPPLIER'S Surety.

c. SUPPLIER'S Bid Form (Section 004100).

d. Insurance Certificates and Endorsements required by Contract Documents.

B. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:

a. Notice to Proceed

b. Written Amendment(s)

c. Change Order(s)

d. Field Order(s)

B. All of the documents listed in paragraph 10.01.A are incorporated into and made part of this Agreement as if fully set forth herein.

C. There are no Contract Documents other than those listed above in this Article 10.

D. The Contract Documents may only be amended, or supplemented as provided in Paragraph 3.04 of the General Conditions.

ARTICLE 11 – MISCELLANEOUS

11.01 Defined Terms. Terms used in this Agreement will have the meanings indicated in the General Conditions and the Supplementary Conditions.

11.02 Assignment. OWNER has the right to assign the Contract for furnishing Goods and Special Services hereunder, or any part thereof, and SUPPLIER shall accept such assignment. Forms documenting the assignment of the Contract, and consent of SUPPLIER'S surety to the assignment are attached as exhibits to this Agreement.

A. The Contract will be executed in the name of OWNER initially, and will be assigned to a CONSTRUCTION CONTRACTOR designated by OWNER after a contract is signed by the CONSTRUCTION CONTRACTOR. The assignment will occur on the effective date of the agreement between OWNER and the CONSTRUCTION CONTRACTOR. As of the date of acceptance of assignment by the CONSTRUCTION CONTRACTOR, all references in the Contract Documents to OWNER shall mean the designated CONSTRUCTION CONTRACTOR whose responsibilities will include the installation or erection or incorporation of the Goods. CONSTRUCTION CONTRACTOR shall provide

OWNER with a Payment Bond in the full amount of the Construction Contract, including SUPPLIER'S Contract.

B. The assignment of the Contract shall relieve OWNER from all further obligations and liabilities under the Contract. After assignment, SUPPLIER shall become a subcontractor or supplier to the assignee and, except as noted herein, all rights, duties, and obligations of OWNER under the Contract shall become the rights, duties and obligations of the assignee.

C. After assignment, all performances warranties and guarantees required by the Contract Documents will continue to run for the benefit of OWNER and, in addition, for the benefit of the assignee.

D. OWNER reserves the right to delay the Notice to Proceed for Stage II for up to 18-months beyond the latest date indicated in the Article 5 Milestone Schedule for Stage II NTP. OWNER reserves the right to issue or to not issue the NTP for Stage II in OWNER'S sole discretion, and shall not be liable or responsible for any cost or liability or expense, if it does not issue or delays the issuance of the Stage II NTP, except as expressly set forth in this paragraph 11.02 and the termination for convenience provisions of Article 11 of the General Conditions, and except for any work performed by SUPPLIER for Stage I services before the contract is terminated.

11.03 Successors and Assigns. OWNER and SUPPLIER each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, its partners, successors, assigns and legal representatives in respect to all covenants, agreements and obligations contained in the Contract Documents.

11.04 Severability. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon OWNER and SUPPLIER. The Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

11.05 Cancellation. OWNER reserves the right to cancel the Project prior to issuing a Notice to Proceed. SUPPLIER shall note that by execution of this Agreement, OWNER does not guarantee that Stage II NTP will be executed, and retains the sole right to terminate the Contract Documents for convenience at any time, in accordance with Section 11 of the General Conditions.

11.06 Reserved.

11.07 Limitations

A. In no event will Buyer and Seller be liable for, and Buyer and Seller hereby waive against each other, and against the other's affiliates and their respective officers, directors, members, partners, employees, agents, consultants, and subcontractors, any and all claims for or entitlement to incidental, indirect, or consequential damages, including without limitation, loss of profit, or loss of revenue arising out of, resulting from, or related to the Contract or a party's performance hereunder, whatever the claim (tort, breach of contract or warranty or otherwise) and whatever the forum. Upon assignment the terms of this Paragraph 11.07.A shall be binding upon the assignee with respect to Seller and assignor.

B. Without limiting the generality of the foregoing, Buyer and Seller further agree that the total liability of each party to the other for claims, costs, losses, and damages arising from this Contract or a party's performance hereunder shall be limited to one hundred percent (100%) of the amount established in this Agreement as the Contract Price.

C. Upon assignment the terms of Paragraph 11.07.B shall be binding upon both the assignor and assignee with respect to Seller's liability, and upon Seller with respect to both assignor's and assignee's liabilities.

11.08 Insurance. In the event OWNER tenders a claim to SUPPLIER'S insurance and tender is rejected based on scope of coverage, SUPPLIER shall provide OWNER an electronic copy of the applicable policies for OWNER's review subject to a signed confidentiality agreement.

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11.08 Performance Bond. Notwithstanding anything to the contrary, any extended membrane module warranty shall be excluded from any performance bond required by the Contract Documents, and SUPPLIER shall provide a separate bond or letter of credit securing its obligations for the extended membrane warranty. The bonds or letter of credit shall be in a form acceptable to OWNER.

IN WITNESS WHEREOF, OWNER and SUPPLIER have signed this Agreement in duplicate. One counterpart each has been delivered to OWNER and SUPPLIER. All portions of the Contract Documents have been signed or identified by OWNER and SUPPLIER or on their behalf.

This Agreement will be effective on _____, 20____.

OWNER: _____

By: _____
[Corporate Seal]

Attest: _____

Address for giving notice:

_____

_____

_____

SUPPLIER: _____

By: _____
[Corporate Seal]

Attest: _____

Address for giving notice:

_____

_____

_____

EXHIBIT A-1 to Agreement Between
OWNER and SUPPLIER Dated

ASSIGNMENT OF CONTRACT; CONSENT TO ASSIGNMENT; AND ACCEPTANCE OF ASSIGNMENT

WHEREAS, the Owner _____Contractor have previously entered into that certain Agreement for Construction effective as of _____ ___, 20__ (the "Construction Agreement") in connection with the construction of the public work of improvement commonly known as the _____ (the "Project"); and

WHEREAS, the Owner and Supplier have previously entered into a certain contract for the Project, titled _____ and effective as of _____ __, 20__, (the "Agreement for Goods and Special Services - Stage II"); and

WHEREAS, the Owner, the Supplier and the Contractor now desire to assign the Supply Contract from the Owner to the Contractor and have the Contractor assume Owner's obligations to Supplier on the terms set forth below.

NOW, THEREFORE, the parties agree as follows:

1. Exhibit 1 to this Assignment and Assumption Agreement is a true, correct and complete list of all the documents comprising the Agreement for Goods and Special Services – Stage II - between the City of El Paso de Robles and _____ ("Supplier"). The parties agree that there are no other documents which form a part of the Agreement for Goods and Special Services that are not listed on Exhibit 1.

2. Subject to the terms and conditions below, Owner hereby grants and assigns to Contractor and Contractor hereby assumes, all the Owner's rights and obligations in and under the Agreement for Goods and Special Services – Stage II - for the limited purpose of managing Supplier's work, administering the Agreement for Goods and Special Services – Stage II - and enforcing Supplier's obligations under the Agreement for Goods and Special Services – Stage II. Notwithstanding this assignment, Owner retains all of its contractual and other rights under the Agreement for Goods and Special Services including, but not limited to, the Owner's rights of review, approval, acceptance, and/or rejection of Supplier's performance, whether said performance occurs before or after the date of this Assignment and Assumption Agreement. Any such exercise of rights by Owner shall have priority over any conflicting exercise by Contractor.

3. Contractor accepts all terms and conditions of the Equipment Purchase Agreement, and shall not add to, modify or revise any of the terms of the Agreement for Goods and Special Services – Stage II – without the written consent of Owner and Supplier.

ASSIGNMENT DIRECTED BY:

_____
OWNER

(If OWNER is a corporation, attach evidence of authority to sign. If OWNER is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of OWNER-SUPPLIER Agreement.)

By: _____
(Signature)

_____
(Title)

ASSIGNMENT ACKNOWLEDGED AND ACCEPTED BY:

_____
SUPPLIER

(If SUPPLIER is a corporation, attach evidence of authority to sign.)

By: _____
(Signature)

_____
(Title)

ASSIGNMENT ACCEPTED BY:

_____
CONSTRUCTION CONTRACTOR

(If CONSTRUCTION CONTRACTOR is a corporation, attach evidence of authority to sign.)

By: _____

EXHIBIT A-2 to Agreement Between OWNER and SUPPLIER Dated _____

CONSENT TO ASSIGNMENT BY SUPPLIER'S SURETY

Supplier is furnishing Goods and Special Services under the Contract Documents entitled_____ _____("SUPPLIER") and, in accordance with the Contract Documents, has furnished Payment and Performance Bonds, Number _____, dated _____ (the "Bonds"). _____ ("Surety") is the surety on the Bonds.

Surety hereby agrees that Owner's right, title and interest in the Contract may be assigned, transferred, and set over to _____ ("CONSTRUCTION CONTRACTOR"), in accordance with Paragraph 11.02 of Agreement between OWNER and SUPPLIER.

Surety further agrees that, upon assignment of the Contract, the CONSTRUCTION CONTRACTOR shall have all the rights of the OWNER under the Bonds.

Surety further agrees that the assignment shall not operate to exonerate or otherwise impair any claim by OWNER or CONSTRUCTION CONTRACTOR or any other beneficiary under the Bonds may have against Surety, including but not limited to claims for liquidated damages or other remedies.

(Corporate Seal)

Surety

Company: _____

By: _____
Signature and Title
(Attach Notary and Power of Attorney)

END OF SECTION

SECTION 004100 BID FORM

ARTICLE 1 – BID RECIPIENT

This Bid is submitted to:

City of El Paso de Robles
Public Works Department
1000 Spring Street
Paso Robles, CA 93446

Attn: Doug Monn, Public Works Director

ARTICLE 2 – BIDDER'S ACKNOWLEDGMENTS

2.01 Bidder accepts the provisions of the Agreement as to liquidated damages in the event of its failure to furnish the Goods and Special Services in accordance with the schedule set forth in the Agreement.

2.02 Bidder accepts the provisions of the Agreement as to the assignment of the Contract for furnishing Goods and Special Services.

2.03 Bidder will comply with all state, federal and local legal requirements applicable to the City's project, including and without limitation to other requirements, compliance with Title VI of the Civil Rights Act of 1964, the California Labor Code Section 1735 provision barring discrimination, the Copeland (Anti-kickback) Act, the Contract Work Hours and Safety Standards Act, and the California Department of Industrial Relations requirements to pay prevailing wages, including weekly certified payrolls, and the State Apprenticeship Requirements in Labor Code Section 1777.5., to the extent that Bidder performs work or services under this contract that are subject to these Labor Code requirements.

The minimum rates of wages applicable to the work to be done at the project site have been determined in accordance with the provisions of Sections 1770, et seq., of the California Labor Code. These rates are set forth in schedules located at the City's office at the address above. These schedules are available for review by any interested party on request. Prevailing wages shall be posted at the job site.

2.04. Bidder acknowledges that in accordance with the provisions of California Public Contract Code Section 22300, securities may be substituted for any monies which the OWNER may withhold pursuant to the terms of the Contract to insure performance.

2.05. Bidder acknowledges that in accordance with Public Contract Code Section 3400, the OWNER has made a finding that particular materials, products, things, or services are

designated by specific brand or trade names in order to match other products in use or obtain necessary items available only from one source.

ARTICLE 3 – BIDDER'S REPRESENTATIONS

3.01. In submitting this Bid, Bidder represents, as set forth in the Agreement, that:

A. Bidder has examined and carefully studied the Bidding Documents, the other related data identified in the Bidding Documents, and the following Addenda, receipt of all of which is hereby acknowledged.

Addendum No.	Addendum Date
not applicable	*not applicable*

B. If specified, or if in Bidder's judgment, any local condition may affect cost, progress or the furnishing of Goods and Special Services, Bidder has visited the Project Site and become familiar with and is satisfied as to the local conditions that may affect cost, progress, or the furnishing of Goods and Special Services.

C. Bidder is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress and the furnishing of Goods and Special Services.

D. Bidder has carefully studied and correlated the information known to Bidder, and information and observations obtained from Bidder's visits, if any, to the Site of the Work with the Bidding Documents.

E. Bidder has given ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by ENGINEER is acceptable to Bidder.

F. The Bidding Documents are generally sufficient to identify and convey understanding of all terms and conditions for furnishing the Goods and Special Services for which this Bid is submitted.

ARTICLE 4 – BASIS OF AWARD; BASIS OF BID

4.01. Award of the Contract, if a contract is awarded, will be on the basis of material and equipment specified or described in the Bidding Documents without consideration of possible "or-equal" items. Whenever it is specified or described in the Bidding Documents that an "or-equal" item of material or equipment may be furnished or used by

CONTRACTOR if acceptable to ENGINEER, application for such acceptance will not be considered by ENGINEER until after the Effective Date of the Agreement. The procedure for submittal of any such application by CONTRACTOR and consideration by ENGINEER is set forth in the General Conditions and supplemented in Section 01015, "Project Requirements."

4.02 Bidder will furnish the Goods and Special Services in accordance with the Contract Documents for the following price(s). Bidder shall include the cost of shipping, sales and use taxes in the Bid Price for Goods and Special Services.

BASE BID FOR GOODS AND SPECIAL SERVICES

Bid Item	Description	Unit	Estd Qty	Unit Price	Amount
1	Stage I Work:	LS	1	- -	$_____
2	Stage II Work:				
2a	Membrane Filtration System	LS	1	- -	$_____
2b	Manufacturer Field Services	LS	1	- -	$_____
3	Stage III Work: Support During System Performance Testing				
3a	Round-Trip Travel to Site	Trips	2	$_____	$ _____
3b	Service Days On-Site	Days	4	$_____	$ _____
4	Stage IV Work: Long Term Operation & Maintenance Services				
4a	Round-Trip Travel to Site	Trips	10	$_____	$ _____
4b	Service Days On-Site	Days	10	$_____	$ _____
	TOTAL BASE BID for Goods and Special Services				$ _____
	Replacement Membrane Modules to be provided during Stage II	LS	1	$__	_____

ARTICLE 5 – TIME OF COMPLETION

5.01. Bidder agrees that the furnishing of Goods and Special Services will conform to the schedule set forth in Article 5 of the Agreement.

SIGNATURE OF BIDDER

If a Partnership

By_____
(firm name)

_____
(signature of general partner)

Business address_____

_____

Phone No._____

Date_____, 20____

If a Corporation

By_____
(corporation name)

By_____
(signature of authorized person)

_____
(title)

Business address_____

_____

Phone No._____

Date_____, 20____

If a Joint Venture (Other party must sign below.)

If a Partnership

By_____
(firm name)

_____
(signature of general partner)

Business address_____

_____

Phone No._____

Date_____, 20_____

If a Corporation

By_____
(corporation name)

By_____
(signature of authorized person)

_____
(title)

Business address_____

_____

Phone No._____

Date_____, 20____

END OF SECTION

SECTION 466133 MEMBRANE FILTRATION SYSTEM (MFS)

PART 1 - GENERAL

A. Definitions

1. CDPH: California Department of Public Health

2. Chemical Cleaning / Clean-in-Place (CIP): The periodic application of a chemical solution (or series of solutions) intended to remove foulants from the membranes and reduce trans-membrane pressure (TMP).

3. Clarified Water: Nacimiento Project water that has been pre-treated by the dissolved air floatation (DAF) clarification process.

4. Component Function Test: The component function test is a point-by-point test to confirm that all components associated with the membrane filtration system are operating properly. Component function testing is not intended to measure efficiency and treatment performance.

5. Contractor / General Contractor: The contractor hired by the City under a separate contract to construct the water treatment plant, including installation of the equipment provided by the Supplier.

6. Control System Factory Acceptance Test (FAT): An integrated off-site test of the major treatment plant control interfaces, including the membrane filtration system (MFS) PLCs and I/O, coordinated by the Contractor's Process Control and Instrumentation System (PCIS) Integrator.

7. Demonstration Testing: Testing of the treatment plant, including the integrated MFS, conducted prior to substantial completion of treatment plant construction. Demonstration testing will involve multiple treatment plant systems operating together to demonstrate satisfactory operation of groups of systems and the facility as a whole.

8. Enhanced Flux Maintenance (EFM): A backwash process that uses water with

9. chemicals added to improve effectiveness.

10. Engineer: Treatment plant design engineer (AECOM).

11. Extended Performance Test: The extended field testing required to demonstrate the integrated MFS meets all of the specified performance requirements.

12. Filtrate: Water that has been filtered by the membrane filtration system, but has not passed through any post-filtration treatment processes.

13. Final Completion: Final completion of construction. The treatment plant must be reliably producing drinking water and all punch-list items resolved at final completion.

14. Finished Water: Water that has been filtered and disinfected and is ready to be distributed to the City's customers.

15. Gross Permeate Production: Total filtrate produced over a given time period (one day unless otherwise noted).

16. Integrity Testing: The process of applying a CDPH-approved direct or inferential method of assessing whether a membrane barrier is intact.

17. Log Removal: The filtration removal efficiency for a target organism, particulate, or surrogate expressed as $\log_{10}$.

18. Master PLC: The PLC, provided by the MFS Supplier, that monitors the status of the individual membrane skid I/O modules, monitors and controls membrane filtration system components located off of the individual membrane skids, monitors and controls the skid pumps and valves, and communicates with the plant SCADA system.

19. Membrane Module (Module): A self-contained microfiltration membrane unit consisting of hollow fibers bundled together in an enclosed cylindrical pressure vessel housing.

20. Membrane Skid: A self-contained group of equipment including membrane modules, feed water tank, RF tank, feed and RF pumps, strainer, manifold piping, valves, and instrumentation that can be operated independently while isolated from other membrane skids; synonymous with the terms *train*, *unit*, *rack*, and *bank*.

21. MG/MGD: Million gallons and million gallons per day respectively

22. Microfiltration (MF): A membrane filtration process that employs hollow fiber membranes with a pore size of approximately 0.1 µm.

23. Net Permeate Production (Useable Permeate Production): Equal to "gross permeate production" less all permeate used within the plant to operate and maintain the membrane filtration process. Time lost for operating and maintaining the membrane filtration system includes, but is not limited to, reverse flush, enhanced flux maintenance chemical cleaning, membrane integrity testing, and fiber/module repairs must be accounted for.

24. Owner/City: The City of El Paso De Robles (Paso Robles).

25. Percent Recovery: The ratio of net permeate production to membrane feed water flow over a one-day period.

26. Permeate/Filtrate: Water that has been filtered through the membranes.

27. Raw Water (RW): Untreated Nacimiento Project water

28. Reverse Flush (RF): Cleaning operation that involves periodic reverse flow of clean water and/or air from the filtrate side to the feed side of the membranes.

29. Start-up: The process of preparing and starting all of the systems in the water treatment facility and conducting the function and demonstration tests.

30. Substantial Completion: The state of construction completion when the water treatment plant is capable of fulfilling its intended function (reliably producing drinking water). There may be "punch-list" items still outstanding at substantial completion.

31. Supplier: The company responsible for furnishing the goods and special services defined in these procurement contract documents.

32. Test Procedures: Test procedures shall include testing methods, acceptance criteria, procedures, and test data from function, demonstration, and extended performance tests.

B. References

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to the laws or regulations of any governmental authority, whether such reference is specific or by implication, shall mean the standard, specification, manual, code, or laws or regulations in effect on the date the procurement agreement is signed.

2. Unless otherwise specified, the equipment covered by this specification shall be designed, manufactured, and tested in accordance with the latest applicable standards of:

   a. American Water Works Association (AWWA) to the extent specified herein

   b. California Building Code (CBC) to the extent referenced herein

   c. The Instrument, Systems, and Automation Society (ISA)

   d. National Electrical Code (NEC)

   e. National Electrical Manufacturer's Association (NEMA)

   f. National Sanitation Foundation (NSF) Standards 60 and 61

   g. OSHA (Federal) and CAL-OSHA (State of California)

   h. Steel Structures Painting Council (SSPC) Specifications

(1) SSPC Steel Structures Painting Manual, Volume 1, Good Painting Practice

(2) SSPC Steel Structures Painting Manual, Volume 2, Systems and Specifications

i. Underwriter's Laboratories (UL)

C. Related Work Specified Elsewhere

1. Process Control and Instrumentation System (PCIS) General Requirements: 405000

2. Instrument Control Panel (ICP): 405080

PART 2 – PROJECT DESCRIPTION

A. Project Purpose

The City of Paso Robles is a Project Participant in the Nacimiento Water Project (NWP) implemented by the San Luis Obispo County Flood Control and Water Conservation District (County). The NWP is a regional water supply system that conveys raw water from Lake Nacimiento to communities in San Luis Obispo County, including the City. The City plans to construct a Water Treatment Plant (WTP) Project to treat surface water received from Lake Nacimiento. The WTP will provide additional treated water supplies to the City's potable water distribution system to address increasing water demands within the City's service area.

B. Project Description

1. The WTP will treat up to 2.4 MGD of raw water deliveries from the NWP and may blend the treated surface water with groundwater from the existing Thunderbird wells. The primary project elements are as follows:

a. Construction of a raw water flow metering and control station connected to an existing NWP pipeline turnout structure. The NWP pipeline is supplied from submerged intake screens within Lake Nacimiento. The intake screens have an opening size of 1 x 1-1/2 inches.

b. The raw water may be dosed with potassium permanganate or sodium permanganate at the turnout structure for iron and manganese pre-oxidation, disinfection byproduct control, and algae control. The permanganate dosage is anticipated to range from zero to 5 mg/L.

c. The WTP includes dissolved air floatation (DAF) pretreatment. The raw water will be dosed with a coagulant (either alum, polyaluminum chloride, or aluminum chlorohydrate) prior to entering the DAF unit. No polymer will be added at any point upstream of the membrane filtration system. Clarified

water leaving the DAF process is anticipated to have a turbidity of less than 2 NTU 95% of the time. Turbidities may reach 5 NTU for short periods of time when the flow rate through the DAF is adjusted.

d. Clarified water from the DAF process will enter atmospheric feed water break tanks (1 furnished with each membrane skid) sized to equalize the membrane feed water flow such that the DAF process can operate at a constant flow rate while the MFS skids undergo periodic reverse filtration cycles.

e. The MFS skids (two 1.2-MGD skids) will pump water out of the feed water break tank, through pre-strainers and the MF membranes, and into an atmospheric filtrate break tank.

f. A booster pumping station (by others) will pump the filtrate out of the filtrate break tank, through granular activated carbon contactors, and into a clearwell where the water will be disinfected with chlorine.

g. High service pumps will pump water out of the clearwell into the City's water distribution system.

h. The treatment plant is being designed to facilitate the addition of an ozone system with pipeline contactor downstream of the filtrate booster pumping station. The MFS will be isolated from the ozone (if it is eventually added) by the filtrate pump check valves and the filtrate break tank.

i. All water treatment process residuals are being disposed of in a sewer. Membrane RF waste will be discharged through an air gap into a below-grade residuals equalization tank where it will be released into the sewer. Chemical cleaning wastes from the membrane filtration system, including wastes from CIP and EFM cycles, will be neutralized (in a neutralization system furnished as part of the MFS) prior to being discharged through an air gap into a below grade residuals equalization tank where it will be released into the sewer system.

2. Figures 1, 2, 3 and 4 located at the end of this specification show the process flow diagram, treatment building layout, hydraulic profile, and SCADA system diagram respectively. The general limits of the Supplier's scope of supply are identified on Figures 1 and 4.

C. Project Location

The project is located at the City's existing Thunderbird Well Field at 1600 Ramada Drive, Paso Robles, CA 93446. The site has an area of approximately 13 acres. The Union Pacific Railroad (UPRR) borders the site on its western side while the Salinas River borders the site to the east. Access to the site is made by way of US Highway 101, Ramada Drive, and a short paved access road to the WTP site.

D. Work Included in Membrane Filtration System Contracts

1. Stage I (Contract with Owner)

   a. Design of the membrane filtration system with two (2) 1.2 mgd skid mounted factory assembled units, and all ancillary components.

   b. Preparing shop drawing submittals for review and approval by the Engineer.

   c. Preparing a general contractor information package to be included in the treatment plant construction bid documents.

   d. Assistance to the Engineer during design of the non MFS treatment plant components and preparation of bid documents.

   e. Attending coordination / review meetings with the Engineer/Owner (detailed in Section 3.C.)

2. Stage II (Contract with Owner assigned to Contractor)

   a. Furnishing and delivering the complete membrane filtration system.

   b. Coordinating with the Contractor.

   c. Providing construction field services.

   d. Programming the MFS control system.

   e. Supporting the off-site process control and instrumentation system Factory Acceptance Test.

   f. Assisting the Contractor during installation of equipment, equipment startup, component function testing, and demonstration testing.

   g. Providing O&M manuals.

   h. Training the Owner's operators.

3. Stage III (Contract with Owner)

   a. Developing an extended performance test protocol.

   b. Assisting the Owner with execution of the extended performance test.

   c. Preparing an extended performance test report

4. Stage IV (Contract with Owner)

   a. Providing long-term operation and maintenance services.

E. Process Control Scheme

1. A water level signal from the City's Golden Hills reservoir site will be monitored by the WTP SCADA system, which will modulate the WTP raw water control valve to initiate and regulate flow and to enable the membrane filtration system.

2. The WTP SCADA system will establish a treatment plant flow setpoint and will maintain the treatment plant flow by modulating a flow control valve at the inlet to the DAF unit.

3. The membrane filtration system Master PLC will receive a call command and flow setpoint from the SCADA system when the treatment plant is on. The MFS Master PLC will then vary the speed of the on-skid membrane feed pumps to maintain a preset level in the membrane feed tanks. The DAF flow setpoint generated by SCADA can be used, in addition to tank level, to assist in trimming the MFS flow control loop.

4. The MFS control system will adjust the feed water pump speed to compensate for the excess feedwater that will build up during periods when one of the two skids is in RF mode.

5. Filtrate from the MFS skids will be discharged under residual pressure into a single filtrate break tank.

6. The speed of the treatment plant filtrate booster pumps will be controlled by the WTP SCADA system to maintain a preset level in the filtrate tank.

7. All membrane filtration system controls will be provided by the Supplier, including, but not limited to, controls required for filtrate production, RF, membrane integrity testing, EFM, and CIP. The membrane filtration system control system shall be capable of operating without an operator being present.

8. General requirements for the membrane control system are specified in Section 405000.

F. Water Source

The water to be treated by the WTP will be taken from Lake Nacimiento and conveyed to the WTP site by the Nacimiento Pipeline. The lake intake structure operated by the County includes multiple, independently operated, intake ports that will allow the County to vary the depth at which the water is withdrawn from the lake over a 120 foot range.

G. Source Water Quality

The membrane system shall be designed and sized to treat water having the design raw water quality parameters listed below except that the supplier shall assume that the DAF pretreatment process has reduced the turbidity to 2 NTU 95% of the time.

Design Raw Water Quality

Constituent	Units	Min	Max	Median	Mean	5th Perc.	95th Perc.	n
Algae								
Total Algae	no./mL	0	11,000	93	266			1,828
Blue Greens	no./mL	0	4,000	0	33			1,828
Diatoms	no./mL	0	3,400	18	70			1,828
Flagellates	no./mL	0	640	0	10			1,828
Greens	no./mL	0	10,000	39	153			1,828
Coliforms								
Total coliforms	MPN/100 mL	0	77,000	250	1,404	11	5,605	1,045
E. coli	MPN/100 mL	0	170	0	2			1,045
Crypto/Giardia								
Crypto/Giardia	orgs/L	0	0	0	0			22
Nutrients								
NH3-N	mg/L	0	0.22	0.00	0.01			96
NO2-N	µg/L	0	13	0.00	0.24			286
NO3-N	µg/L	0	844	0.00	84			302
NO3	mg/L	0	3.74	0.00	0.37			302
OKN	mg/L	0	0.00	0.00	0.00			58
TKN	mg/L	0	1.60	0.29	0.31			296
Reactive Si	mg/L	7	18	12	12			704
PO4-P (total)	mg/L	0	0.34	0.00	0.02			358
PO4-P-ortho (reactive P)	mg/L	0	0.06	0.01	0.02			42
DBP Precursors								
Bromide	mg/L	0.000	0.110	0.016	0.015			972
TOC	mg/L	2.6	6.4	3.4	3.6	2.8	5.2	1,398
DOC	mg/L	2.7	6.0	3.6	3.7			196
UV254	1/cm	0.041	0.199	0.100	0.108			196
SUVA	L/mg-m	1.3	5.2	3.1	2.9			136
General Minerals								
Aggressive Index	---	11	112	12	12			170
Alkalinity, total	mg/L	69	245	95	97	78	120	408
Ca	mg/L	19	38	27	27			246
Cl	mg/L	2	12	6	6			240
CO3	mg/L	0	20	0	1			242
Cu	µg/L	0	27	0	2			272
EC	µmhos/cm	180	380	270	268			232
Fe	µg/L	24	6,100	170	307	44	965	1,526
Hardness, total	mg/L	84	150	120	119	94	140	240
HCO3	mg/L	70	245	100	104			242
Langelier Index	---	-1.5	0.8	-0.5	0			244

Constituent	Units	Min	Max	Median	Mean	5th Perc.	95th Perc.	n
MBAS	mg/L	0	0	0	0			236
Mg	µg/L	8	20	12	13			240
Mn	µg/L	0	820	12	41	5	260	1,526
Na	mg/L	6	11	8	8			237
NO2-N	µg/L	0	13	0	0			286
NO3-N	µg/L	0	844	0	84			302
OH	mg/L	0	0	0	0			242
SO4	mg/L	5	39	30	29			240
TDS	mg/L	130	306	170	172			400
Zn	µg/L	0	57	0	3			269
Inorganics								
Ag	µg/L	0	0.58	0	0			248
Al - total	µg/L	0	2,400	79	181			1,676
Al - dissolved	µg/L	0	160	0	22			397
As	µg/L	0	3.00	0	0.17			248
Asbestos	MFL	0	0	0	0			20
Ba	µg/L	0	60	38	39			216
Be	µg/L	0	0	0	0			160
Cd	µg/L	0	0.53	0	0.01			216
CN	µg/L	0	0	0	0			142
Cr	µg/L	0	4.10	0	0.55			216
F	mg/L	0	0.28	0.14	0.15			224
Hg	µg/L	0	0.65	0	0			908
Ni	µg/L	0	6.90	0	0.72			200
NO3-N	µg/L	0	844	0	84			302
Pb	µg/L	0	4.20	0	0.14			216
Perchlorate	µg/L	0	0	0	0			22
Sb	µg/L	0	0	0	0			160
Se	µg/L	0	0	0	0			216
Tl	µg/L	0	0	0	0			160
Physicals								
Apparent Color	C.U.	4.0	55	18	20			347
Odor	TON	0	30	3	3		6	1,836
True Color	CU	2.0	37	8	10	3	24	1,796
Turbidity	NTU	0.5	44	3	6	1	18	1,751
Settleable solids	mg/L	0	0	0	0			35
Suspended Solids	mg/L	0	18	1	2			265
Depth	ft	2.0	140	42	47			1,957
DO	mg/L	0	12	7	6			1,516
Temp	ºC	6.8	27	12	14	10	24	1,988
pH	---	7.0	10	8	8	6.9	8.3	503
Radiologicals								
Gross A	pCi/L	0	2	0	0			62

Constituent	Units	Min	Max	Median	Mean	5th Perc.	95th Perc.	n
Ra228	pCi/L	0	0	0	0			6
VOCs/SOCs								
Atrazine	µg/L	0	0	0	0			16
Benzo(a)pyrene	µg/L	0	0	0	0			4
Chlordane	µg/L	0	0	0	0			8
DBCP	µg/L	0	0	0	0			8
DEHA	µg/L	0	0	0	0			6
DEHP	µg/L	0	16	0	3			18
EDB	µg/L	0	0	0	0			8
Endrin	µg/L	0	0	0	0			8
Hexachlorobenzene	µg/L	0	0	0	0			6
Heptachlor	µg/L	0	0	0	0			6
Heptachlor epoxide	µg/L	0	0	0	0			8
Hexachlorocyclopentadiene	µg/L	0	0	0	0			6
Methoxychlor	µg/L	0	0	0	0			8
MTBE	µg/L	0	14	0	4			22
Picloram	µg/L	0	0	0	0			8
Phenol	µg/L	N/A	N/A	N/A	N/A			N/A
Simazine	µg/L	0	0	0	0			4

*The data represents Lake Nacimiento data collected by the County over the time period extending from 1993 to 2011and is a compilation of water quality over the full range of lake inlet depths

The supplier shall perform any additional water quality testing deemed necessary to properly characterize the source water at no cost to the City. The supplier shall identify any reductions in MFS capacity resulting from variable feedwater temperature prior to execution of the purchase agreement.

H. Membrane Filtration System Capacity

The MFS shall have a capacity of 2.4 MGD in terms of minimum "net filtrate production" averaged over a 30-day period. "Net filtrate production" is defined as the filtrate production available to sell to the Owner's customers after meeting all of the membrane filtration system's filtrate needs, such as for RF and chemical cleaning of the membranes. This requirement shall be met assuming that both MFS skids are available for service and over the full range of water temperatures identified above.

I. Membrane Filtration System Configuration

The MFS shall consist of two 1.2 mgd skids. Both skids shall be required to produce the WTP design flow of 2.4 mgd and either skid shall be capable of operating independently of the other to produce 1.2 mgd.

J. Filtrate Water Quality

The filtered water turbidity shall be less than 0.05 NTU in 95% of samples taken from each MFS skid each month and no sample shall exceed 0.3 NTU at any time.

K. Reverse Flush Water Supply

Filtered water used for membrane RF cleaning shall come from an off-skid RF tank furnished with each MFS skid. Filtered water or service water used for CIP and EFM cleaning shall come from a tank furnished as part of the MFS chemical cleaning system.

L. Membrane Chemical Cleaning System

The Supplier shall design and furnish the equipment needed for the "clean-in-place" system as shown on Figure 1. The MFS shall require chemical clean-in-place no more frequently than once every 30 calendar days. Each CIP cleaning cycle shall require the MFS skid to be off-line no longer than 8 hours. The MFS shall require enhanced flux maintenance chemical cleanings no more frequently than once per day. Each EFM cleaning cycle shall require the MFS skid to be off-line typically no longer than 1-1/2 hours.

Any pump required for the proper operation of the membrane chemical cleaning system shall be furnished by the Supplier.

M. Membrane Integrity Testing

The Supplier shall design and furnish the equipment and controls needed for a CDPH-approved membrane integrity testing procedure. This includes equipment and controls needed to automatically operate and control the integrity testing process and to document the results.

N. Chemical Neutralization System

The Supplier shall design and furnish the equipment needed to adjust the pH of the EFM and CIP waste streams to between 6.5 and 8.5 prior to discharging them into the sewer.

Any pump required for the proper operation of the neutralization system shall be furnished by the Supplier.

O. Other Membrane System Needs

The intent is for the Supplier to provide all of the support equipment and materials necessary for proper operation of the Supplier's membrane filtration system.

P. Maximum Membrane Flux

The maximum instantaneous membrane flux shall not exceed 45 gallons per square foot per day (GFD) when the MFS is operating at its maximum 2.4 MGD net capacity.

Q. Percent Recovery

The membrane filtration system shall operate with a minimum percent recovery of 96%.

PART 3 – MANUFACTURER'S SERVICES

A. Submittals (Stage I)

Submit six copies of the following:

1. Shop Drawings: Submit drawings of the system including, but not limited to:

    a. Arrangement, layout, and dimensions locating all components requiring external interface and showing internal piping and wiring, and structural details necessary for the system to be integrated into the treatment plant.

    b. Materials of construction.

    c. Equipment weights (shipping and fully loaded)

    d. Include CADD files in AutoCAD 2010 or 2012 including English units.

2. Controls Description:

    a. Provide complete sequence and controls descriptions with figures detailing all system operational modes including, but not limited to, normal filtration, standby, recirculation, reverse flush, enhanced flux maintenance, chemical cleaning, membrane integrity testing, and emergency operations.

    b. Provide details of all control points and alarm setpoints.

3. ANSI/NSF 61 Certification. For the system as a whole or separate certifications for all surfaces in contact with process water, Supplier shall submit manufacturer's certification that wetted materials and coatings meet the National Sanitation Foundation requirements of ANSI/NSF 61 for contact with potable water.

4. Seismic calculations stamped and signed by a California registered Civil or Structural Engineer as specified under Seismic Requirements hereinafter. Include design of anchor bolts or epoxy anchors with anchor loads indicated in calculations.

5. Pump Performance Data: Submit characteristic curves plotting the following parameters versus flow rate in gallons per minute (specifically indicate design point on curves):

    a. Head in feet

b. Brake horsepowerEfficiency

c. Pump data including impeller diameter, rpm, and motor nameplate data.

6. Pump Motor Data:

a. Rated horsepower, voltage, full load current, kVA code, and locked rotor current at rated voltage; frequency and number of phases, service factor, design duty, insulation class, temperature rise by resistance, NEMA design class, and nominal and full load speed.

b. Bearing ratings, special features (e.g., space heaters, temperature detectors, etc.), enclosure type and finish.

7. Painting: Submit paint system, including materials and application data.

8. Special Tools and Spare Parts: Supplier shall submit a listing and description of all spare parts and special tools required to be supplied with the equipment. Additionally, the Supplier shall provide a listing of all available spare parts. The listings shall include spare part names, catalog numbers, and diagrams.

9. Copies of guarantees and warrantees.

B. General Contractor Information Package (Stage I)

Submit six copies of the following:

1. Narrative membrane filtration system process description

2. Final scope of supply with equipment data sheets and final valve, equipment, and instrument device schedules

3. Control system submittal per requirements of Section 405000.

4. Shipping and handling information and requirements

5. Detailed membrane filtration system installation instructions including interface points and connection type, equipment shipped loose and installed by General Contractor, electrical and instrumentation termination point and cross reference to plant MCC and PLC, tolerances and pre- and post-cleaning requirements.

6. Draft membrane filtration system startup plan, test plans, and schedule

7. Final technical information submittal

8. Description of conduit and wiring expected to be furnished and installed by the Contractor

9. Description of all field services to be provided to the Contractor

10. Handling Instructions: Provide detailed written instructions for unloading, handling, storage, protection of components for all Supplier-furnished components and subsystems.

11. Erection/Installation Instructions. Provide detailed written instructions, procedures, recommendations, and drawings required to erect or install the membrane filtration systems. The instructions shall be sufficient for the Contractor to properly place, anchor, install, and connect all membrane filtration system components and subassemblies both to each other and to other equipment not furnished by the Supplier. Include a description of installation sequence, connection procedures, alignment requirements, and assembly of shipped loose components.

12. Special Tools and Spare Parts: Supplier shall submit a listing and description of all spare parts and special tools to be supplied with the equipment including membrane bubble tester, acoustic leak detection equipment, membrane isolation caps, membrane repair pins, etc.

C. Assistance During WTP Final Design (Stage I)

The final design of the WTP will be based on the membrane filtration system selected by the City. In addition to the information supplied in the submittals, the Supplier shall provide assistance to the Engineer and the City during preparation of the plans and specifications for the WTP. Such assistance shall include providing detailed drawings of the equipment, piping and valving, instrumentation and control equipment furnished by the Supplier and other such details needed to complete the final design of the WTP. There will be two 3-hour conference calls during the final design at which technical representatives of the Supplier knowledgeable in all aspects of the MFS will participate. In addition, the Supplier will be requested to review and comment on the plans and specifications for the water treatment plant (as they relate to integration of the MFS) at up to two points during the final design.

D. Submittals (Stage II)

1. Submit six copies of the following prior to equipment delivery:

   a. RF System Pumps and Feed Pumps:

      (1) Catalog pump curves as specified.

   b. Final test procedures for all field tests.

   c. Supplier's field representative's resume demonstrating their qualifications and ability to perform the specified services.

   d. PLC software documentation, including license.

   e. Comprehensive training lesson plan and trainer's resume.

f. Operating and maintenance (O&M) manuals.

2. Submit six copies of the following prior to field testing:

a. Instrument calibration forms and certification.

b. O&M manual updated information (if any).

3. Submit six copies of the following prior to final acceptance:

a. Supplier's certificate of proper installation.

b. Field test reports

E. O&M Manuals (Stage II)

1. All shop drawing submittals shall have been reviewed and accepted by the Engineer before the Supplier submits the O&M manuals.

2. Prepare O&M manuals in 8.5" x 11" format in durable, three-ring plastic binders. Furnish the following:

a. Identification on, or readable through, the front cover stating the Owner's Proposal number and title, facility name, and the system or equipment described in the manual.

b. Title page including applicable equipment tag numbers and equipment manufacturer's name, address, and telephone number of the Supplier.

c. Table of contents organized and referenced to the manual section dividers.

d. Complete instructions regarding storage, handling, installation, operation, servicing, lubrication, troubleshooting, and maintenance of all equipment involved.

e. Comprehensive replacement parts list with detailed parts drawing and complete nomenclature of all replaceable parts, their part numbers, Detailed description of handling, replacement, and disposal of all fluids and replacement parts.

f. Copies of product data sheets and Material Safety Data Sheets (MSDS) for all expendable materials required or recommended for the system.

g. Copies of all guarantees and warranties issued including the start and end dates for the warranty period or conditions for the initial start date and the duration.

h. Copies of drawings and final shop drawings with all data concerning changes made during construction.

i. All field and factory test data including extended performance test data (to be inserted at the end of Stage III.

j. Provide section dividers for extended performance test data and Supplier's certificate of proper installation for insertion by the Owner when provided.

k. Complete manuals for all software.

l. Provide PLC software documentation with a detailed description of the entire software system. This documentation shall be sufficient for software maintenance and routine set point modification of the entire software system. The software documentation shall include an overview of the program, a narrative describing exactly how the program works, a flow chart to clarify the narrative description, a list of variables used by the program including the function of each, and graphic screens for the control panel.

3. Materials shall be word processed or type written. Handwritten materials are not acceptable.

4. Manufacturer's literature shall be originals or original quality copies. Specifically identify all equipment models and features being provided.

5. Three-hole punch shall not obliterate any information. Reduce original material as necessary to provide a suitable margin for three-hole punching or provide three-hole punched clear plastic pockets for inserting single sheet material.

6. Electronic Files

a. After the Engineer has approved each O&M manual, six hard copies and two copies of an electronic version shall be supplied to the Owner.

b. All electronic files shall be supplied on CD-ROM

F. Field Services (Stage II)

1. The Supplier shall furnish the services of an experienced field representative(s) knowledgeable of the membrane filtration system provided. The Supplier's representatives shall have knowledge of proper installation, programming, and operation and maintenance of the membrane filtration system. The Supplier's representative(s) shall be present at the site or classroom designated by the Engineer for the minimum person-days listed in the table below, travel time excluded. The Supplier's representatives shall be present at the project site during installation of the membrane filtration system and again at the time the membrane filtration system is started and placed in service. The Supplier's representatives shall advise the Contractor and the Engineer of the proper procedures of unloading, installing, adjusting, and aligning, and shall advise the proper procedures for starting the equipment. The Supplier's representatives shall be present at the project site during the first membrane chemical cleaning cycle.

Person-Days	Manufacturer's Services
5	Installation assistance and certification
4	Control system coordination meetings (two 2-day trips)
10	Testing, training and start-up

2. Installation Inspection and Certification: The Supplier's representative shall inspect the final installation and certify in writing that the membrane filtration system has been installed in accordance with the Supplier's requirements and is ready for start-up.

3. Field Testing and Start-Up: The Supplier shall coordinate and conduct all field testing in accordance with the approved test procedures. The Supplier shall also coordinate the start-up of the membrane filtration system and make adjustments and modifications as necessary to optimize the performance of the system.

G. Training (Stage II)

1. The Supplier shall coordinate and provide training for all equipment and systems provided by the Supplier. The trainer(s) shall be fully knowledgeable on all aspects of the equipment or systems for which they are providing training.

2. The Supplier shall provide all equipment and materials required for training.

3. Training Locations: Classroom training shall be at the Owner's facilities located at Paso Robles, California. Field training shall be at the project site. The Supplier shall coordinate the exact locations for training sessions with the Owner.

4. Training schedules shall be developed by the Supplier and approved by the Owner and shall be in accordance with the following:

   a. All training shall be completed after component funtion testing of the related systems and prior to start of demonstration testing.

   b. Training for an individual system or piece of equipment shall not proceed until after the system or piece of equipment has successfully passed its component function test.

   c. Training shall be conducted during normal City working hours unless otherwise required by the Owner's Representative.

5. All trainers shall familiarize themselves with the membrane filtration system installation site prior to the training.

6. The City reserves the right to videotape any or all training sessions.

7. Training Content:

a. O&M Manual Review: The Supplier shall provide a thorough discussion of the contents of the approved O&M manuals, including the following:

(1) Procedures for contacting the Supplier's representative for equipment field service.

(2) Procedures for ordering parts.

(3) Discussion of equipment warranty.

b. Operations Training:

(1) Training objectives.

(2) Principles of operation.

(3) Discussion of all design features.

(4) Discussion of all modes of operation.

(5) Discussion of membrane unit I/O sequence and interaction with the Master PLC and interaction of the Master PLC with SCADA.

(6) Start-up, shutdown, and emergency operating procedures.

(7) Operational safety precautions.

(8) Special procedures for extended shut-down of the MFS

c. Maintenance Training:

(1) Training objectives.

(2) Routine and preventive maintenance.

(3) Module testing, replacement, and repair procedures.

(4) Adjustment procedures.

(5) Overhaul procedures.

(6) Identification of lubrication and adjustment locations.

(7) Maintenance access locations.

(8) Maintenance safety precautions.

(9) Troubleshooting guide.

(10) Field test procedures.

H. Testing (Stage II)

1. General Testing Requirements

a. Stage II Testing will be comprised of component function and demonstration tests, and PCIS factory acceptance tests as specified herein. Extended Performance testing is part of Stage III.

b. The Supplier shall provide all temporary instruments and materials necessary to complete the tests.

c. The Supplier shall calibrate all instruments furnished with the full-scale membrane filtration system per the instrument manufacturer's procedures and specifications.

d. Test Protocols: The Supplier shall compose test protocols for each test. Test protocols shall be approved by the Engineer and the City prior to proceeding with testing. Test protocols shall include the following:

(1) Detailed test methods including sample calculations as required.

(2) Test setup procedures including details of all necessary adjustments, balancing, required equipment isolations or configurations, testing equipment, and testing instruments.

(3) Step-by-step testing procedures (number each step). Specifically identify each test instrument (including tag numbers) used during testing.

(4) Acceptance Criteria: definition of an acceptable test result.

(5) Data Forms: Include test name, equipment (with tag numbers as applicable) or system name, proposal number, section name and paragraph number, test instrument tag numbers, test date, specs for testing personnel names, test data names and units, reference equations for all calculated values.

(6) Test Procedures: Testing schedule and Supplier representative's resumes shall be approved by the Engineer and Owner prior to performing any tests.

e. Consumables: Chemicals, power, and other expendable supplies required for testing will be provided by the Contractor.

f. Test Report: Upon completion of testing for each piece of equipment or system, the Supplier shall submit typewritten test reports and data forms for

review and acceptance. The test reports shall include the conclusions based upon the information derived from the data forms. Submit test results with signed statement by Supplier's representative that results meet specification requirements and manufacturer standards. Upon acceptance, all test reports will be inserted by the Engineer into the O&M manuals.

g. System Modifications:

(1) In the event that any part of the membrane filtration system fails to operate as intended, or fails to meet the specified performance, the Supplier shall modify the subject equipment or system to conform with these specifications and retest to demonstrate compliance. All costs associated with the modifications and retesting shall be borne by the Supplier. All modifications shall be reviewed and accepted by the Engineer and shall conform to the Contract Documents. All modifications shall be designed and installed for permanent and continuous service.

(2) All modifications shall be properly documented in the O&M manuals (hard copies and electronic files) and record drawings as approved by the Engineer.

2. PCIS Factory Acceptance Test (FAT)

a. The fully assembled MFS Master Control Panel shall be successfully submitted to an integrated factory acceptance test before it is shipped to the jobsite for installation.

b. Factory testing will take place at the PCIS Integrator's facility located in California.

c. Include costs for shipping the panel to and from the Supplier's facility to the PCIS Integrator's facility in California. Alternatively, the panel can be shipped from the PCIS Integrator's facility directly to the job site at the conclusion of testing. Provide the services of a Supplier's Representative at the FAT site for the duration of testing. The factory test will be for a minimum of one (1) day.

d. The witnessed PCIS Factory Acceptance Test will demonstrate that the MFS control panel will perform each operation required for all specified conditions, including both normal and emergency operations and conditions.

e. Check panel wiring against approved submittal drawings. Record any changes made during testing of the equipment on the record drawings.

f. The system shall be exercised through operational tests, under factory-simulated conditions to demonstrate that the system is fully configured to perform all control, logic, monitoring, reporting, logging, archiving and

communications functions as specified and that the system is ready for field installation. All test equipment required to simulate actual field conditions shall be provided by Contractor's PCIS integrator.

g. The factory witness test shall take as long as necessary to demonstrate to the Owner and the Engineer that the system performs each operation.

h. If druing the FAT the MFS master control panel fails to function or cannot be made to integrate with the WTP SCADA system, a return visit to the PCIS Integrator's facility for re-testing will be at the total expense of the supplier.

3. Component Function Tests

a. Component Function tests are intended to verify proper operation of individual MFS components and/or subsystems prior to the start of the Demonstration Test, which involves operation of the integrated treatment plant.

b. Component Function tests will not proceed until the Engineer has received and approved the items listed below. The Supplier shall ensure that copies of these materials are on-site during testing.

(1) Supplier's certificate of proper installation.

(2) All factory test reports.

(3) Final O&M manuals.

c. All component function tests include:

(1) Installation Check: Check for proper rotation, adjustment, alignment, mechanical and electrical connections, proper lubrication, and any other conditions that may damage or impair functioning.

(2) Operation Check: Check for the proper operation of all system components.

(3) Controls Check: Demonstrate proper function of all local and remote controls, instrumentation, and other equipment functions.

(4) Alarms Check: Simulate alarm conditions and verify the proper operation of each alarm at the specified setpoint. Simulations shall be by means of direct element stimulation whenever possible or by other means when direct element stimulation is not practical as determined by the Owner's Representative.

(5) Run Check: Each system or equipment item shall be operated continuously for 1 hour, minimum, to verify satisfactory operation.

Additional operating time may be required as recommended by the Supplier. If any part of a unit shows evidence of unsatisfactory or improper operation during the one-hour test period, correction or repairs shall be made, and the full test operation as specified herein shall be repeated after all parts operate satisfactorily. All water used during the run check will be diverted to the sewer.

(6) Simulate all modes of system operation including normal mode(s), RF, recirculation, cleaning, membrane integrity test, and any other modes of operation.

4. Demonstration Test

a. The Demonstration Test will be conducted for a minimum of 5 calendar days to demonstrate to the Engineer and the Owner's satisfaction that all equipment and systems operate together as intended. During the Demonstration Test, the membrane filtration system and all other plant systems will be operated a minimum of 8 hours per day.

b. The Demonstration Test shall not proceed until all of the following have been completed:

(1) All functional tests for the facility have been completed and accepted by the Engineer.

(2) All Owner training has been provided to the satisfaction of the Engineer and Owner.

(3) All piping, conduit, equipment, and systems have been properly tagged and labeled.

(4) Copies of all prior tests (factory and function tests) shall be available on site.

c. The Supplier shall provide qualified personnel to supervise start-up and testing of the MFS. The Owner will provide State licensed operating personnel for the duration of the Demonstration Test to oversee the treatment of the water being sent to the City's consumers. The Supplier shall supervise the Owner's operating personnel to assure each MFS subsystem is being operated as intended.

d. The Owner will determine facility operating parameters such as plant flow rates, chemical dosages, and which systems or equipment will be operated at any given time. All systems and equipment will be operated within their normal operating ranges.

e. All defects in operation, materials, or workmanship that appear during the Demonstration Test shall be corrected by the Supplier and/or the Contractor.

In case of a system interruption exceeding four (2) hours, the Supplier shall repeat that day of the Demonstration Test. The Demonstration Test shall not be accepted as complete until all systems have successfully operated together to the satisfaction of the Owner for the continuous operational test period specified hereinbefore. All costs for corrective work and retesting caused by a defect in the MFS equipment or systems specified herein shall be borne by the Supplier.

f. System interruptions include the following:

(1) Malfunction or deficiency that results in a shutdown or partial shutdown of any system.

(2) Malfunction or deficiency in any backup system that cannot be corrected within 2 hours after identification of the problem.

(3) Malfunction or deficiency that results in system or equipment performance that is less than specified.

g. If an operational test is interrupted through no fault of the Supplier or the equipment or systems specified herein, the test may resume at the earliest mutually agreeable time at no additional cost to the Supplier.

I. Warranties (Stage II)

1. Hardware Warranty: For 12 months commencing from the date of substantial completion or two years from time of delivery from Seller (the "Warranty Period"), Seller warrants that products manufactured by Seller when properly installed and maintained, and operated at ratings, specifications and design conditions, will be free from defects in design, material and workmanship.

2. Module Warranty: (10 YEAR - 1 YEAR ABSOLUTE AND 9 YEARS PRO-RATED) For a period of 120 months commencing from the date of the startup, or 240 months from the time of delivery from Seller (the "Warranty Period"), whichever is sooner, Seller warrants that the membrane modules, when properly installed and maintained, and operated at ratings, specifications and design conditions, will be free from defects in design, material and workmanship. The Seller warrants satisfactory performance of each membrane module based on the microfilter system's ability to support design flow rates and the membrane modules passing the Seller's standard integrity test. In addition, the Seller warrants that the membrane modules will maintain satisfactory integrity over the Warranty Period. Specifically, a membrane module shall be deemed to be not satisfactory (defective) and shall be replaced with a new membrane module if any of the following conditions occur:

a. Individual membrane modules shall be subject to replacement, at the Owner’s discretion, under the terms of this warranty should one of the following conditions occur:

(1) If more than fifteen (15) individual fibers within a single module have failed;

(2) A module fails the integrity test and cannot be repaired by gluing or pinning.

b. All membrane modules installed on a membrane train shall be subject to replacement, at the Owner's discretion, under the terms of this warranty should one of the following conditions occur:

(1) If more than 6 membrane modules in a train have a membrane integrity failure occurrence in any three (3) month period; or

(2) If more than 12 membrane modules in a train have a membrane integrity failure occurrence in any twelve (12) month period

Owner and Seller will work together to optimize the specific operating protocol to be used including number of racks on line, flow rates per rack, cleaning technique and cleaning set points with the goal of achieving excellent long-term performance. Any change in operating conditions, water chemistry or the nature of the contaminants will require a review to determine the potential for impact on this warranty.

If the membrane modules fail to perform as outlined for up to twelve months commencing from the startup, or eighteen months from the time of delivery from Seller, whichever is sooner, Seller will be given the opportunity to remedy the situation in ways that do not increase Owner's cost of operation or maintenance and that are acceptable to the owner, for example, by modifying operating and/or cleaning protocol. If Seller is not able to remedy the situation, Seller will repair or replace those modules that do not perform if they are removed from service due to poor performance.

If the membrane modules fail to perform as outlined after 12 months up to 120 months commencing from substantial completion, or after eighteen months to 126 months from the time of delivery from Seller, whichever is sooner, Seller will be given the opportunity to remedy the situation, for example, by modifying operating and/or cleaning protocol. If Seller is not able to remedy the situation or repair the modules, Seller will replace those modules at the following replacement price:

- Replacement Module Price = Module Replacement Price entered on the bid form x (# of months from startup/120 months)

  Or

- Replacement Module Price = Module Replacement Price entered on the bid form x ((# of months from delivery – 12)/ 120 months))

Should membrane technology improve, for example via changes in the permeability or operating flux rates of the membranes, Seller shall have the right to provide a suitable number of alternative membrane replacements during the term of the warranty and beyond. This does not change the warranty since Seller guarantees the design flow capacity and the operational performance as defined within this proposal.

3. Seller's liability under any warranty is limited solely (in Owner's discretion) to replacing (FOB original ship point), repairing or issuing credit for products which become defective during the Warranty Period. Purchaser shall notify Seller promptly in writing of any claims and provide Seller with an opportunity to inspect and test the product claimed to be defective.

4. In no event shall Seller be liable for any product altered outside of the Seller's factory by someone other than Seller or for a product subjected to misuse, abuse, improper installation, application, operation, maintenance or repair, alteration, accident, or negligence in use, storage, transportation or handling provided that repairs or maintenance in accordance with Seller's documentation or written direction does not affect the warranty.

5. Seller shall not be liable for any damage or defect to equipment caused by improper use or mishandling of consumable items used in the operation of the treatment plant or by normal wear & tear or impact.

6. Seller shall not be liable for any damage or defect to equipment caused by operation of the equipment not in accordance with seller provided Operation and Maintenance manual even if seller is not aware of the existence of these conditions. Neither shall seller be liable for repairs, alterations or replacements to or uses of the equipment, which go beyond the equipment specification.

7. Seller shall not be liable for any damage or defect to equipment caused by operation of the equipment at pressures during forward flow, air scour and reverse flow modes higher than those recommended in the Operation and Maintenance manual

8. The performance bond issued in conjunction with this contract will only cover a one year warranty period and will not cover the long term warranties outlined above.

9. Warranty does not cover fiber damage due to foreign debris.

10. Warranty is void if Owner is in default of payment to Supplier.

11. For long-term membrane warranties Owner is required to contract Supplier to perform one system audit and CIP annually to maintain warranty validity. In addition, CIPs must be conducted by the Owner at the interval and formulation indicated in the Operations and Maintenance Manual (O&M Manual) and the system must be operated per the conditions indicated in the O&M manual or as may be modified as per paragraph I.2 of this warrantee.

J. Extended Performance Test (Stage III)

1. The purpose of the Extended Performance Test is to verify that the MFS meets the following performance requirements contained in this specification and to establish baseline MFS performance for future comparison:

   a. Maximum filtrate turbidity

   b. Minimum percent recovery

   c. Maximum transmembrane pressure

   d. Minimum chemical cleaning intervals (CIP and EFM)

   e. Maximum fiber breakage

2. The Extended Performance Test shall be conducted over a continuous 6 week (42 calendar day) period.

3. The Extended Performance Test will be performed by City staff under the guidance of the Supplier after project construction is complete. The Contractor will not be involved in the Extended Performance Test unless issues falling under the construction warranty arise.

4. Copies of all prior test results (factory and field component functional tests) shall be available on-site prior to proceeding with the extended performance test.

5. The Supplier shall prepare a test protocol for the Extended Performance Test. The test protocol shall be approved by the Engineer and City prior to proceeding with testing. The test protocol shall include the following items:

   (1) Detailed test methods including sample calculations as required.

   (2) Step-by-step testing procedures (number each step). Specifically identify each test instrument (including tag numbers) used during testing.

   (3) Acceptance Criteria: definition of an acceptable test result.

   (4) Data Forms: Include test name, equipment (with tag numbers as applicable) or system name, proposal number, section name and paragraph number, test instrument tag numbers, test date, specs for testing personnel names, test data names and units, reference equations for all calculated values.

   (5) Test Procedures: Testing schedule and Supplier representative's resumes shall be approved by the Engineer and Owner prior to performing any tests.

6. The Owner will furnish all consumables (e.g. chemicals and power) for the Extended Performance Test.

7. During the extended performance test, the membrane filtration system shall be operated as designed in automatic mode without temporary or auxiliary equipment that might enhance the performance of the system in any way.

8. Operational Data: During performance testing, the following operational parameters shall be continuously measured and recorded (frequency shall be sufficient to establish performance trends and satisfy the purpose of the performance test described in Paragraph 1):

   a. Feed temperature (°C)

   b. Membrane module pressures (psig), inlet and outlet.

   c. Transmembrane pressure (calculated) (psi).

   d. Raw water (feed water) flow rate (gpm) to be measured by City using the WTP raw water flow meter and WTP SCADA system.

   e. Permeate flow rate (gpm).

   f. Reverse flush water flow rate (gpm)

   g. Turbidity (NTU): raw water and permeate.

9. Laboratory Analysis (by others). The analysis of the samples taken during the performance tests may take as long as 30 days to finalize. Test results will be forwarded to the Supplier by others.

10. Performance Test Report: The performance test report shall include the detailed test procedures and results for all activities performed during the permeate production and the water quality performance tests. Results from all testing (including lab analysis) shall be summarized, tabulated, and graphed as appropriate. Analysis of testing, along with conclusions and recommendations for system optimization (if any), shall be presented in a test report. The results of all laboratory analyses shall be included in the report conclusions and bound into the report as appendices.

K. Long-Term Operation and Maintenance Services (Stage IV)

1. Supplier shall provide two (2) years of long-term performance support and operations assistance to the OWNER. The period shall commence on the date of Substantial Completion. The support services shall include regular onsite visits (monthly for the first three months and quarterly thereafter), and may also include unscheduled service calls on an as-requested basis, and additional training.

2. The onsite visits shall be in addition to other service-related calls required to correct system deficiencies under other provisions of the Contract. The dates of the visits shall be set by the OWNER. The SUPPLIER shall respond to the OWNER'S request for assistance by phone within twenty-four (24) hours of receiving the call. If the issue cannot be resolved over the phone, then the SUPPLIER shall provide a representative to the site within 48 hours of the request. The duration of each visit shall be one day (8 hours).

3. During each visit the representatives shall respond to specific requests of the OWNER's operating personnel, including instruction in proper system troubleshooting and routine maintenance, identification of problem causes, assistance with unit cleanings, and other like activities. Following each visit, the representative shall submit a report documenting activities and findings to the OWNER. The SUPPLIER shall make every attempt to send the same representative for each of the site visits to maintain continuity of service.

PART 4 – MATERIALS

A. Standard Design

It is the intent, unless otherwise specifically required by this specification, that the Supplier's standard design, including materials, controls, and hardware, be provided.

B. Operating Environment

All membrane filtration system components will be installed and operated in a temperature-controlled building with a temperature range of 50°F to 95°F.

C. Asbestos Exclusion

There shall be no asbestos utilized in any component, gasket, or subcomponent of any part of the membrane filtration system. If either accidentally, inadvertently, or unknowingly, any part of the unit contains asbestos, it shall be the sole responsibility of the Supplier to supply all labor and material involved in the replacement of the item.

D. Seismic Design Requirements

1. General: All products to be furnished under this contract shall be designed, constructed, and installed in conformance with the seismic requirements contained in the 2010 edition of the California Building Code (CBC) as modified below.

2. Anchorage: Design the unit and the associated supports and anchor bolts to support the equipment per CBC, Section 1613 and ASCE 7-10, Chapters 13 and 15:

   a. Occupancy Category: III.

   b. Importance Factor: 1.50.

c. Seismic Design Category D.

d. R: 3.0.

e. S_s: 1.201

f. S_1: 0.533

g. S_{DS}: 0.817

h. S_{D1}: 0.533

i. F_a: 1.02

j. F_v: 1.5

3. Wind Design for structures and equipment located outdoors shall conform to the CBC:

a. 1. Wind Velocity, mph: 80

b. 2. I: 1.15

c. 3. Exposure Category: C

d. 4. Adjustment Factor: 1.21 per ASCE 7-10, Figure 28.6-1.

4. Functionality

a. The equipment and all components shall not undergo loss of their intended function after application of the Design Earthquake Motions.

b. The Design Earthquake Motions shall be represented by the Design Response Spectrum (Figure 16-3) of the UBC and modified by multiplying the spectral accelerations by the Importance Factor, I = 1.50.

E. NSF/ANSI Standard 61 Certification

All components in contact with the water being treated shall be Certified in accordance with NSF/ANSI Standard 61, Drinking Water System Components – Health Effects. Certification may be a system certification or certification of individual components.

F. Membrane Units (Two 1.2 mgd Skids)

1. The MF system shall be a complete package that is primarily skid mounted and contains all pumps, manual & automated valves, tanks, instruments, pre-filters, membranes, control system, on-skid piping, wiring, conduit, and tubing to make up a fully operational system. To accommodate shipping, unloading, and layout flexibility, the system shall be provided in one or more pieces to be mounted at the

site for installation. If it is necessary to separate the system into two or more assemblies, such as when an off-skid module rack is provided, all the necessary interconnecting piping, tubing, wiring, etc. shall provided for the system to operate as a unit. The Plant General Contractor shall be responsible for installing interconnecting wiring, piping, etc.

The MF system shall include the following features as a minimum:

a. Feed and RF (Reverse Flush) tanks with associated level instrumentation

b. Feed/recirculation pump

c. Reverse Flush (RF) pump

d. Skid-mounted motor controls and starter including VFDs for pumps

e. On skid automatic backwashing pre-filter

f. Pressure transmitters for pre-filter and membrane pressure differential measurement

g. Temperature transmitter

h. Filtrate/backwash flow transmitter

i. Feed tank level transducer, auxiliary float switch, and motor operated on-off isolation valve

j. Module rack and associated piping

k. Stand alone fully wired master control panel with panel mounted HMI and PLC to provide automation

l. Fully automated Integrity Test

m. Fully automated air scrub/backwash system

n. Semi-automatic CIP (Clean In Place) system

o. All piping, valves, wiring, supports, and associated equipment to provide a fully functional system.

p. High pressure air compressor system

q. Low pressure air scour supply system

r. Turbidimeters (on-skid feed and filtrate)

s. EFM (Enhanced Flux Maintenance) Skid

t. Automated CIP Chemical Transfer

u. CIP Neutralization System

v. Block and bleed valves satisfying CDPH requirements

w. Uninterruptible Power Supply (UPS)

x. Equipment and programming necessary to integrate control/telemetry signals between the MFS Master PLC and SCADA system furnished by others.

2. Membranes:

a. Microfiltration modules shall be of hollow fiber construction and configured for a normal filtration flow direction from outside the fiber through to the inside (lumen) of the fiber. They shall be 0.1 micron rated PVDF (Polyvinylidenefluoride).

b. Membranes and module shall be compatible with the following cleaning and treatment chemicals at the levels indicated.

Chemical	**Maximum Continuous Concentration (maximum 40°C for CIP and 30°C continuous)**
NaOCl	< 5000 ppm
NaOH	< 4%
HNO_3, HCl, H_2SO_4	< 10%
Citric Acid	< 20%
Oxalic Acid	< 2%
EDTA	< 0.4%
Hydrogen Peroxide	< 2%
$Na/KMnO_4$	< 5000ppm
Chlorine dioxide, ClO_2	< 0.2 ppm

c. Membrane and module shall be compatible with the following coagulants:

(1) Alum (Aluminum Sulfate)

(2) PACl (Polyaluminum Chloride)

(3) ACH (Aluminum Chlorohydrate)

(4) FeCl3 (Ferric Chloride)

(5) Fe2(SO4)3 (Ferric Sulfate)

3. Membrane Modules

   a. The membrane fibers shall be encased in an ABS (Acrylonitrile-Butadiene-Styrene copolymer) housing that is suitable for water and air operating pressures up to 45 psig and up to 104F. The membrane fibers together with the housing shall be referred to as a membrane module.

   b. The modules shall be constructed as an integral unit, without mechanical seals such as o-rings and gaskets, to eliminate the risk of raw water bypass to the filtrate side of the membrane.

   c. The modules shall not require special lifting mechanisms for handling and must be able to be individually removed from the membrane rack.

4. Prefilter Assembly: MF system shall include on-skid automatic self-cleaning strainers to protect the membranes from particles that may cause damage. The strainer backwash shall be initiated by meeting a differential pressure setpoint, or by a specified time interval, whichever comes first.

   Strainer Specifications:

Type:	Self-Cleaning
Manufacturer:	Amiad SAF 4500 with 8" Flanges
Screen Size:	300 Micron
Body:	Painted Carbon Steel
Wetted Parts:	Stainless Steel, NSF approved internals
Motor:	1/3 HP 50/60 Hz
Control Voltage:	24V DC

5. Feed Pump Assembly

   a. MF system shall be supplied with two on-board centrifugal pumps assembly to feed the raw water or CIP solution to the membrane modules. The pumps, operating in parallel shall provide the specified rate of filtrate flow at a minimum of 5 PSIG at the filtrate outlet.

   Feed Pump Specifications:

Type:	316L Stainless Steel SSH
Manufacturer:	Goulds
Model:	6SH2P52B2
Mechanical Seal:	(John Crane Type 21) - Carbon/Silicon Carbide/EPR
Motor Manufacturer:	Baldor
Motor Specifications:	25 HP 3-phase TEFC, 2-pole 3500 RPM Premium Efficiency

Inverter duty rated per NEMA MG-1.31
Overtemperature switches in the windings
1.15 service factor at 40 degrees C.
Continuous time rated at 40 degrees C.
Stainless steel motor manufacturer nameplate fastened to motor listing information per NEMA Standard MGI-10.38 or MGI-20.60, as applicable.

b. The feed pump assembly is driven by a variable frequency drive (VFD) so that the filtrate flow rate is maintained over varying levels of flow resistance due to loading of the membranes. The VFD is mounted on the MF skid in a NEMA 4 enclosure.

VFD Specifications

Manufacturer:	ACTech
Model:	Powerflex 70
Enclosure:	NEMA 4

6. Reverse Filtration (RF) Pump Assembly

a. For backwash of the membranes, the system shall include an on-skid centrifugal pump assembly to deliver filtrate from the RF tank in the reverse direction to the membrane modules.

Feed Pump Specifications:

Type:	316L Stainless Steel SSH
Manufacturer:	Goulds G&L
Model:	SSH/6SH #6SH1N5D2,F2 JBOX
Mechanical Seal:	(John Crane Type 21) - Carbon/Silicon Carbide/EPR
Motor Manufacturer:	Baldor
Motor Specifications:	25 HP 3-phase TEFC, 2-pole 3500 RPM Premium Efficiency Inverter duty rated per NEMA MG-1.31 Overtemperature switches in the windings 1.15 service factor at 40 degrees C. Continuous time rated at 40 degrees C. Stainless steel motor manufacturer nameplate fastened to motor listing information per NEMA Standard MGI-10.38 or MGI-20.60, as applicable.

b. The RF pump assembly shall be driven by a variable frequency drive (VFD) so that the proper flow to backwash the membranes can be maintained, even if the number of modules changes. The VFD may be shared by the Feed Pump.

7. Feed/CIP Tank

a. The MF system shall include a feed tank as a buffer to the raw water supply. This tank allows for a discreet cut-off point between the boundary of the MF system and the water supply system by others.

b. The feed tank shall also serve the purpose of a recycle tank for chemical clean in place (CIP) solutions. The tank shall be equipped with a removable or hinged cover so that manual addition of CIP chemicals can occur. A 1/4" removable perforated screen constructed of PVC shall be installed on the tank outlet to prevent items that may be inadvertently dropped into the tank from damaging the feed/re-circulation pump, or membranes.

c. The feed tank shall be equipped with level transmitter, auxiliary high level float switch and a motor operated on-off valve to isolate the tank during CIP or to prevent tank overflow.

d. The feed tank shall be constructed of HDPE and be compatible with CIP/water treatment chemicals such as sodium hypochlorite, organic acids, potassium permanganate, chlorine dioxide, and sodium hydroxide. Tank capacity shall be 2,500 gallons, located off-skid with interconnecting piping provided by MFS Supplier but installed by others.

8. Reverse Filtration (RF) Tank

a. A closed tank shall be included to collect clean permeate to be used for backwash of the membranes.

b. The RF tank shall be equipped with level instrumentation and an on-off valve to prevent overflow in normal operation.

c. The RF Tank shall be fully enclosed to prevent contamination. It shall be vented through a filter assembly with removable cartridges rated at 10 microns absolute.

d. The RF tank shall be constructed of HDPE and be compatible with CIP/water treatment chemicals such as sodium hypochlorite, organic acids, potassium permanganate, chlorine dioxide, and sodium hydroxide. Tank capacity shall be 1,100 gallons, located off-skid with interconnecting piping provided by supplier but installed by others.

9. Instrumentation

a. Each MFS skid shall include at a minimum the following instruments to monitor and report to the control system:

- Feed tank level
- Reverse filtration tank level
- Pre-filter inlet pressure
- Pre-filter outlet/module feed pressure
- Filtrate outlet pressure
- Water temperature near the module
- Filtrate flow rate exiting the membrane modules
- Throttling valve position
- Pressure switch for low-air pressure

b. All analog instrumentation shall use 24VDC, 4-20 mA output. An alarm shall be generated if the system detects a transmitter failure.

c. Local display of the following shall be included, either as integrated into the transmitter, or as individual indicators for the following:

(1) Feed tank level

(2) Reverse filtration tank level

(3) Pre-filter inlet pressure

(4) Pre-filter outlet/module feed pressure

(5) Filtrate outlet pressure

(6) Filtrate flow rate

(7) Instrument air pressure for valve actuation

(8) Instrument air pressure for module regeneration

(9) Air scour air flow rate

d. The following additional instrumentation shall be provided on-skid:

(1) Hach 1720E Turbidimeters (module feed water)

(2) Hach 660 Laser Nephelometers (filtrate)

10. Level Transmitters

    a. Tank level transmitters provide accurate indication of tank level using a pressure measurement of the head in the tank. Wetted components shall be 316L stainless steel. Electronics shall be FM approved and Local LCD display provided.

    b. Calibration shall be performed with the use of a Hart Communicator.

    c. Level transmitter shall be Rosemount Pressure Indicating Transmitter – 0-30 PSI. Model 2088G1S22A1M5.

11. Pressure Transmitters

    a. Pressure transmitters shall be FM approved, with 316L stainless steel wetted components.

    b. Calibration shall be performed with the use of a Hart Communicator.

    c. Pressure transmitter shall be Rosemount Pressure Indicating Transmitter – 0-150 PSI. Model 2088G2S22A1M3.

12. Flow Transmitters

    a. Flow transmitters shall be magnetic type, with PTFE lined wetted components and 316L SST electrodes. Electronics shall be FM approved.

    Transmitter Specifications:

Manufacturer:	Rosemount
Model:	8711TSE060U1N0DW Flow Tube w/ 8732CT03N0M4 Transmitter
Flow Tube Specs:	6” Wafer Type
Liner:	Teflon
	Integral mount to 8732C Transmitter
Electrodes:	Two 316LSST, one ground
Transmitter:	5-30V DC Power
Enclosure:	NEMA 4X CSA Type 4X, Integral Mount

13. Temperature Transmitters

    a. The temperature transmitter is used to protect the membranes from high temperature (maximum temperature entering membrane =104 deg F), and to monitor CIP/EFM temperature to assure proper cleaning.

    b. Temperature transmitter shall be RTD type with thermowell constructed of 316 SS.

c. Approved supplier shall be Rosemount (Model 0068N21N00A025T32X1 w/ 144HNA Transmitter)

14. Pressure Gauges

a. Pressure Gauges shall be bourdon tube type with a liquid filled 2 ½" diameter dial display. Tube, socket, and case materials shall be 316 SST. Readout in both PSI and kPa.

b. Approved supplier shall be Ashcroft (Model 63-1008SL-02L-100PSI/KPA)

15. Pressure Switches

a. The pressure switch is used to verify that the air pressure is adequate to actuate the control valves and provide adequate air for the air scrub.

b. The pressure switch shall be a diaphragm type with dual action control in a NEMA 4 housing. Stainless steel shall be used for contact with the process air.

c. Approved supplier shall be Barksdale (Model CD2H-A150SS)

16. Valves. Valves in contact with raw water or filtrate water shall contain wetted components of 316, 18-8stainless steel, PVC, or NSF approved elastomers.

17. Automated Valves indicate proposed supplier and "or equal"

a. Automated valves used for throttling flow control, or on/off valves that cycle regularly shall be butterfly type and incorporate a pneumatic actuator controlled by a 4-way solenoid valve. Butterfly valves shall be lug-style for capture between ANSI B16.5 style flanges. Automated valves and their actuator/positioner shall be certified by the manufacturer to be acceptable for use up to 1,000,000 cycles in water service, using clean, dry, instrument air as the driving force.

b. Pneumatic actuators shall be double rack and pinion type. Actuators shall operate at a drive air pressure of 90 PSIG or greater.

c. Air to valve actuators must be controlled by 4-way electrical solenoid valves that receive electrical signals from the control system. Solenoid valves shall be block mounted. Manual actuation capability shall be available so that the system's normally automated valves can be controlled in the event that the main system controller fails. Each automated valve without a spring return actuator shall include two (2) variable port valves that can be set to choke airflow to the actuators, allowing adjustment of opening and closing valve speed.

d. Tubing to deliver air to actuators shall be ¼" polyethylene.

e. Level Control valve shall be 6" Tyco/Keystone 222LT Lug-Style Butterfly. Actuator shall be Morin MRP Spring Return Pneumatic – Rack and Pinion. Positioner shall be SMC – Model INOI-7857-032N-X3.

f. Actuated valves shall be Tyco/Keystone 222LT Lug-Style Butterfly. Spring return actuator shall be Morin MRP Spring Return Pneumatic – Rack and Pinion. Dual Acting actuator shall be Morin MRP Dual Acting Pneumatic – Rack and Pinion.

g. Solenoid valves shall be MAC manifold style model Mac 46A-LSA-AD-JDAP-2FD=532S air valves with base, 24VDC, manual overrides, lights, flow controls.

18. Manual Valves

a. Manual valves for on/off service shall be ball or butterfly type. For throttling service, manual valves shall lock in place to prevent position changes without manual intervention.

b. Water and Low Pressure Air (<50psi)

(1) Butterfly valves shall be Tyco/Keystone 222LT Lug-Style Butterfly. Body shall be cast iron. Disc and stem shall be 316 SS. Seat shall be EPDM NSF approved.

(2) Ball valves greater than or equal to 1 inch shall be Spears 3629 Socket Weld.

(3) Ball valves less than 1 inch shall be Spears 1529 Threaded.

(4) Globe valves shall be Trueline N-651 200 PSI Stainless Threaded (316 SS)

(5) Water check valves shall be Spears Butterfly Check 542G-060, PVC Body.

(6) Air check valves shall be Conbroco SST Ball Check - APOLLO #62-107-01.

c. High Pressure (>100 psi) Air valves shall be Numatics VL40N12YA w/ Muffler, Lockout Capable.

d. Air pressure regulators shall be Numatics FlexiBlok Coalescing Filter/Regulator model C22E-03ADGM w/gauge.

e. Process regulator shall be Cashco DL Series model 2H9-1-B2-7-12000000A

19. Control System

    a. The control system shall be capable of operating the system automatically with a minimum of operator intervention. In automatic mode, the system shall monitor the instrument readings and adjust the system's operation based on those readings in accordance with the preprogrammed logic. The control system shall alarm operators of abnormal conditions, and provide an interface so that an operator can manually operate the system.

    b. Programmable Logic Controllers – The MFS shall include its own Allen Bradley Logix 5000 series PLC that controls pumps, valves, etc. The ControLogix PLC processor shall be used in the master control panel with Flex I/O blocks in each skid panel.

20. Control Enclosure

    a. The MF system shall have a main free-standing control panel. The control panel shall be NEMA 4 rating and be designed and constructed per the National Electrical Code (NFPA 70) and NFPA 79. The main control enclosure shall be constructed of carbon steel and shall be commercial-grit blasted to SSPC-SP10, primed with one coat of aromatic urethane zinc-rich primer (2.5-3.5 mils DFT) followed by 4 - 5 mil DFT finish coat of Tnemec Endurashield, series 73 (11sf safety blue), applied in two passes with partial drying between passes (equals one high-build coat). Total coating system (primer plush finish) is 7.0 mil DFT minimum.

    b. Approved supplier shall be Hoffman.

    c. See Section 405080 for Control Enclosure detailed requirements.

21. Operator Interface Terminal (OIT) / HMI

    a. The main control enclosure shall incorporate a operator interface terminal with a diagonal display length of 7 inches. The operator interface shall be programmed to display the system graphically in line drawing form to allow clear visual confirmation of the system status. This interface shall allow the system to be started and stopped in automatic mode, display process variables and alarms, allow the user to adjust system set points, silence/acknowledge alarms, manually initiate automated processes (i.e. filtration, regeneration, integrity test, etc.), prompt the user in a step by step fashion during manual procedures (i.e. CIP procedures), and allow true manual operation of the system by allowing the user to position individual valves and control pumps.

    b. In addition to the graphical OIT, the enclosure door shall contain the following devices, each containing a UL mark:

        (1) Pilot light to indicate a general alarm condition

(2) Pilot light to indicate that instrumentation voltage is present

(3) Lighted QUICK stop pushbutton (lit when the Q-stop is engaged)

(4) Fused disconnect door latch

c. OIT shall be Allen Bradley PanelView Plus™ 700 - 7" Diagonal model. Software shall be RSView HMI programming software or equivalent.

22. Programmable Logic Controller

a. Mounted within the enclosure shall be the system's main controller. This shall be a commercially available programmable logic controller with sufficient I/O to automatically control the system's valves, send signals to operate the system's pumps, and receive input from the instruments included with the system. A block of terminals shall be provided within the control panel; specifically designated to receive input from MFS instruments. There will be wired into the PLC's I/O to allow the system to accept signals from upstream or downstream equipment so that the system can be automatically stopped, started, or production rate changed based on the availability of feed water or filtrate storage space.

b. Wiring to/from PLC input/output modules shall run through a properly sized fuse to protect the instrument or PLC module.

c. The control system shall include the following hardware.

(1) Allen-Bradley® ControlLogix™ 5000 PLC

(2) Local I/O discrete modules shall be Allen-Bradley.

(3) Local I/O analog modules shall be Allen-Bradley.

(4) Power Supply shall be manufactured by Allen-Bradley.

(5) Terminal Blocks shall be manufactured by Allen-Bradley.

(6) Control enclosures shall be Hoffman or equal.

(7) Control panel indicator lights and switches shall be Allen-Bradley.

(8) HMI Interface shall be PanelView by Allen-Bradley.

(9) Networking hardware shall be Phoenix Contact or equal.

d. The control scheme shall be based on a single master PLC in a wall-mounted panel with distributed I/O. The master PLC shall control all filtration skid processes and devices. The EFM/CIP Hot Water System will also be controlled by the master PLC. The master PLC will be an Allen-Bradley®

ControlLogix™ 5000 programmable logic controller. Each filtration skid will contain a control enclosure with Flex™ I/O. Communications between the master PLC and HMI is handled via Ethernet. Communications between the master PLC and the filtration skids shall be handled via Ethernet™ The standard master control enclosure will be mounted in close proximity to, and in full view of the filtration skids and contain a PanelView™ HMI.

23. UPS

a. Provide a UPS to protect the PLCs, instruments, and communication system from line disturbance, subcycle power losses, brownouts, blackouts, or general power outages. In normal operation the UPS shall supply filtered and regulated AC power to the load. Upon failure of the commercial AC power the critical load shall continue to be supplied by the inverter, which shall obtain its power from the battery.

b. There shall be no interruption of the output waveform to the critical load upon failure or restoration of the commercial AC source. Upon restoration of the commercial source, the inverter/charger shall recharge the battery.

c. The UPS shall have a built-in battery test feature to periodically test the battery with actual load connected. During the test the load power shall be derived from the inverter. There shall be no power interruption to the load, if the battery test fails.

d. The UPS shall be complete with the following features:

(1) Power indication;

(2) “Common Alarm” discrete output;

(3) “UPS on Battery” discrete output;

(4) Inverter circuit breaker protection.

e. The UPS system shall meet the following requirements:

(1) Input/output voltage: 120-volt AC, single phase, 60 Hz.

(2) Output harmonic distortion: 5% maximum at full load.

(3) Frequency stability: +/-0.5%.

(4) Voltage regulation for line and load: +/-3%.

(5) Overload capacity: 125% for 10 minutes.

(6) Battery lifetime: 3 years at ambient temperature 40 °C.

(7) Operating Temperature: 0 °C to 40 °C.

(8) Batteries: Internal

(9) Output rating: 500 VA.

(10) Battery Backup Time: 9 minutes (at full rated load).

f. UPS shall be manufactured by Allen-Bradley Cat. No. 1609-U500-NS, or equal.

24. EFM/CIP Hot Water System:

a. The EFM/CIP Hot Water system shall be designed to deliver hot and cold water, and various chemicals to a filtration skid for the Enhanced Flux Maintenance (EFM) and Clean-In-Place (CIP) processes. It is also be used to provide solutions to neutralize discarded acid and caustic solutions that were used during a Clean In Place process.

b. Hardware - The system shall include a local panel with local I/O that is connected to the filtration skid via Ethernet™.

c. Local I/O: Allen-Bradley® Flex™ I/O series I/O products.

d. Networking –connection to the filtration skids via Ethernet™.

25. Network Access

a. The MF system shall include an Ethernet connection port for connecting the system to the WTP SCADA system.

26. Alarms

a. Alarm conditions shall be displayed and acknowledged at either the main OIT or via SCADA. An alarm condition shall also cause the alarm pilot light to be lit, and an audible horn mounted on the control panel shall sound. Controls shall be included to allow the operator to silence the horn, but the alarm will continue to be visually displayed until the alarm is corrected/acknowledged.

b. The following alarm conditions shall be included as a minimum:

(1) Q-stop

(2) Feed Pump Fault

(3) RF Pump Fault

(4) Lack of feed fluid/filtrate storage

(5) Low Air Pressure

(6) Integrity Test Failure

(7) Low/high RF tank level

(8) High/Low feed tank level

(9) CIP required (high TMP)

(10) High turbidity

(11) High/low water temperature

(12) Level, pressure, flow, temperature transmitter failure

27. Quick Stop: Once the Q-stop pushbutton is pressed (located on the control panel door), all pumps on the MF skid shall stop, and the system's inlet, outlet, and drain valves shall close. The system will not be able to operate again until the operator disengages the Q-stop button.

28. Control Enclosure Wiring

    a. The main control panel shall be completely wired at the factory. Control enclosures shall be designed and constructed in accordance with UL 508A, and only by manufacturer's capable of listing equipment to UL 508A. All components within the control enclosure shall contain a UL mark and have termination points that are finger safe.

    b. Power brought to the cabinet in the specified voltage shall only need to be terminated at a fused disconnect switch that is interlocked to the enclosure door. A power supply shall be provided to convert the base voltage of the system to alternate voltages that may be required by components on the skid (120V 1 phase, 24VDC, etc.).

    c. A surge suppressor shall be included in the main enclosure to protect the power supply, the PLC and I/O modules, and the skid mounted valves and instruments from power surges.

    d. Wiring within the panel shall be routed through plastic wire ways for neatness and organization. Where feasible, conductors for high (120 VAC and above) and low (24VDC) voltage shall remain separated. Copper wire shall be used and sized for its load per NEC/NFPA79 requirements. All wires will terminate through a ferrule type connector and terminate on finger safe, screw clamping terminal blocks.

29. Electrical Wiring

    a. MF system shall be delivered completely pre-wired from the main control enclosure to solenoid valves and instruments. Wiring shall be copper, and sized for its load per NEC/NFPA79 requirements. All wires will terminate on screw clamping terminal blocks.

    b. Wires from the main control enclosure shall be enclosed in conduit made of PVC or flex-tite style PVC conduit that is completely sealed from moisture. Where practical, low voltage control conductors (24VDC) shall be separated from those carrying high voltage power (120VAC and above).

30. Instrument Air Tubing

    a. Tubing is used to deliver instrument air to the valve actuators and automatic backwashing strainer included on the system. Instrument air tubing shall be 1/4" diameter polyethylene. Reusable compression fittings shall be used in the instrument air system.

    b. Instrument air for all purposes shall enter the system through a common air inlet line. Pressure adjustment shall be provided using adjustable pressure regulating valves manufactured by Numatics or Festo. The main air intake line shall have a manual lockout valve to allow lockout of air to the system for valve maintenance.

31. Pipe And Fittings

    a. The MF system plumbing shall incorporate stainless steel, HDPE, or PVC pipe and fittings.

    b. Stainless steel pipe shall conform to ANSI B36.19 and be constructed of schedule 10s austenitic stainless steel to ANSI A312 type 304, 304L, 316, or 316L. Only welders qualified to section IX of the ASME/ANSI boiler and pressure vessel code shall perform welding of SST pipes. All stainless steel piping shall be pickled, scrubbed and passivated unless electro-polished.

    c. PVC pipe shall be NSF approved Type 1 Grade 1 gray with compounds conforming to ASTM D-1784. Pipe and fitting wall thickness shall be schedule 40 and 80. Socket welded fittings shall be used whenever possible, using solvent bonding techniques.

    d. Flanges shall use bolting patterns per ASME/ANSI B16.5

32. Frame Assemblies

    a. The MF system and modules shall be mounted on a steel framework fabricated primarily from square tubing. Exceptions to this are angles, plate, round pipe, or other structural shapes that may be welded to the tubing for use

as legs or mounting brackets for pumps, instruments, and other components. Frame materials shall be seal welded together to prevent moisture from entering the welded joint or the interior of closed element such as tubing or pipe. Personnel performing welding shall be qualified to AWS 1.1.

b. Frame material shall be carbon steel. It shall be grit blasted to SSPC-SP10 and primed with one coat of Tnemec 90-97 Tnemec-zinc, 2.5-3.5mil DFT. 4 - 5 mil DFT finish coat of Tnemec Endurashield, series 73 (11sf safety blue) shall be applied in two passes with partial drying between passes (equals one high-build coat).

c. The frame shall have legs with steel base plates for anchoring to a foundation (by others) using supplier designed and furnished anchor bolts/nuts.

d. Dissimilar materials shall be separated by a non-conductive isolating material.

33. EFM/CIP Hot Water Skid

a. This system provides the following:

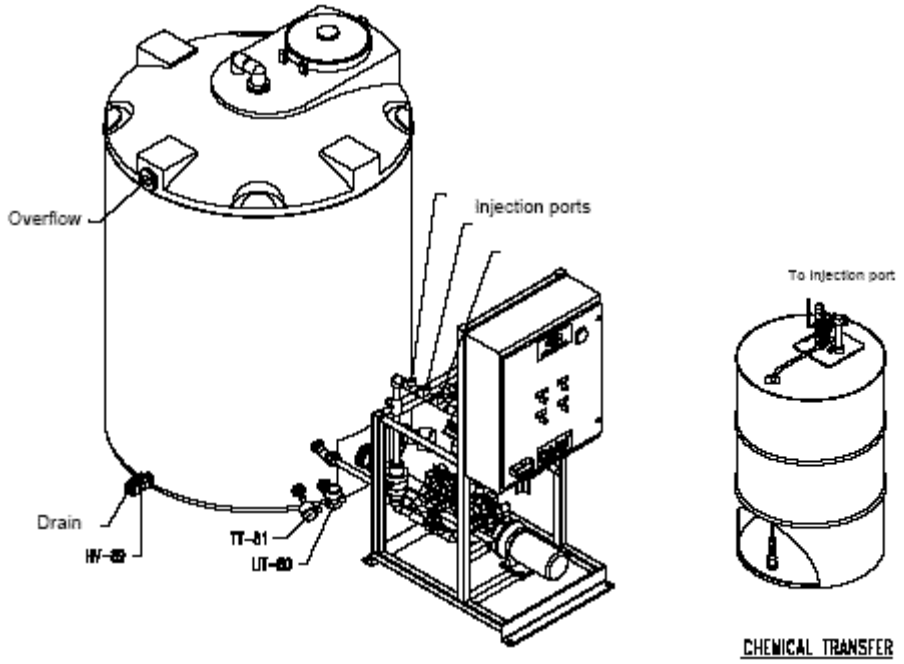
(1) Warm water for CIP (Clean In Place) operations.

(2) Provides EFM (Enhanced Flux Maintenance) capability.

(3) Provides capability for automatic injection of CIP chemicals.

(4) Provides capability for automatic injection of chemicals to neutralize the CIP waste to the Neutralization System.

b. This system generally includes: a tank with an immersion heater, level control and temperature transmitter, a supply pump to transfer the water to the AP system feed/recirculation tank, air driven diaphragm chemical pump, solenoids, control panel to control the operation and communicate with the AP or master control system, and the various valves, injection ports, piping, and wiring required. The supply pump, valving, injection ports, control panel, etc., shall be skid mounted, with interconnect piping included to connect to the free-standing warm water tank. The chemical pump shall be mounted on a plate and shipped loose so that it can be located directly on a chemical drum or tote.



EFM/CIP Hot Water Skid and Chemical Pump

c. Equipment used for the skid shall be as follows:

(1) Tank shall be vertical round style 2500 gallon, HDPE tank manufactured by Snyder or equal.

(2) Tank heater shall be flange mounted Hubbell V1645T4XX circulation heater. Material shall be 304 L SS.

(3) Warm water transfer pump shall be Goulds model NPE 2ST1H5A4 1.25 x 1.5 – 6. Pump shall be centrifugal style and produce a maximum of 120 gpm.

(a) Motor shall be 3 HP, 3-phase TEFC, 2-pole 3500 rpm. Motor shall have continuous time rating at 40C and 1.4 service factor at 40C.

(b) Seal shall be John Crane Type 21 – Carbon/Silicon Carbide/EPR

(4) Solenoid Valves shall be 4-way, 24 volts as manufactured by MAC.

(5) Flow switch shall be Harwill paddle style with socket weld PVC.

(6) Chemical transfer pumps shall be Wilden diaphragm, air operated. Pumps shall produce 0 – 3 gpm and 100 ft. of head with an air consumption of 5 SCFM max.

(7) Actuated valves shall be Tyco/Keystone 222LT Lug-Style Butterfly with cast iron body, 316 SS disc and stem, and EPDM Food Grade Seat. Actuator shall be Morin MRP Spring Return Pneumatic. Actuated valves shall have limit switches to indicate valve open/closed status.

(8) Manual Valves

(a) Ball valves shall be Spears 3629-020 socket weld with PVC body and EPDM gaskets.

(b) Gate valve shall be Spears 2022-007 socket weld with PVC body and EPDM O-ring.

(9) Check Valves

(a) Butterfly valves shall be Spears 542G-020 PVC (2 in.)

(b) Poppet valves shall be FLO 1790-C20 PVC (2 in.)

(10) Level Transmitter shall be Rosemount 2088G1S22A1M5 0-30 PSI with LCD display. Wetted parts shall be 316L SST.

(11) Temperature sensor shall be Rosemount RTD with 316 SS thermowell.

(12) Injection Valve shall be LMI Chem Injector/check valve #38026.

(13) Foot valve shall be Jaco Kynar Ball check valve with Hastelloy Spring, Buna N O-Ring and Teflon Ball.

34. CIP Transfer/Injection. For automatic transfer of the CIP (Clean In Place) chemicals into the Recirculation/Feed Tank, eliminating the need for manual addition by the operator. The CIP transfer system shall include chemical pumps (mounted on plates) that may be mounted directly on chemical drums or totes, along with the associated solenoid valves, injectors/check valves, foot valves, and programming.

35. Chemical Transfer pumps shall be Diaphragm style and air operated. This allows automatic transfer of the CIP (Clean In Place) chemicals into the Recirculation/Feed Tank, eliminating the need for manual addition by the operator. The CIP transfer system shall include chemical pumps (mounted on plates) that may be mounted directly on chemical drums or totes, along with the associated solenoid valves, injectors/check valves, foot valves, and programming.

    a. Pumps shall produce 0-15 gpm flow and 100 ft. head consuming a maximum 5 SCFM air.

    b. Foot valve shall be Jaco Kynar Ball Check Valve with Hastelloy Spring, Viton O-Ring, and Teflon ball.

    c. Injection valve shall be LMI Chem Injector/check valve #38026.

    d. Approved manufacture shall be Wilden.

36. Neutralization System. Furnish a Neutralization System to collect the CIP waste solutions and adjust the pH to an acceptable range before discharging to waste. The system shall generally consist of an HDPE tank, mixer, level transmitter, pH sampling port, chemical addition for neutralization, a scavenger pump system to complete the draining of the CIP chemicals from the AP system, and a method to transfer the neutralized solution to waste. The system shall consist of the following, modified to accommodate the actual sizing required for this application

Tank	10500 gal HDPE (approx; size TBD)
Circulation Pump	5 HP 3500 rpm
Level Transmitter	Rosemount 2088G1S22A1M5
pH/ORP sensor	
Chemical Addition	Supplied EFM/CIP Hot Water system; PH test kit

37. Air Compressor System. The air compressor system is provided to meet the air requirements of the ARIA™ AP system. The system shall consist of two rotary screw compressors (1+1redundant) and a receiver tank, along with associated filters, gauges, relief valves, drains, etc., required for a complete air supply system. The compressors, receiver, and external filters are shipped loose to allow versatility in installation. Air compressor controls shall provide the following signals to the MasterPLC.

    a. Duty Compressor Selection (Compressor 1 or Compressor 2)

    b. Compressor Run (for each compressor)

    c. Compressor Fail (for each compressor)

    The supplied compressor shall be the following:

    Manufacturer Atlas Copco

Model	GA – series Full Featured w/Enclosure
Type	Single Stage Oil Flooded Rotary Screw
Features	Inlet Air Filter
	Integrated Refrigerated Dryer
	TEFC Motor
	Differential Pressure Oil System with Oil Cooler Air/Oil Separator with Oil Level Sight Glass
	Oil Filter
	V-Belt Drive with Tensioning Device
	Load/No Load Capacity Control
	Sound Attenuating Enclosure - CSA/UL Appr.
	Factory Oil Fill-Food Grade Oil
	Electro-pneumatic start/stop control
	Motor Starter Mounted and Prewired
	Emergency Stop Button
	After-cooler & Moisture Separator
	Dew-point Gauge
	Sound level ≤ 70 db

External Filters (installed separately)

DDX Coalescing Filter	0.1 ppm oil/water, 1 micron filter
PDX Coalescing Filter	0.01 ppm oil/water, 0.01 micron filter

Receiver

Manufacturers	Silvan or Manchester
Type	Vertical
Rating	ASME Coded 200 psi
PRV	¼-inch 200 psi 178 scfm
Pressure Gauge	4-inch 0-200 psi
Drain Valve	½-inch ball valve

38. Turbidimeters. Turbidimeters shall be included to measure and report the turbidity (in NTU) of the feed and filtrate. Two turbidimeters shall be supplied and mounted on the skid, with feed and filtrate ports already installed, or shipped loose for installation by others. The turbidimeters shall include a Hach SC-100 controller with display with 4-20mA signal to the AP system PLC. Furnish a Hach 1720E turbidimeter (used for feed) and the Hach FilterTrak 660 Laser Nephelometer (used for filtrate).

Hach 1720E Specifications:

Range	0.001 – 100 NTU
Accuracy	0 – 10 NTU +/- 2% of reading or 0.015 NTU
	10 – 40 NTU +/- 5% of reading
	40 – 100 NTU +/- 10% of reading
Sample Flow	200 – 750 ml/min
	Built-in Bubble Removal Included
Controller	Hach SC-100

Power	100 – 230Vac 50/60 Hz Auto Selectable
Controller Enclosure	Nema 4X
Output	4-20 mA

Hach FilterTrak 660 Specifications

Range	0 – 1000 mNTU (0 - 1NTU)
Accuracy	+/- 5% of Reading
Sample Flow	100 – 750 ml/min
	Built-in Bubble Remover Included
Controller	Hach SC-100
Power	100 – 230Vac 50/60 Hz Auto Selectable
Controller Enclosure	Nema 4X
Output	4-20 mA

39. Uninterruptible Power Supply (UPS)

    a. A UPS (Uninterruptible Power Supply) shall be provided. The UPS shall provide 30 minutes of power to the master PLC during a short-term power outage, allowing the system to restart automatically.

    b. UPS shall be 1kVa, 120V manufactured by Eaton Powerware.

R. Delivery of Equipment

The Supplier's services shall include delivery of all MFS equipment to the job site.

1. Preparation for Shipment:

    a. Box, crate, or otherwise completely enclose and protect equipment during shipment, handling, and storage.

    b. Protect equipment from exposure to elements. Keep equipment thoroughly dry.

    c. Protect painted surfaces against impact, abrasion, discoloration, and other damage. Repaint painted surfaces which are damaged prior to acceptance of equipment.

    d. Apply grease and lubricating oil to bearings and similar items.

    e. Include complete packing lists and bills of material with each shipment

2. Furnish detailed instructions for on-site storage and handling of all membrane filtration equipment.

3. Offloading of all equipment from the delivery vehicles shall be by the Contractor constructing the WTP.

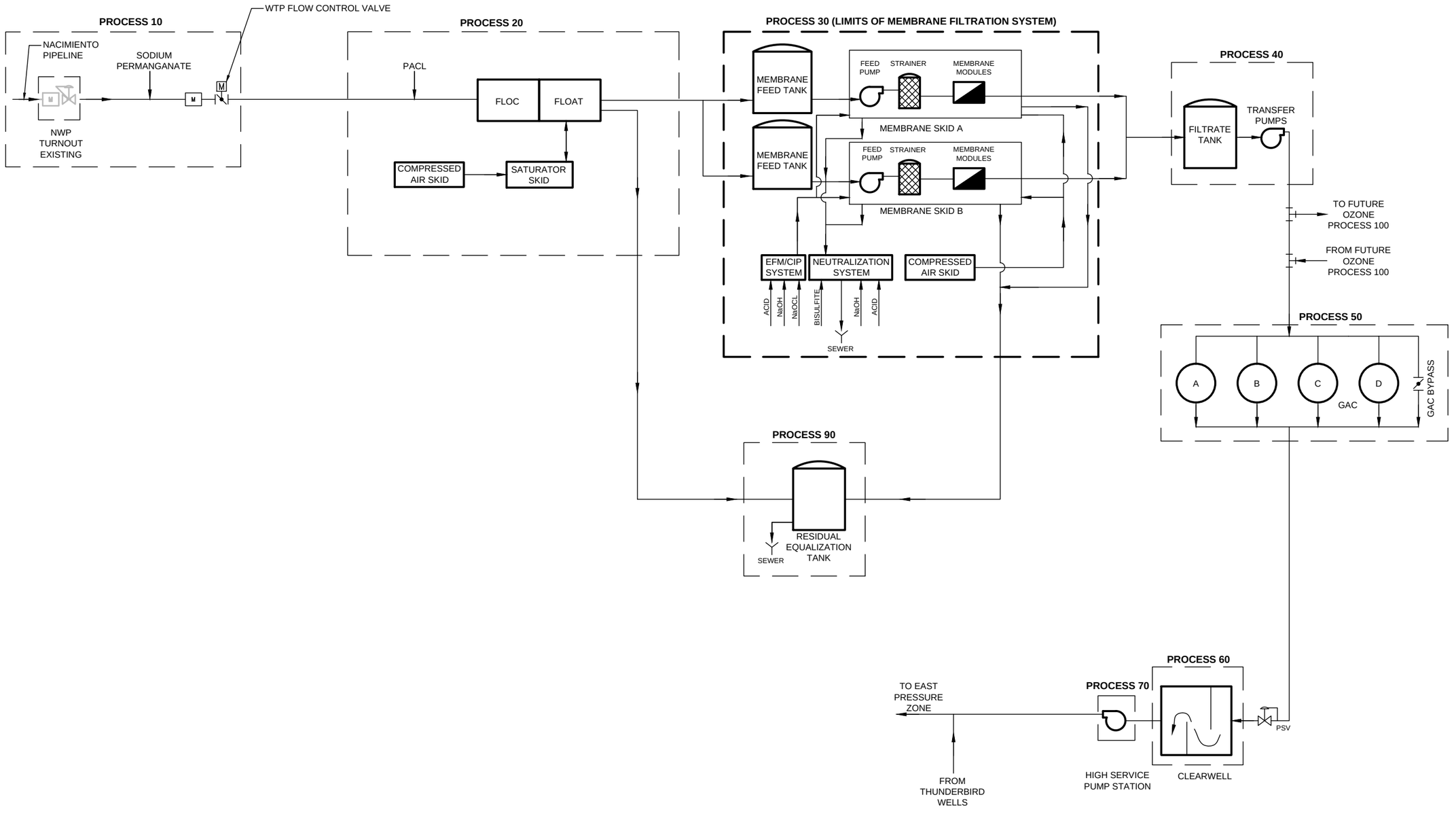
4. The Supplier shall be responsible for all equipment until the WTP Contractor connects to the equipment for removal from the delivery vehicle.

S. Spare Parts and Special Tools

Furnish spare parts and special tools securely packaged and labeled with component name and manufacturer's model and part number:

Equipment	Quantities
Membrane Filtration System:	
All spare parts for at least one year of routine operating and maintenance requirements for the membrane system.	As required
All special tools and maintenance equipment required for maintenance of the membrane system as a whole including any specialized lifting equipment required for removal, replacement, fiber plugging, and manipulation of the membrane modules or any other equipment. Include module isolation caps, membrane repair pins,	As required

END OF SECTION



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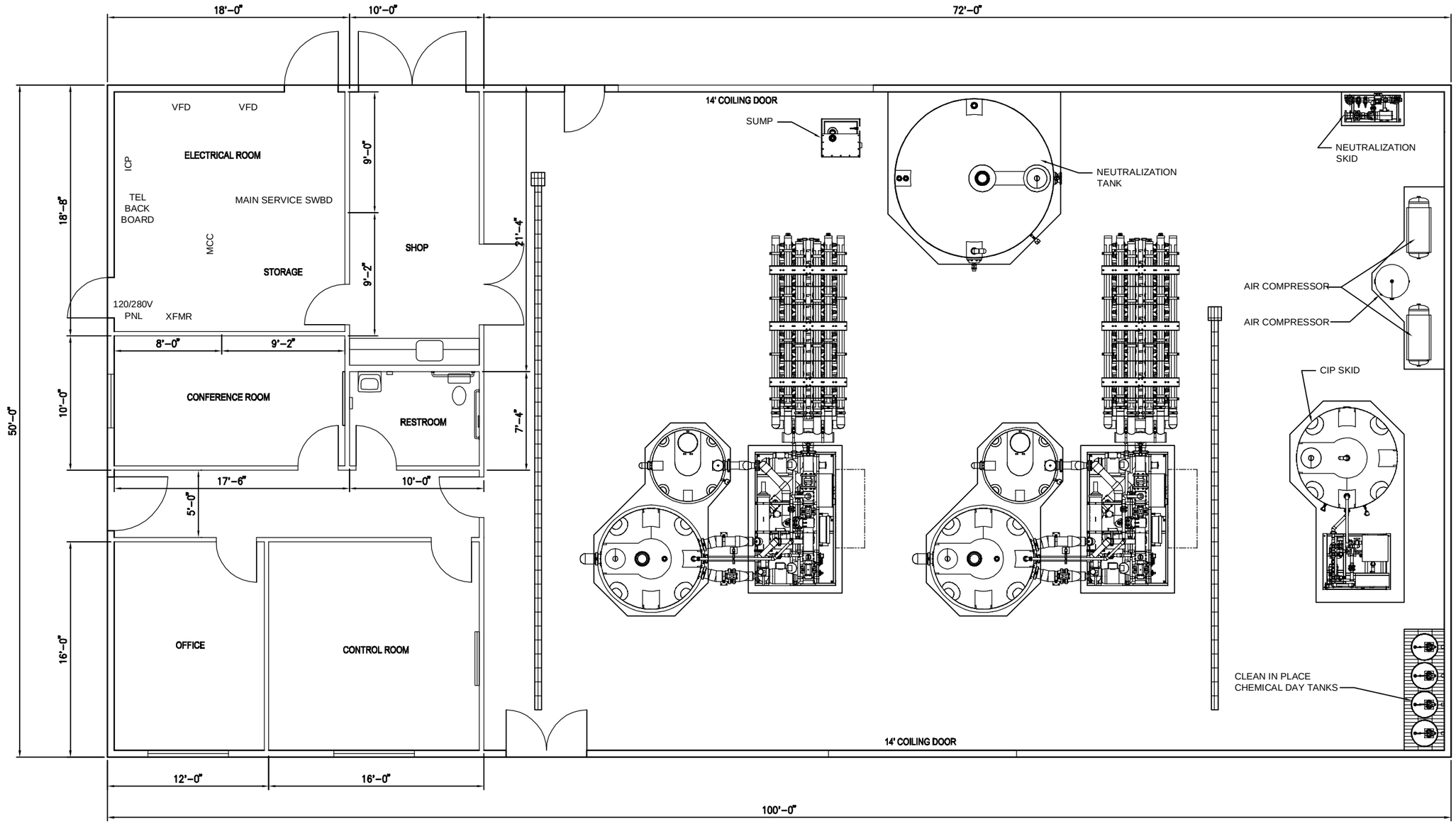
CITY OF PASO ROBLES 2.4 MGD WATER TREATMENT PLANT PROJECT	FIGURE
SPEC 466133 PROCESS FLOW DIAGRAM	1



CITY OF PASO ROBLES 2.4 MGD WATER TREATMENT PLANT PROJECT	FIGURE
SPEC 466133 MEMBRANE BUILDING FLOOR PLAN	2

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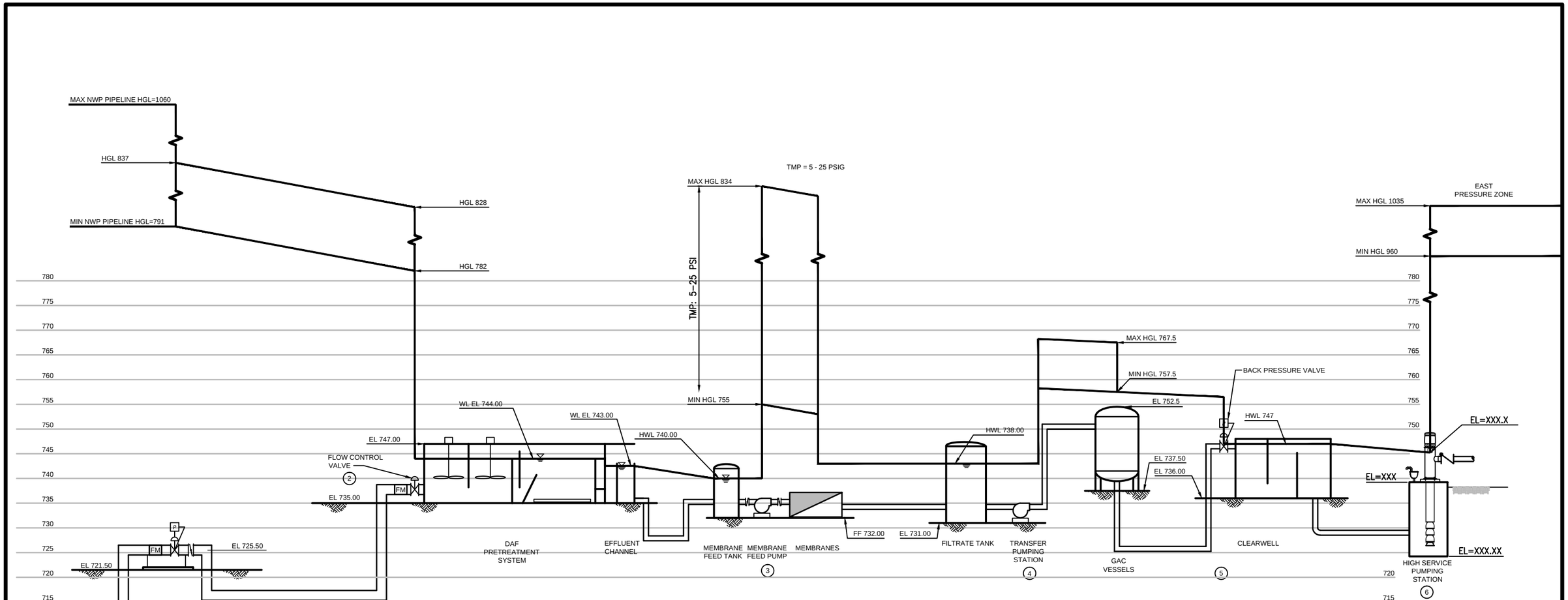


CONTROL NOTES:

1. COUNTY CONTROL VALVE OPERATES IN A PRESSURE REGULATING MODE AND WILL MAINTAIN A PRESET PRESSURE OF 50 PSIG AT THE VALVE OUTLET. IF INLET PRESSURES DROP BELOW 50 PSIG, THE VALVE WILL GO TO FULLY OPEN.
2. TREATMENT PLANT FLOW CONTROL PLUG VALVE WILL MODULATE TO MAINTAIN A PRESET FLOW RATE THROUGH THE DAF UNIT. THIS VALVE CONTROLS THE OVERALL FLOW RATE THROUGH THE TREATMENT PLANT.
3. THE SPEED OF THE VFD CONTROLLED MEMBRANE FEED PUMPS WILL BE ADJUSTED TO MAINTAIN AN AVERAGE FLOW RATE EQUAL TO THE OVERALL TREATMENT PLANT FLOW SET POINT AND WILL BE TRIMMED BASED ON THE WATER LEVEL IN THE MEMBRANE FEED TANKS.
4. THE SPEED OF THE VFD CONTROLLED FILTRATE BOOSTER PUMPS WILL BE ADJUSTED TO MAINTAIN A NEARLY CONSTANT FLOW RATE EQUAL TO THE OVERALL TREATMENT PLANT FLOW SET POINT AND WILL BE TRIMMED BASED ON THE AVERAGE WATER LEVEL IN THE FILTRATE TANK.
5. A PRESSURE SUSTAINING VALVE DESIGNED TO ENSURE BACKPRESSURE ON THE GAC VESSEL AIR RELEASE VALVE.
6. THE SPEED OF THE VFD CONTROLLED HIGH SERVICE PUMPS WILL BE ADJUSTED TO MAINTAIN A CONSTANT WATER LEVEL IN THE CLEARWELL

LEGEND:

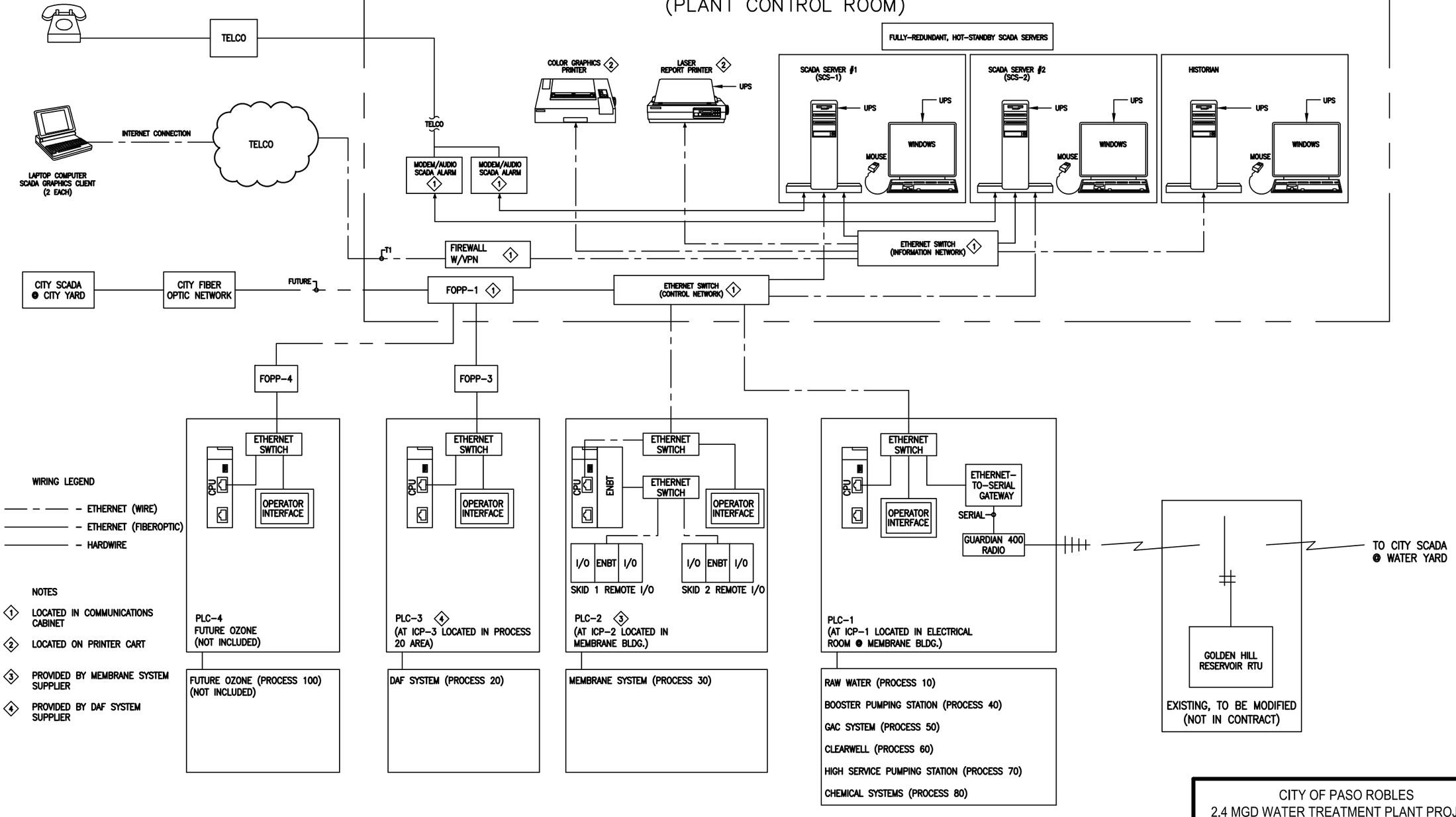
XXX.XX HGL @ 6.0 MGD (INITIAL CAPACITY)
XXX.XX HGL @ 12.0 MGD (ULTIMATE CAPACITY)

CITY OF PASO ROBLES
2.4 MGD WATER TREATMENT PLANT PROJECT

SPEC 466133
HYDRAULIC PROFILE

FIGURE
3

PASO ROBLES WATER TREATMENT PLANT
SUPERVISORY CONTROL AND DATA ACQUISITION SYSTEM
(PLANT CONTROL ROOM)



CITY OF PASO ROBLES 2.4 MGD WATER TREATMENT PLANT PROJECT	FIGURE
COMMUNICATIONS BLOCK DIAGRAM	4

DWG: V:\PASO ROBLES\60264606-WTP\500 Submittals-Deliverables\502 Membrane Procurement Documents\2012 Procurement Documents\FIG 4.dwg USER: rodriguezdl
DATE: Jan 28, 2013 10:35am XREFS: IMAGES:

SECTION 405000 PROCESS CONTROL AND INSTRUMENTATION SYSTEM (PCIS) GENERAL REQUIREMENTS

PART 1 - GENERAL

A. Description

1. This section of the specifications includes materials, testing, and installation of process control and instrumentation system as specified herein and indicated on the drawings.

2. These specifications shall not be interpreted as permission or direction to violate any governing code or ordinance. Equipment, materials, and workmanship shall comply with the latest revisions of the following codes and standards:

a. Instrumentation: ISA - The International Society of Automation.

b. Wiring: National Electrical Code (NEC), ISA S5.3 and S5.4.

c. Control Panels: NEMA Standards Publication 250-2003.

d. Control Logic: NFPA 79.

e. Piping: ANSI B31.3 (instrumentation piping).

B. Related Work Specified Elsewhere

1. N/A

C. Scope of Work

1. The work involves furnishing all hardware and software, programming, installation, labor, material, equipment, and engineering in strict compliance with the contract documents for the membrane filtration system, -including support to the WTP PCIS Integrator for interfacing with SCADA system.

D. Submittals

1. Detailed System Drawings and Data:

a. The submittal shall consist of six sets of detailed drawings and data prepared and organized by the Contractor. All drawings, schematics, layouts, and diagrams shall be done on 11" x 17" sheets utilizing AutoCAD.

b. Drawings shall contain only relevant simplified details using symbol approach. Photographic images of components depicting irrelevant details (screws, holes, logos, etc.) are not allowed.

c. Drawings prints shall not contain details and texts smaller than 3/64".

2. Two sets of submittals will be returned to the Contractor.

3. Submit these drawings and data as a complete package at the same time.

4. Submittals shall be in three-ring hardcover binders and arranged for convenient use including tab sheets, all indexed, and cross referenced with a separate index for each item.

5. Provide manufacturers cut sheets and manuals for all major components to be provided.

6. Provide a list of instruments furnished with the MFS. Group the data sheets together in the submittal by type. Provide individual data sheets for each instrument with one brochure or bulletin to cover all identical uses of that component.

7. The detailed construction drawing submittal shall include, as a minimum, the following types of drawings and diagrams required for the construction of this project:

   a. Legend, Symbols, and Index.

   b. Communications block diagram showing interfaces between MFS PLCs, I/O panels, and WTP SCADA system.

   c. Power Distribution Diagrams.

   d. Instrument Control Panel Layouts/Construction Drawings/Details. The drawings shall include the following:

      (1) Dimensions

      (2) Location of all components

      (3) Identification of all components

      (4) Bill of Materials (on drawings or as separate sheets)

      (5) Conduit entry area.

   e. PLC/RTU Rack Elevation Drawing for each PLC/RTU.

   f. Internal Panel Wiring Diagrams.

g. Digital I/O Module Wiring Diagrams.

h. Analog I/O Module Wiring Diagrams.

i. Detailed NFPA 79-style Ladder Diagrams (for discrete wiring) to meet the following minimum requirements:

(1) Each subassembly shall be shown as a rectangle in the diagram with all external terminals identified. Terminals unknown at the time of the submittal shall be left blank, to be filled later. Single contacts internal to the subassemblies shall be shown in the rectangle connected to their terminal points.

(2) Where the internal wiring diagrams of subassemblies are furnished on separate sheets, they shall be shown as a rectangle in the schematic diagram with all external points identified and cross-referenced to the separate sheets of the control circuit. Coils and contacts internal to the subassemblies shall be shown in the rectangle connected to their terminal points.

(3) Show unique rung numbers on left side of each rung. A cross-referencing system shall be used in conjunction with each relay coil so that associated contacts may be readily located on the diagram. The contacts shall be referenced to coils as well, so that associated coils may be readily located on the diagram. Where a relay contact appears on a sheet separate from the one on which the coil is shown, the purpose of the contact shall be described on the same sheet. Spare contacts shall be shown.

(4) Limit, pressure, float, flow, temperature sensitive, and similar switch symbols shall be shown on the schematic (ladder) diagram with all utilities turned off (electric power, air, gas, oil, water, lubrication, etc.) and with the equipment at its normal starting position. If the equipment is shown in a specific position, the position shall be identified.

(5) Contacts of multiple contact devices, e.g., selector switches, shall be shown on the line of the schematic diagram where they are connected in a circuit. A mechanical connection between the multiple contacts shall be indicated by a dotted line or arrow. This does not apply to control relays, starters, or contactors. Additional charts or diagrams may be used to indicate the position of multiple contact devices such as drum, cam, and selector switches.

(6) The purpose or function of all switches shall be shown adjacent to the symbols. The purpose or function of controls such as relays, starters, contactors, solenoids, subassemblies, and timers on the diagram shall be shown adjacent to their respective symbols. The

number of positions of the solenoid valve shall be shown adjacent to the valve solenoid symbol.

j. Arrangement and construction drawings for consoles, control panels, and for other special panels for field installation. These drawings shall include dimensions, location of all components, identification of all components, bill of materials, detailed schematics of all internal wiring, preparation and finish data, nameplates, and the like. These drawings also shall include enough other details to define the style and overall appearance of the assembly; include a finish sample for all panel surfaces.

k. Installation, mounting, and anchoring details for all field instruments and panel mounted components.

l. An I/O List for each PLC/RTU in the project.

8. Detailed System Software Submittal: The submittal shall consist of six sets of the software system descriptions and diagrams. Two sets of submittals will be returned to the contractor. The software submittal can be made as a separate package to be inserted in the original submittal. The following items must be submitted at least eight weeks prior to the factory witness test orientation:

a. An updated I/O List for each PLC/RTU in the project.

b. Sample color printouts of each Operator Interface screen, sample printouts of each Operator Interface display.

9. Operation, Maintenance, and Repair Manuals (OMM):

a. The organization of the initial submittal required above shall be compatible to eventual inclusion as one volume of the operation, maintenance, and repair manuals.

b. Operation manuals shall be prepared and submitted to the Owner's Representative for preliminary review in six copies. When the Owner's Representative is satisfied that these are complete and properly prepared, six final sets shall be delivered to the Owner's Representative.

c. The complete OMM shall contain the following:

(1) All the information included in the preliminary equipment submittal, the detailed installation submittal, and the additional information required herein, all bound in hard-cover binders and arranged for convenient use including tab sheets, all indexed and cross referenced with a separate index for each item.

(2) All final “as-built” drawings with the AutoCAD electronic files.

(3) Electronic files for all PLCs, Operator Interfaces.

(4) Trouble-shooting instructions.

(5) Instructions for ordering replacement parts.

PART 2 - MATERIALS

A. Designations of Components

1. In these specifications and on the plans, all systems, and other elements are represented schematically and are designated by numbers, as derived from criteria in ISA standards. The nomenclature and numbers designated herein and on the plans shall be employed exclusively throughout shop drawings, data sheets, and the like. Any other symbols, designations, and nomenclature unique to a manufacturer's standard methods shall not replace those prescribed above, as used herein, and on the plans.

B. Instrument Tagging

1. Attach a stainless-steel tag to the instrument at the factory. Permanently mark the stainless-steel tag with the instrument tag number and the instrument calibration range. The manufacturer's standard metal nameplate as a minimum shall denote model number, serial number, operating electrical voltage and amperage (when applicable), and date of manufacture.

C. Instrument System Power

1. Power provided for the instrument system at the facility shall be 120-volt a-c, single phase, 60 Hz.

D. Matching Style, Appearance, and Type

1. To the extent possible, all display instruments of each type shall represent the same outward appearance, having the same physical size and shape and the same size and style of numbers and pointers.

PART 3 - EXECUTION

A. Uniformity of Components

1. Components, which perform the same or similar functions, shall, to the greatest degree possible, be of the same or similar type, the same manufacture, the same grade of construction, the same size, and the same appearance.

B. Mounting of Equipment and Accessories

1. Mount equipment in accordance with the installation detail drawings as prepared by the Contractor and reviewed by the Owner's Representative. Mount equipment so that they are rigidly supported, level and plumb, and in such a manner as to provide accessibility; protection from damage; isolation from heat, shock, and vibration; and freedom from interference with other equipment, piping, and electrical work. Do not install consoles, cabinets, and panels until heavy construction work adjacent to computer and telemetry equipment has been completed to the extent that there shall be no damage to the equipment.

2. To the extent possible, locate devices, including accessories, where they shall be accessible from grade, except as shown otherwise.

3. Mount local equipment in cabinets or existing panels as specified. Mount associated I/O terminals on a common panel or rack; mounting panels and rack shall be baked enamel.

4. Coordinate the installation of the electrical service to components related to the system to assure a compatible and functionally correct system. All accessories shall be coordinated and installation supervised by the Contractor.

5. Test the completed system after installation to assure that all components are operating with the specified range and all interlocks are functioning properly.

6. Tubing Valves and Fittings: All instrument tubing manifolds shall be Type 316 stainless steel, unless otherwise specified elsewhere in these specifications. Tubing runs to transmitters shall be installed with a positive slope in one direction. Fittings and valves shall be Type 316 stainless steel. Block/bleed valves shall be as manufactured by Hex Valve Series HB59, or equal.

C. Calibration

1. Calibrate each instrument requiring factory calibration at the factory. Calibrate instruments not calibrated in the factory after installation in conformance with the component manufacturer's instructions. This shall provide that those components having adjustable features are set carefully for the specific conditions and applications of this installation and that the components and/or systems are within the specified limits of accuracy. Defective elements, which cannot achieve proper calibration or accuracy, either individually or within a system, shall be replaced.

D. Field Testing

1. Exercise systems through field tests in the presence of the Owner in order to demonstrate achievement of the specified performance.

2. Coordinate field tests dependent upon completion of work specified elsewhere. Schedule tests among all parties involved so that the tests may proceed without delays or disruption by uncompleted work.

END OF SECTION

SECTION 405080 INSTRUMENT CONTROL PANEL (ICP)

PART 1 - GENERAL

A. Description

This section includes requirements for materials, testing, and installation of the cabinets and consoles to be provided by the system contractor under Section 405000.

B. Related Work Specified Elsewhere

1. Process Control and Instrumentation System (PCIS) General Requirements: 405000.

C. Submittals

Submit shop drawings in accordance with Section 405000.

PART 2 - MATERIALS

A. The master control panel shall be a free-Standing Instrument Control Panel

1. The panel shall be a floor-mounted NEMA 4 enclosure and shall be constructed from 14-gage formed steel throughout. Access door shall have door bars on inside surface and continuous hinges. All exposed edges and welds on the enclosure shall be ground smooth. No penetration through the cabinet door or exterior with rivets, screws, bolts, or back of panel nuts shall be allowed. The enclosure shall provide protection against dirt, dust, oil, and water. The interior shall be provided with a formed 12-gage subpanel for attaching surface-mounted components. All components shall be attached with screws, and the subpanel shall be threaded. Rivets or back of panel nuts, screws, or bolts shall not be allowed. No panel penetration is allowed, except for the conduit entry.

2. Provide a fluorescent lamp in the free standing master control panel. The interior shall be equipped with a 120 V, 20 A duplex utility outlet and a dedicated single-pole, 20 A, 120 V circuit breaker protecting the outlet and the lamp. The utility outlet and the lamp shall be powered by utility power.

3. Power distribution system shall include a UPS to be powered from a designated "UTILITY POWER FOR UPS" receptacle. The power distribution system shall be connected to the UPS output by a cord with a plug matching the UPS outlet. Provisions shall be made to allow the UPS to be bypassed, i.e. power distribution system to be powered from the utility power by the power cord connected to the "UTILITY POWER FOR UPS" receptacle. The receptacle shall be protected by a designated circuit breaker.

4. A folding shelf at least 18 inch wide and a documentation pocket shall be provided at the free standing master control panel. The shelf shall be secured to the door bars in a way to allow vertical adjustment of the shelf location. Refer to instrument drawings for enclosure minimum size and installation details.

5. Temperature Control:

   a. Contractor shall provide temperature control features, to maintain internal cabinet temperature within the limits required by the equipment installed in the cabinet.

   b. Submit cooling system sizing calculations, as part of the enclosure submittal.

   c. Assume ambient temperature of 80 °F.

6. The enclosure shall be NEMA 4

B. Panel Control Circuit Devices and Components

1. General: All components, except those on the front panels, shall be mounted behind on fixed or swing-out panels; terminal blocks for field connections shall be mounted on fixed channels located near the bottom of the sections but clear of the conduit entry area. Fixed panels shall be located so as not to prevent access within the cabinets to other components, wiring, and terminal blocks on fixed panels or front panels.

2. All electrical devices within the panel shall be identified by tag number, machine printed on a label visible from the panel interior. Labels shall be made of durable plastic tape with an adhesive backing. The labels shall have rounded corners and shall be consistent in size throughout the panel.

3. Control Relays:

   a. Control relays shall have 120-volt AC or 24-volt DC coils, except as noted; contacts shall be rated for the various circuit applications shown on the drawings. Control relays shall be 10-ampere, multiple-contact, 300-volt, plug-in type with dust cover and sockets. The relays shall be equipped with the following features:

      (1) Retaining clip.

      (2) Test button lockable in "ON" position.

      (3) Mechanical flag for contact status indication.

      (4) Pilot light for coil power indication.

   b. If additional contacts are required, they shall be ganged.

c. The relays shall be Releco General Purpose Relays, Allen-Bradley Bulletin 700-HA, IDEC series RU, Telemecanique RXM relay (Zelio Plug-in), or equal. All control relays shall be products of one manufacturer.

4. Circuit Breakers: Circuit breakers shall be single-pole, 120-volt, 15-ampere rating.

5. Feed-Through Terminal Blocks: Feed-through terminal blocks shall be modular DIN rail mounted with plastic insulating housings and screw secured cage clamp wire termination and shall be rated 20 amperes at 300 volts. Current carrying parts shall be made of at least an 85% copper alloy, nickel-plated for maximum conductivity and resistance to corrosion. Terminal blocks shall provide a secure oxide-film free connection to the wire without the use of spades, ring tongues, or ferrules. Terminals blocks shall have captive screws and a built-in vibration resistance mechanism, which locks the screw connection in place after the wire has been terminated. A bridge bar for cross connection shall be provided. A test adapter for a banana jack shall be provided. The test adapter shall provide a positive test connection to the terminal block and shall lock into place for hands free operation. White marking strips, fastened securely to the molded sections shall be provided and wire (terminal) numbers or circuit identifications shall be marked thereon with permanent marking fluid. Feed-through terminal blocks shall be Phoenix Contact Type UK 4, Allen-Bradley Series 1492-W, ABB (Entrelec) Series M4/6.NC, Sprecher+Schuh Cat. No. V7-W4, or equal.

6. Fuse Terminal Blocks: Fuse terminal blocks shall be the same profile, but different color as the feed through terminal blocks, and shall have blown fuse light indicator. Fuse terminal blocks shall be Phoenix Contact Type UK 4-TG, or equal.

7. Disconnect Terminal Blocks: Disconnect terminal blocks shall be of knife disconnect type. The blocks shall have a universal foot for mounting on DIN rail and a width of the feed through block. Disconnect terminal blocks shall be Phoenix Contact Type UK 5-MTK-P/P, or equal.

8. DC Power Supplies: Provide DC power supplies as required for analog loops and DC circuits. Each power supply shall be enclosed and include internal short-circuit protection. Current requirements shall not exceed 75% of manufacturer maximum rating.

9. Receptacles: Duplex receptacles shall be molded composition, ivory, specification grade, with finder groove face. Duplex receptacles for 120-volt, single-phase, 3-wire service to be rated 20 amperes, 125 volts, back or side wired, NEMA Type 5-20R. Duplex receptacles shall be Arrow-Hart No. 5352I, Bryant No. BRY5362-I, Hubbell No. CR5362-I, or equal.

10. Indicating Lights: Indicating light shall be push-to-test transformer type with LED.

C. Panel Control Circuit Wiring

1. Wire Type and Size: Instrumentation signal cables shall be of the type used for process control with shielded pairs or triads with polyvinyl jacket and overall shield over the multiple pairs or triads. The instrumentation cable shall be rated 300 volts at 90 °C or better. The size of the instrumentation cable shall be AWG No. 18 with seven strands minimum, unless otherwise specified elsewhere. All instrumentation cables shall meet all the requirements of IPCEA S-61-402 and shall be UL listed.

2. 120-volt AC wiring within the panel shall be AWG No. 14 THHN. Main power (120-volt AC) to the panels shall be wired using color coded AWG No. 12. AC power to all system power supplies. Wires shall be color coded in accordance with the following table:

Black	L1 (hot)
White	L2 (neutral)
Red	AC control circuits
Blue	DC circuits
Yellow	Interlock control circuits wired from an external power source
Green	Equipment ground

3. All interfacing between the cabinets and the field shall be accomplished at a terminal strip (TB-1). No internal panel wiring shall be connected to terminals on the "field side" of TB-1. Likewise, no field wiring shall be connected to terminals on the "panel side" of TB-1.

4. All intentionally grounded, grounding, and bonding conductors shall be sized by NEC Article 250 as required.

5. Wires carrying voltage from external devices and one wire from an analog loop shall be terminated at the disconnect terminal block.

6. Only one wire shall be terminated at each side of a terminal block. A bridge bar shall be used for cross connection.

7. Wiring run from components on a swing-out panel to other components on a fixed panel shall be made up in tied bundles. These shall be tied with nylon wire ties and shall be secured to panels at both sides of the "hinge loop" so that conductors are not strained at terminals.

8. Wiring run to control devices on the front panels shall be tied together at short intervals and secured to the inside face of the panel using Panduit adhesive mounts with Eastman No. 910 adhesive.

9. Wiring to rear terminals on panel-mount instruments shall be run in plastic wireways secured to horizontal brackets run above or below the instruments in about the same plane as the rear of the instruments.

10. Conformance to the above wiring installation requirements shall be reflected by details shown on the shop drawings for the Engineer's review.

11. Signal conditioners and control interface relays shall be provided wherever proper instrument interfacing dictates use of these components. Each auxiliary device shall be assigned a tag number and shall appear on the panel shop drawings.

12. Wire Marking:

    a. Each signal and circuit conductor connected to a given electrical point shall be designated by a single unique number which shall be shown on all shop drawings. These numbers shall be marked on all conductors at every terminal.

    b. The markers shall be permanent sleeve type with machine printed black markings. Markers shall be Thomas & Betts Series EZS, Tyco Series RPS, or equal.

13. Terminal Marking: Each terminal shall be identified by a single unique number. Hand-written labels shall not be allowed. The match between the terminal identification and the wire identification is not required.

14. All electrical devices within the panel shall be identified by tag number, machine printed on a label visible from the panel interior. Labels shall be laminated plastic with an adhesive backing. The labels shall be consistent in size throughout the panel.

D. Spare Parts

1. The Contractor shall furnish to the Owner all necessary spare parts of components required to maintain the system. Prior to final acceptance of work, the Contractor shall provide a spare parts listing of all necessary spare parts and quantities for review by the Owner's Representative. The spare parts shall include, but not be limited to, the following minimum requirements:

MINIMUM SPARE PARTS LIST	
Part Description	**Quantity**
1. Power supply	1 each type
2. Relays	2 each type

2. The Contractor shall deliver to the Owner all the required spare parts upon final acceptance of the work. The spare parts shall not be used as replacement parts during the guarantee period.

PART 3 - EXECUTION

Refer to Section 405000

END OF SECTION

RESOLUTION NO. 13-xxx

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PASO ROBLES AWARDING MEMBRANE FILTRATION SYSTEM CONTRACT TO PALL CORPORATION FOR USE IN THE FUTER NACIMIENTO WATER TREATMENT PLANT

WHEREAS, In order to advance the design of the future water treatment plant a membrane supplier must be selected;

WHEREAS, The City has been operating a Pall Corporation treatment plant the past five years;

WHEREAS, Pall Corporation membrane systems are proven to be robust and reliable;

WHEREAS, Pall Corporation will provide a cost-effective pre-engineered system ideally suited for use in the Phase-I Nacimiento treatment plant.

THEREFORE, BE IT RESOLVED AS FOLLOWS:

SECTION 1. The City Council of the City of El Paso de Robles does hereby authorize the City Manager to enter into a contract with Pall Corp for $1.585M.

SECTION 2.. The City Council of the City of El Paso de Robles does hereby authorize the City Manager to assign Stage II work to general construction contractor at the time of such award.

PASSED AND ADOPTED by the City Council of the City of Paso Robles this 5th day of March 2013 by the following votes:

AYES:
NOES:
ABSTAIN:
ABSENT:

Duane Picanco, Mayor

ATTEST:

Caryn Jackson, Deputy City Clerk