



AGENDA

**REGULAR MEETING OF THE BOARD OF DIRECTORS
LA PUENTE VALLEY COUNTY WATER DISTRICT
112 N. FIRST STREET, LA PUENTE, CALIFORNIA
MONDAY, DECEMBER 14, 2020 AT 5:30 PM**

TELECONFERENCE ACCESS: Pursuant to Executive Order N-29-20 issued by Governor Newsom in response to the COVID-19 pandemic as a precaution to protect staff, our constituents, and elected officials, the La Puente Valley County Water District will hold its Board meeting via teleconference or the most rapid means of communication available at the time.

**PHONE NUMBER: (669) 900-9128
MEETING ID: 841 2309 6899#**

1. CALL TO ORDER

2. PLEDGE OF ALLEGIANCE

3. OATH OF OFFICE

William R. Rojas

David E. Argudo

4. ROLL CALL OF BOARD OF DIRECTORS

President Hernandez ___ Director Rojas ___ Director Barajas ___

Director Escalera ___ Director Argudo ___

5. PUBLIC COMMENT

Anyone wishing to discuss items on the agenda or pertaining to the District may do so now. The Board may allow additional input during the meeting. A five-minute limit on remarks is requested.

6. ADOPTION OF AGENDA

Each item on the Agenda shall be deemed to include an appropriate motion, resolution or ordinance to take action on any item. Materials related to an item on this agenda submitted after distribution of the agenda packet are available for public review at the District office, located at the address listed above.

7. APPROVAL OF CONSENT CALENDAR

There will be no separate discussion of Consent Calendar items as they are considered to be routine by the Board of Directors and will be adopted by one motion. If a member of the Board, staff, or public requests discussion on a particular item, that item will be removed from the Consent Calendar and considered separately.

- A. Approval of Minutes of the Regular Meeting of the Board of Directors held on November 23, 2020.

- B. Approval of District's Expenses for the Month of November 2020.
- C. Approval of City of Industry Waterworks System Expenses for the Month of November 2020.
- D. Receive and File the District's Water Sales Report for November 2020.
- E. Receive and File the City of Industry Waterworks System's Water Sales Report for November 2020.

8. ACTION / DISCUSSION ITEMS

- A. Consideration of Annual Cost of Living Adjustment for District Employees for an Effective Date of January 1, 2021.

Recommendation: Board Discretion

- B. Authorization of Annual Audit by Fedak & Brown LLP for the District's Financial Statements for Year Ending December 31, 2020.

Recommendation: Authorize Fedak & Brown LLP to Perform the 2020 Financial Audit.

- C. Review and Approve the Proposed District Budget for Period Ending December 31, 2021.

Recommendation: Approve the Proposed District Budget for Period Ending December 31, 2021.

- D. Consideration of Proposal from Evoqua Water Technologies to Purchase the Nitrate Removal Ion Exchange Treatment System.

Recommendation: Authorize the General Manager to proceed with the purchase of the Nitrate Removal Ion Exchange System Equipment from Evoqua Water Technologies LLC (Evoqua), for an amount not to exceed \$947,663.

9. GENERAL MANAGER'S REPORT

10. OTHER ITEMS

- A. Upcoming Events.
- B. Information Items.

11. ATTORNEY'S COMMENTS

12. CLOSED SESSION

- A. Conference with legal counsel – anticipated litigation
Initiation of litigation pursuant to paragraph (4) of subdivision (d) of government code section 54956.9. One case.

13. CLOSED SESSION REPORT

14. BOARD MEMBER COMMENTS

- A. Report on Events Attended.
- B. Other Comments.

15. FUTURE AGENDA ITEMS

16. ADJOURNMENT

POSTED: Friday, December 11, 2020

President Henry P. Hernandez, Presiding.

Any qualified person with a disability may request a disability-related accommodation as needed to participate fully in this public meeting. In order to make such a request, please contact Mr. Roy Frausto, Board Secretary, at (626) 330-2126 in sufficient time prior to the meeting to make the necessary arrangements.

Note: Agenda materials are available for public inspection at the District office or visit the District's website at www.lapuentewater.com.



**MINUTES OF THE REGULAR MEETING OF
THE BOARD OF DIRECTORS OF THE
LA PUENTE VALLEY COUNTY WATER DISTRICT
FOR MONDAY, NOVEMBER 23, 2020 AT 5:30 PM**

1. CALL TO ORDER

President Hernandez called the meeting to order at 5:30 p.m.

2. PLEDGE OF ALLEGIANCE

President Hernandez led the meeting in the Pledge of Allegiance.

3. ROLL CALL OF THE BOARD OF DIRECTORS

| | | | | |
|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------|
| President Hernandez | Vice President Hastings | Director Barajas | Director Escalera | Director Rojas |
| Present Via Teleconference | Present Via Teleconference | Present Via Teleconference | Present Via Teleconference | Absent |

OTHERS PRESENT

Staff and Counsel: General Manager & Board Secretary, Roy Frausto; Office Manager, Gina Herrera; Customer Service and Accounting Clerk, Vanessa Koyama; Operations & Maintenance Superintendent, Paul Zampielo and District Counsel, Jim Ciampa all present via teleconference.

Public: No members of the public were present.

4. PUBLIC COMMENTS

No comments from the Public.

5. ADOPTION OF AGENDA

Motion: Adopt Agenda as Presented.

1st: Director Escalera

2nd: President Hernandez

| | Hernandez | Hastings | Barajas | Escalera | Rojas |
|-------------|------------------|-----------------|----------------|-----------------|--------------|
| Vote | Yes | Yes | Yes | Yes | Absent |

Motion carried by a vote of: 4 Yes, 0 No, 0 Abstain, 1 Absent.

6. APPROVAL OF CONSENT CALENDAR

Motion: Approve Consent Calendar as Presented & Approval to attend the AWWA Virtual Summit December 8-9, 2020

1st: President Hernandez

2nd: Director Escalera

| | Hernandez | Hastings | Barajas | Escalera | Rojas |
|-------------|------------------|-----------------|----------------|-----------------|--------------|
| Vote | Yes | Yes | Yes | Yes | Absent |

Motion carried by a vote of: 4 Yes, 0 No, 0 Abstain, 1 Absent.

7. FINANCIAL REPORTS

A. Summary of the District’s Cash and Investments as of October 31, 2020.

Mr. Frausto provided a summary of the balances in each account provided in the Summary of Cash and Investments as of October 31, 2020.

Motion: Receive and File the Summary of Cash and Investments as of October 31, 2020.

1st: President Hernandez

2nd: Vice President Hastings

| | Hernandez | Hastings | Barajas | Escalera | Rojas |
|-------------|------------------|-----------------|----------------|-----------------|--------------|
| Vote | Yes | Yes | Yes | Yes | Absent |

Motion carried by a vote of: 4 Yes, 0 No, 0 Abstain, 1 Absent.

B. Statement of District’s Revenue and Expenses as for October 31, 2020.

Mrs. Herrera provided a summary of the Statement of Revenues and Expenses for the District as of October 31, 2020.

Motion: Receive and File the Statement of the District’s Revenue and Expenses as of October 31, 2020.

1st: Vice President Hastings

2nd: Director Barajas

| | Hernandez | Hastings | Barajas | Escalera | Rojas |
|-------------|------------------|-----------------|----------------|-----------------|--------------|
| Vote | Yes | Yes | Yes | Yes | Absent |

Motion carried by a vote of: 4 Yes, 0 No, 0 Abstain, 1 Absent.

C. Statement of the Industry Public Utilities’ Water Operations Revenue and Expenses as of October 31, 2020.

Mrs. Herrera provided a summary of the Statement of Revenues and Expenses for the Industry Public Utilities’ Water Operations.

Motion: Receive and File the Statement of the Industry Public Utilities Water Operations’ Revenue and Expenses as of October 31, 2020.

1st: President Hernandez

2nd: Director Barajas

| | Hernandez | Hastings | Barajas | Escalera | Rojas |
|-------------|------------------|-----------------|----------------|-----------------|--------------|
| Vote | Yes | Yes | Yes | Yes | Absent |

Motion carried by a vote of: 4 Yes, 0 No, 0 Abstain, 1 Absent.

8. ACTION / DISCUSSION ITEMS

A. Update on the District’s Nitrate Treatment System Project.

Mr. Frausto provided the Board an update on the Nitrate Treatment System Project and stated that he is negotiating a performance guarantee with Evoqua Water Technologies. He also stated that he was investigating the brine system NSF certification requirements.

No formal action was taken.

B. Discussion regarding the Board Meeting Schedule for December 2020.

Mr. Frausto opened up for discussion the schedule for December in regards to keeping, rescheduling or canceling any regular scheduled board meetings.

No formal action was taken.

9. WORKSHOP ON THE 2021 DISTRICT BUDGET

Mr. Frausto provided the Board with a Budget Workshop Presentation presented on the screen and reviewed the District’s financial performance in 2020 as well as the proposed goals and budget for 2021.

10. OPERATIONS AND MAINTENANCE SUPERINTENDENT’S REPORT

Mr. Zampiello updated the Board regarding field staff and Covid-19 protocols. He also summarized on current projects and field work activities. Mr. Frausto also spoke and updated the Board on a power outage that resulted in a Treatment Plant shutdown over the weekend.

Motion: Receive and File the Operations and Maintenance Superintendent’s Report.

1st: President Hernandez

2nd: Vice President Hastings

| | Hernandez | Hastings | Barajas | Escalera | Rojas |
|-------------|------------------|-----------------|----------------|-----------------|--------------|
| Vote | Yes | Yes | Yes | Yes | Absent |

Motion carried by a vote of: 4 Yes, 0 No, 0 Abstain, 1 Absent.

11. GENERAL MANAGER’S REPORT

Mr. Frausto announced that the PWAG executive committee is in the process of finding a replacement for the current Emergency Preparedness Coordinator, Mike Holmes. He also announced that the District is getting a proposal for upgrading the interior of the office.

12. OTHER ITEMS

A. Information Items.

Included in Board Packet.

13. ATTORNEY’S COMMENTS

Mr. Ciampa reported on the temporary Cal OSHA regulations regarding Covid-19 and that he will have a summary of it soon.

14. BOARD MEMBER COMMENTS

A. Report on Events Attended.

No events to report.

B. Other Comments.

15. FUTURE AGENDA ITEMS

16. ADJOURNMENT

President Hernandez adjourned the meeting at 6:25 p.m.

Attest:

Henry P. Hernandez, President

Roy Frausto, Secretary

La Puente Water District November 2020 Disbursements

| Check # | Payee | Amount | Description |
|---------|-----------------------------------|--------------|------------------------------------|
| 8283 | Registrar-Recorder | \$ 75.00 | CEQA NOE |
| 8284 | Answering Service Care | \$ 144.42 | Answering Service |
| 8285 | Bryan Press | \$ 138.00 | Office Expense |
| 8286 | CCSInteractive | \$ 54.40 | Monthly Website Hosting |
| 8287 | Coverall North America Inc | \$ 255.00 | Cleaning Service |
| 8288 | Eurofins Eaton Analytical Inc | \$ 40.00 | Water Sampling |
| 8289 | Ferguson Waterworks | \$ 64.87 | Field Supplies |
| 8290 | Highroad IT | \$ 402.00 | Technical Support |
| 8291 | Hunter Electric | \$ 523.20 | Well Maintenance |
| 8292 | Merritt's Hardware | \$ 218.51 | Field Supplies |
| 8293 | Pumping Solutions Inc | \$ 84.31 | Equipment Maintenance |
| 8294 | Red Wing Shoes | \$ 330.69 | Clothing Allowance |
| 8295 | RMG Communications | \$ 1,006.25 | Newsletter Expense |
| 8297 | SC Edison | \$ 7,024.08 | Power Expense |
| 8298 | Superior Laundry - Laundry Up | \$ 366.10 | Uniform Maintenance |
| 8299 | Underground Service Alert | \$ 95.17 | Line Notifications |
| 8300 | Weck Laboratories Inc | \$ 292.50 | Water Sampling |
| 8301 | Interstate Billing Service Inc | \$ 1,533.01 | Truck Maintenance |
| 8302 | Eurofins Eaton Analytical Inc | \$ 300.00 | Water Sampling |
| 8303 | Evoqua | \$ 5,333.92 | Resin Disposal |
| 8304 | Harrington Industrial Plastics | \$ 6,422.26 | Filters |
| 8305 | Johnny's Pool Services Inc | \$ 54.57 | Chemicals Expense |
| 8306 | Konecranes | \$ 400.00 | UV Maintenance |
| 8307 | Locus Technology | \$ 168.00 | Technical Support |
| 8308 | Northstar Chemical | \$ 8,270.12 | Chemicals Expense |
| 8309 | Pall Filter Specialists Inc | \$ 4,037.87 | Filters |
| 8310 | Petty Cash | \$ 34.00 | TP Expense |
| 8311 | Titan Consolidated Industries | \$ 92,400.00 | ISEP Removal |
| 8312 | Trojan UV | \$ 27,170.00 | Quarterly Service Contract |
| 8313 | Weck Laboratories Inc | \$ 2,944.25 | Water Sampling |
| 8314 | Weck Laboratories Inc | \$ 4,304.50 | Water Sampling |
| 8315 | Weck Laboratories Inc | \$ 609.75 | Water Sampling |
| 8316 | Chevron | \$ 1,892.69 | Fuel Expense |
| 8317 | Eurofins Eaton Analytical Inc | \$ 40.00 | Water Sampling |
| 8318 | InfoSend | \$ 863.13 | Billing Expense |
| 8319 | Olson Resources | \$ 93.75 | Administrative Support |
| 8320 | Peck Road Gravel | \$ 210.00 | Asphalt & Concrete Disposal |
| 8321 | SC Edison | \$ 127.85 | Power Expense |
| 8322 | Time Warner Cable | \$ 288.11 | Telephone Service |
| 8323 | Valley Vista Services | \$ 324.16 | Trash Service |
| 8324 | Weck Laboratories Inc | \$ 174.00 | Water Sampling |
| 8325 | Western Water Works | \$ 1,817.87 | Field Supplies - Inventory |
| 8326 | Time Warner Cable | \$ 693.31 | Telephone Service |
| 8327 | United Site Services of Calif Inc | \$ 436.80 | Restroom Service @ Treatment Plant |
| 8328 | Petty Cash | \$ 98.55 | Office/Field Expense |
| 8329 | A & S Auto Electric | \$ 140.00 | Truck Maintenance |
| 8330 | Albert J Vazquez | \$ 158.39 | Clothing Allowance |
| 8331 | Hardy & Harper Inc | \$ 401.82 | Construction Meter Refund |
| 8332 | ACWA/JPIA | \$ 33,443.67 | Health Benefits |
| 8333 | Citi Cards | \$ 1,738.84 | Field & Administrative Expenses |
| 8334 | Eurofins Eaton Analytical Inc | \$ 40.00 | Water Sampling |
| 8335 | Ferguson Waterworks | \$ 4,553.32 | Meter Reading Expense |

La Puente Water District November 2020 Disbursements - continued

| Check # | Payee | Amount | Description |
|------------------------------|---|----------------------|---|
| 8336 | Lagerlof LLP | \$ 2,957.00 | Attorney Fee's |
| 8337 | Peck Road Gravel | \$ 280.00 | Asphalt & Concrete Disposal |
| 8338 | Public Water Agencies Group | \$ 380.98 | Administrative Support |
| 8339 | San Gabriel Valley Water Company | \$ 193.97 | Water Service @ Treatment Plant |
| 8340 | Staples | \$ 203.92 | Office Supplies |
| 8341 | Sunbelt Rentals | \$ 718.25 | Equipment Rental |
| 8342 | Time Warner Cable | \$ 317.55 | Telephone Service |
| 8343 | Vulcan Materials Company | \$ 231.07 | Field Supplies - Asphalt |
| 8344 | SC Edison | \$ 1,425.00 | Power Expense |
| 8345 | AWWA | \$ 195.00 | Conference Registration - Escalera |
| 8346 | Baldwin Park FARP | \$ 60.00 | Security Monitoring |
| 8347 | Cell Business Equipment | \$ 32.12 | Office Expense |
| 8348 | Dragon Fire Protection | \$ 244.28 | Fire Extinguisher Maintenance |
| 8349 | Ferguson Waterworks | \$ 3,237.50 | Meter Expense |
| 8350 | InfoSend | \$ 58.82 | Billing Expense |
| 8351 | Jack Henry & Associates | \$ 56.00 | Web E-Check Fee's |
| 8352 | Lincoln National Life Insurance Company | \$ 701.88 | Disability Insurance |
| 8353 | MetLife | \$ 241.13 | Life Insurance |
| 8354 | Premier Access Insurance Co | \$ 3,068.52 | Dental Insurance |
| 8355 | Verizon Wireless | \$ 356.54 | Cellular Service |
| 8356 | Verizon Wireless | \$ 77.72 | Cellular Service |
| 8357 | Weck Laboratories Inc | \$ 89.00 | Water Sampling |
| 8358 | Western Water Works | \$ 3,349.33 | Field Supplies - Inventory |
| 8359 | SC Edison | \$ 30,466.94 | Power Expense |
| 8360 | Verizon Wireless | \$ 114.03 | Cellular Service |
| Online | Home Depot | \$ 786.70 | Field Supplies |
| Online | Intuit Quickbooks | \$ 593.98 | Administrative Supplies |
| Autodeduct | Bluefin Payment Systems | \$ 1,180.98 | Web Merchant Fee's |
| Autodeduct | Wells Fargo | \$ 532.34 | Bank Fee's |
| Autodeduct | Wells Fargo | \$ 66.42 | Merchant Fee's |
| Autodeduct | First Data Global Leasing | \$ 44.00 | Credit Card Machine Lease |
| Online | Lincoln Financial Group | \$ 11,092.50 | Deferred Compensation |
| Online | CalPERS | \$ 15,425.37 | Retirement Program |
| Online | Employment Development Dept | \$ 4,854.64 | California State & Unemployment Taxes |
| Online | United States Treasury | \$ 66,152.20 | Federal, Social Security & Medicare Taxes |
| Total Vendor Payables | | \$ 362,418.69 | |

2:30 PM
12/01/20

La Puente Valley County Water District
Payroll Summary
November 2020

| | November 2020 |
|--|----------------------|
| Employee Wages, Taxes and Adjustments | |
| Gross Pay | |
| Total Gross Pay | 111,011.88 |
| Deductions from Gross Pay | |
| Total Deductions from Gross Pay | -9,194.39 |
| Adjusted Gross Pay | 101,817.49 |
| Taxes Withheld | |
| Federal Withholding | -10,940.00 |
| Medicare Employee | -1,611.97 |
| Social Security Employee | -6,014.26 |
| CA - Withholding | -4,854.64 |
| Medicare Employee Addl Tax | 0.00 |
| Total Taxes Withheld | -23,420.87 |
| Net Pay | 78,396.62 |
| Employer Taxes and Contributions | |
| Medicare Company | 1,611.97 |
| Social Security Company | 6,014.26 |
| CA - Unemployment | 0.00 |
| CA - Employment Training Tax | 0.00 |
| Total Employer Taxes and Contributions | 7,785.23 |

La Puente Water District November 2020 Disbursements

| | |
|-----------------------------------|----------------------|
| Total Vendor Payables | <u>\$ 362,418.69</u> |
| Total Payroll | <u>\$ 78,396.62</u> |
| Total November 2020 Disbursements | <u>\$ 440,815.31</u> |

Invoice No. 4- 2020-11

December 1, 2020

BPOU Project Committee Members

RE: BPOU O & M Expense Reimbursement Summary



The following cost breakdown represents O & M expenses incurred by the LPVCWD for the month of November 2020.

| <u>BPOU Acct No.</u> | <u>Description</u> | <u>Invoice No.</u> | <u>Vendor</u> | <u>Amount</u> | <u>Subtotal</u> |
|---------------------------------|---|--------------------|-----------------------------|---------------------|-----------------|
| LP.02.01.01.00 | Power | 2-15-629-6188 | SC Edison | \$ 17,630.70 | |
| | | 2-03-187-2179 | SC Edison | \$ 12,836.24 | \$ 30,466.94 |
| LP.02.01.02.00 | Labor Costs | Nov-20 | LPVCWD | \$ 24,540.32 | \$ 24,540.32 |
| LP.02.01.05.00 | Transportation | Nov-20 | LPVCWD - 1572 miles @ .575 | \$ 903.90 | \$ 903.90 |
| LP .02.01.07.00 | Water Testing | L0540018 | Eurofins | \$ 20.00 | |
| | | L0540019 | Eurofins | \$ 80.00 | |
| | | L0541367 | Eurofins | \$ 60.00 | |
| | | L0542188 | Eurofins | \$ 80.00 | |
| | | L0543977 | Eurofins | \$ 40.00 | |
| | | W0K0511 | Weck Labs | \$ 180.00 | |
| | | W0K0598 | Weck Labs | \$ 184.00 | |
| | | W0K0599 | Weck Labs | \$ 172.75 | |
| | | W0K0728 | Weck Labs | \$ 87.00 | |
| | | W0K0957 | Weck Labs | \$ 190.75 | |
| | | W0K1046 | Weck Labs | \$ 365.50 | |
| | | W0K1047 | Weck Labs | \$ 180.00 | |
| | | W0K1131 | Weck Labs | \$ 184.00 | |
| | | W0K1132 | Weck Labs | \$ 520.00 | |
| | | W0K1173 | Weck Labs | \$ 184.00 | |
| | | W0K1262 | Weck Labs | \$ 87.00 | |
| | | W0K1585 | Weck Labs | \$ 190.75 | |
| | | W0K1809 | Weck Labs | \$ 184.00 | |
| | | W0L0014 | Weck Labs | \$ 180.00 | |
| | | W0L0015 | Weck Labs | \$ 190.75 | |
| W0L0073 | Weck Labs | \$ 180.00 | \$ 3,540.50 | | |
| LP.02.01.08.00 | Reports/Compliance CA Dept. Public Health | WD-0180295 | SWRCB | \$ 16,193.00 | |
| | | WD-0180971 | SWRCB | \$ 682.00 | \$ 16,875.00 |
| LP.02.01.10.00 | Operations Monitoring | 7501201054 | SC Edison | \$ 1,425.00 | |
| | | 9462; 11/20 | Time Warner Cable | \$ 393.31 | |
| | | 2906; 11/20 | Time Warner Cable | \$ 300.00 | |
| | | 9867096252 | Verizon Wireless | \$ 114.03 | \$ 2,232.34 |
| <u>LP.02.01.12.00</u> | <u>Materials/Supplies</u> | | | | |
| LP.02.01.12.02 | Filter Cartridges | 97769366 | Pall Corporation | \$ 2,800.32 | |
| | | 97772680 | Pall Corporation | \$ 3,684.29 | |
| | | 97778512 | Pall Corporation | \$ 3,717.95 | |
| | | 97778514 | Pall Corporation | \$ 1,026.47 | |
| | | 97802135 | Pall Corporation | \$ 2,788.97 | |
| | | 97808303 | Pall Corporation | \$ 932.04 | \$ 14,950.04 |
| LP.02.01.12.05 | Hydrogen Peroxide | 182657 | Northstar Chemical | \$ 2,270.06 | \$ 2,270.06 |
| LP.02.01.12.06 | Sodium Hypochlorite | 182561 | Northstar Chemical | \$ 1,504.94 | |
| | | 183312 | Northstar Chemical | \$ 1,461.10 | \$ 2,966.04 |
| LP.02.01.12.11 | Sodium Hydroxide | 182347 | Northstar Chemical | \$ 1,351.60 | \$ 1,351.60 |
| LP.02.01.12.15 | Other Expendables | 9060331 | Home Depot | \$ 85.36 | \$ 85.36 |
| LP.02.01.12.17 | Sulfuric Acid | 182711 | Northstar Chemical | \$ 2,000.75 | \$ 2,000.75 |
| LP.02.01.12.18 | Ion Exchange Resin - Includes Disposal | 904675807 | EVOQUA | \$ 5,333.92 | \$ 5,333.92 |
| LP.02.01.15.00 | Contractor Labor | 1060 | JR'S Environmental Services | \$ 2,245.00 | \$ 2,245.00 |
| LP.02.01.80.00 | Other O & M | 43743 | Dragon Fire Protection | \$ 90.00 | |
| | | 21085 | Highroad IT | \$ 134.00 | |
| | | 114-11131317 | United Site Services | \$ 436.80 | |
| | | 1038119-2519-9 | Waste Management | \$ 206.22 | \$ 867.02 |
| Total Expenditures | | | | \$ 110,628.79 | |
| District Pumping Cost Deduction | | | | \$ 12,867.31 | |
| Total O & M | | | | \$ 97,761.48 | |
| Total Capital Cost Reimbursable | | | | \$ - | |
| Total Cost Reimbursable | | | | \$ 97,761.48 | |

Industry Public Utilities November 2020 Disbursements

| Check # | Payee | Amount | Description |
|------------|--|--------------|-------------------------------|
| 4307 | Answering Service Care | \$ 144.42 | Answering Service |
| 4308 | CCSInteractive | \$ 13.60 | Monthly Website Hosting |
| 4309 | Ferguson Waterworks | \$ 6,063.37 | Meter Replacement |
| 4310 | Highroad IT | \$ 268.00 | Technical Support |
| 4311 | La Puente Valley County Water District | \$ 62,073.54 | Labor Costs October 2020 |
| 4312 | Merritt's Hardware | \$ 22.39 | Field Supplies |
| 4313 | Pumping Solutions Inc | \$ 84.30 | Equipment Repair |
| 4314 | Underground Service Alert | \$ 95.16 | Line Notifications |
| 4315 | Weck Laboratories Inc | \$ 230.00 | Water Sampling |
| 4316 | Western Water Works | \$ 170.51 | Developer Project |
| 4317 | InfoSend | \$ 674.72 | Billing Expense |
| 4318 | Peck Road Gravel | \$ 210.00 | Asphalt & Concrete Disposal |
| 4319 | SC Edison | \$ 2,111.71 | Power Expense |
| 4320 | SoCal Gas | \$ 20.28 | Gas Expense |
| 4321 | Time Warner Cable | \$ 77.77 | Telephone Service |
| 4322 | Time Warner Cable | \$ 288.11 | Telephone Service |
| 4323 | Weck Laboratories Inc | \$ 122.50 | Water Sampling |
| 4324 | Betty Chu | \$ 15.90 | Customer Overpayment Refund |
| 4325 | Ferguson Waterworks | \$ 3,434.96 | Meter Reading Expense |
| 4326 | Janus Pest Management Inc | \$ 65.00 | Pest Control |
| 4327 | La Puente Valley County Water District | \$ 266.17 | Bank Fee Reimbursement |
| 4328 | Peck Road Gravel | \$ 280.00 | Asphalt & Concrete Disposal |
| 4329 | San Gabriel Valley Water Company | \$ 1,027.07 | Purchased Water - Salt Lake |
| 4330 | Staples | \$ 22.04 | Office Supplies |
| 4331 | Stetson Engineers Inc | \$ 6,060.00 | Well Feasibility Study |
| 4332 | Sunbelt Rentals | \$ 277.00 | Equipment Rental |
| 4333 | Vulcan Materials Company | \$ 231.07 | Field Supplies - Asphalt |
| 4334 | Western Water Works | \$ 268.19 | Field Supplies |
| 4335 | Cell Business Equipment | \$ 32.11 | Office Expense |
| 4336 | Dragon Fire Protection | \$ 154.27 | Fire Extinguisher Maintenance |
| 4337 | Industry Public Utility Commission | \$ 735.41 | Industry Hills Power Expense |
| 4338 | InfoSend | \$ 54.40 | Billing Expense |
| 4339 | SC Edison | \$ 9,918.85 | Power Expense |
| 4340 | SoCal Gas | \$ 16.27 | Gas Expense |
| 4341 | Verizon Wireless | \$ 356.54 | Cellular Service |
| 4342 | Verizon Wireless | \$ 77.72 | Cellular Service |
| 4343 | Weck Laboratories Inc | \$ 215.00 | Water Sampling |
| 4344 | Western Water Works | \$ 1,729.86 | Field Supplies |
| Online | Home Depot Credit Services | \$ 279.08 | Field Supplies |
| Online | County of LA Dept of Public Works | \$ 561.00 | Permit Fee's |
| Autodeduct | Bluefin Payment Systems | \$ 1,389.86 | Web Merchant Fee's |
| Autodeduct | First Data Global Leasing | \$ 44.00 | Credit Card Machine Lease |
| Autodeduct | Jack Henry & Associates | \$ 41.45 | Web E-Check Fee's |
| Autodeduct | Wells Fargo Merchant Fee's | \$ 29.46 | Credit Card Merchant Fee's |

Total November 2020 Disbursements \$ 100,253.06

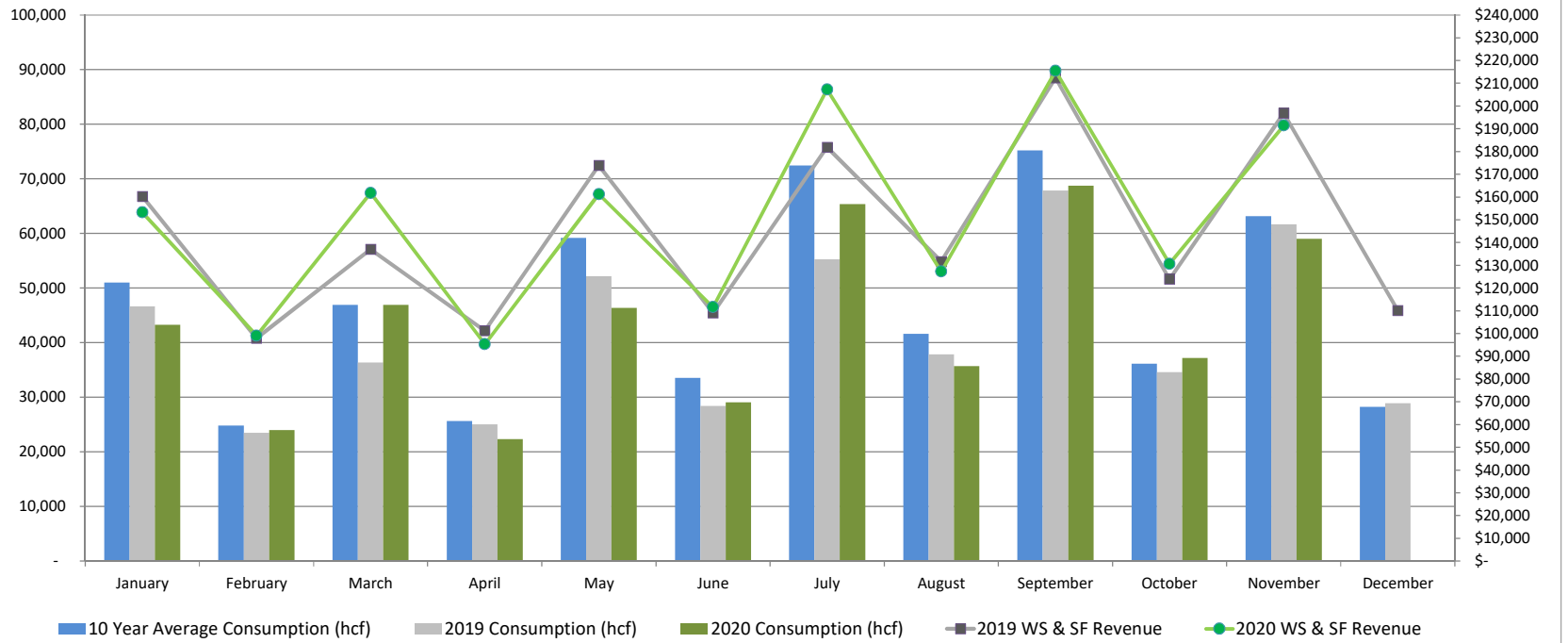
WATER SALES REPORT LPVCWD 2020

| LPVCWD | January | February | March | April | May | June | July | August | September | October | November | December | YTD |
|------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|--------------|
| No. of Customers | 1,228 | 1,219 | 1,231 | 1,219 | 1,231 | 1,214 | 1,230 | 1,223 | 1,227 | 1,224 | 1,233 | - | 13,479 |
| 2020 Consumption (hcf) | 27,032 | 49,681 | 29,037 | 49,852 | 30,940 | 66,359 | 44,248 | 77,980 | 47,229 | 81,509 | 38,530 | - | 542,397 |
| 2019 Consumption (hcf) | 30,923 | 46,152 | 24,105 | 51,751 | 37,307 | 61,263 | 40,622 | 82,473 | 47,666 | 73,372 | 42,125 | 59,523 | 597,282 |
| 2020 Water Sales | \$ 60,668 | \$ 115,912 | \$ 65,851 | \$ 117,505 | \$ 71,375 | \$ 161,813 | \$ 108,033 | \$ 191,782 | \$ 115,906 | \$ 199,904 | \$ 91,717 | \$ - | \$ 1,300,466 |
| 2019 Water Sales | \$ 65,872 | \$ 99,793 | \$ 49,373 | \$ 112,591 | \$ 81,601 | \$ 135,597 | \$ 90,296 | \$ 187,941 | \$ 108,273 | \$ 164,349 | \$ 93,779 | \$ 140,375 | \$ 1,329,838 |
| 2020 Service Fees | \$ 54,774 | \$ 64,568 | \$ 54,738 | \$ 64,626 | \$ 54,693 | \$ 64,589 | \$ 54,645 | \$ 64,640 | \$ 54,709 | \$ 64,820 | \$ 54,888 | \$ - | \$ 651,690 |
| 2019 Service Fees | \$ 49,766 | \$ 58,668 | \$ 49,865 | \$ 59,032 | \$ 50,396 | \$ 59,065 | \$ 50,376 | \$ 60,011 | \$ 50,936 | \$ 60,127 | \$ 50,962 | \$ 64,547 | \$ 663,752 |
| 2020 Hyd Fees | \$ 950 | \$ 700 | \$ 950 | \$ 700 | \$ 950 | \$ 700 | \$ 950 | \$ 700 | \$ 950 | \$ 700 | \$ 950 | \$ - | \$ 9,200 |
| 2020 DC Fees | \$ 246 | \$ 8,766 | \$ 247 | \$ 8,766 | \$ 246 | \$ 8,766 | \$ 246 | \$ 8,549 | \$ 246 | \$ 8,990 | \$ 246 | \$ - | \$ 45,313 |
| 2020 System Revenue | \$ 116,638 | \$ 189,945 | \$ 121,786 | \$ 191,597 | \$ 127,265 | \$ 235,868 | \$ 163,873 | \$ 265,671 | \$ 171,811 | \$ 274,414 | \$ 147,801 | \$ - | \$ 2,006,669 |



WATER SALES REPORT CIWS 2020

| CIWS | January | February | March | April | May | June | July | August | September | October | November | December | YTD |
|--|----------------|-----------------|--------------|--------------|------------|-------------|-------------|---------------|------------------|----------------|-------------------|-----------------|---------------------|
| No. of Customers | 963 | 894 | 966 | 894 | 966 | 894 | 964 | 894 | 964 | 893 | 968 | - | 10,260 |
| 2020 Consumption (hcf) | 43,254 | 24,004 | 46,914 | 22,357 | 46,359 | 29,062 | 65,359 | 35,705 | 68,741 | 37,218 | 58,995 | - | 477,968 |
| 2019 Consumption (hcf) | 46,656 | 23,510 | 36,382 | 25,014 | 52,169 | 28,423 | 55,251 | 37,850 | 67,871 | 34,623 | 61,667 | 28,932 | 498,348 |
| 10 Year Average Consumption (hcf) | 50,985 | 24,808 | 46,902 | 25,636 | 59,207 | 33,535 | 72,455 | 41,624 | 75,220 | 36,162 | 63,167 | 28,266 | 557,964 |
| 2020 Water Sales | \$ 96,852 | \$ 52,599 | \$ 105,435 | \$ 48,866 | \$ 104,787 | \$ 64,969 | \$ 150,971 | \$ 80,727 | \$ 159,074 | \$ 84,148 | \$ 134,962 | \$ - | \$ 1,083,391 |
| 2019 Water Sales | \$ 104,539 | \$ 51,588 | \$ 80,950 | \$ 54,785 | \$ 117,646 | \$ 62,656 | \$ 125,539 | \$ 85,198 | \$ 156,165 | \$ 77,314 | \$ 140,661 | \$ 63,795 | \$ 1,120,834 |
| 2020 Service Fees | \$ 56,384 | \$ 46,449 | \$ 56,335 | \$ 46,480 | \$ 56,477 | \$ 46,618 | \$ 56,244 | \$ 46,491 | \$ 56,308 | \$ 46,479 | \$ 56,450 | \$ - | \$ 570,716 |
| 2019 Service Fees | \$ 55,744 | \$ 46,354 | \$ 56,091 | \$ 46,445 | \$ 56,273 | \$ 46,411 | \$ 56,356 | \$ 46,484 | \$ 56,247 | \$ 46,569 | \$ 56,153 | \$ 46,373 | \$ 615,502 |
| 2020 Hyd Fees | \$ 1,550 | \$ 250 | \$ 1,550 | \$ 250 | \$ 1,550 | \$ 250 | \$ 1,600 | \$ 250 | \$ 1,550 | \$ 250 | \$ 1,550 | \$ - | \$ 10,600 |
| 2020 DC Fees | \$ 11,689 | \$ 3,695 | \$ 11,727 | \$ 3,695 | \$ 11,727 | \$ 3,695 | \$ 11,736 | \$ 3,695 | \$ 11,727 | \$ 3,695 | \$ 11,723 | \$ - | \$ 88,802 |
| 2020 System Revenues | \$ 166,475 | \$ 102,993 | \$ 175,047 | \$ 99,291 | \$ 174,540 | \$ 115,532 | \$ 220,551 | \$ 131,163 | \$ 228,658 | \$ 134,572 | \$ 204,686 | \$ - | \$ 1,753,509 |



Memo



To: Honorable Board of Directors

From: Roy Frausto, General Manager

Date: December 14, 2020

Re: 2021 Cost of Living Adjustment and Salary Schedule Adjustment

Summary

As customary of this District, a cost of living adjustment (COLA) of all District Employees salaries is considered each year. It is the duty of the General Manager to recommend to the Board what increase is in the best interest of the District. This recommendation is based on the increase of the Consumer Price Index (CPI) for urban wage earners and clerical workers in our region.

Over this past year, the annual average of the CPI for our region increased by an estimated 1.64%. For your reference, I have attached the data from the U.S. Department of Labor detailing the historical CPI for Los Angeles cities with respect to urban wage earners and clerical workers. In addition, I have included a graph depicting the District's COLA calculations and adopted COLA increases for the past several years.

For calendar year 2020, The Board of Directors approved a 1.6% COLA, which was 1.57% less than the change in CPI of 3.17%. This decision was made to minimize the impact of the increasing cost for the District in 2020. In preparing my recommendation for the 2021 COLA, I analyzed the fiscal impact to the District and ensured that the recommended COLA is financially feasible and ensures employee salaries remain competitive in relation to the job market.

Recommendation

For calendar year 2021, I recommend a 2% COLA be applied to all employee salaries and to salary ranges for each position. Enclosed is a revised District salary schedule with the proposed 2% adjustment to the ranges.

Thank you for your consideration on this matter. If you have any question, please feel free to contact me.

Enclosures:

1. CPI Table for Urban Wage Earners and Clerical Workers in Los Angeles-Long Beach-Anaheim
2. Historical COLA Graph
3. Proposed Salary Schedule (adjusted 2%)

CPI-Urban Wage Earners and Clerical Workers (Current)
Original Data Value

Series Id: CWURS49ASA0

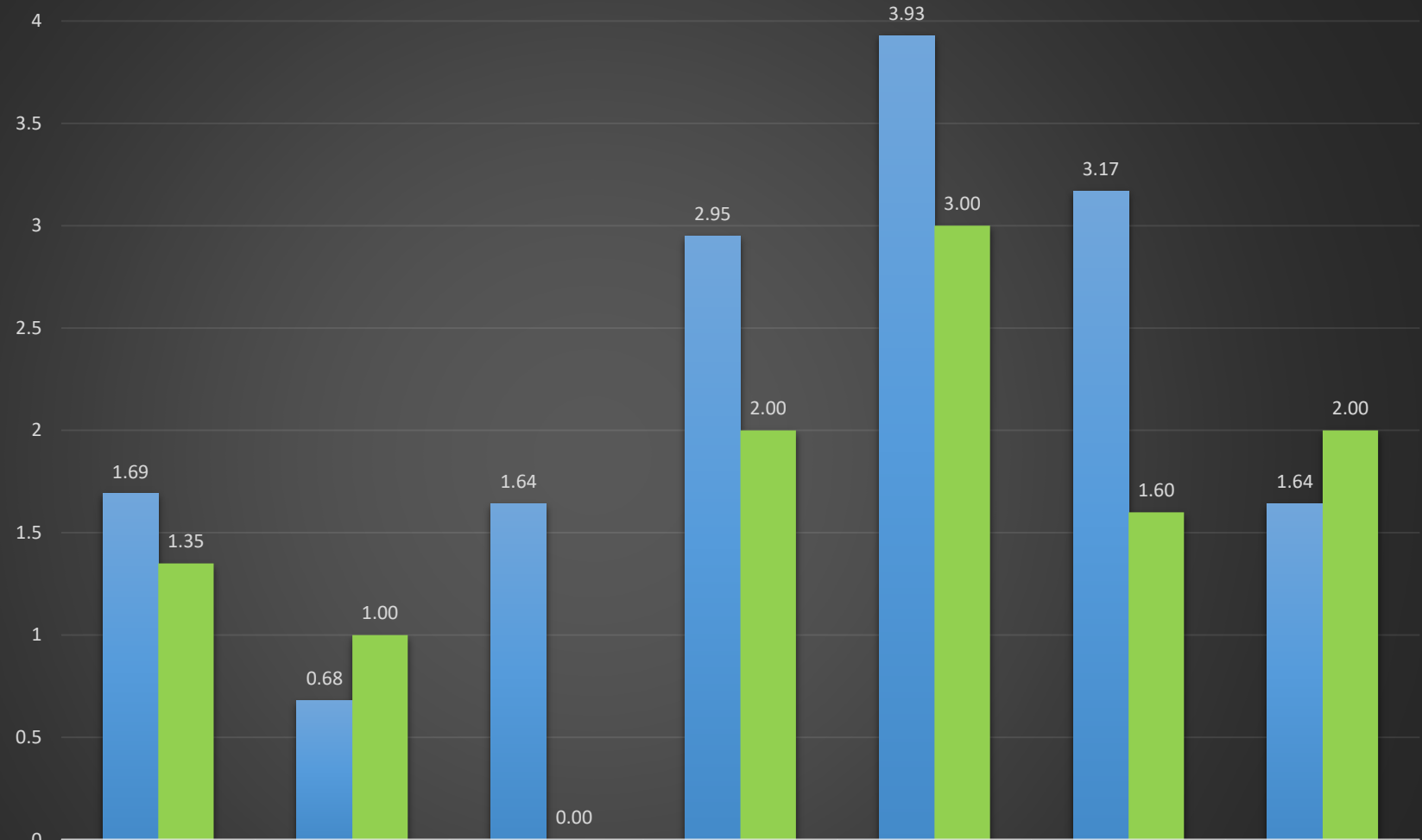
Not Seasonally Adjusted

Series: All items in Los Angeles-Long Beach-Anaheim, CA,
Title: urban wage earners and clerical workers, not
Area: Los Angeles-Long Beach-Anaheim, CA
Item: All items
Base: 1982-84=100
Period:
Years: 2008 to 2020

| Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Annual | HALF1 | HALF2 | % Change |
|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|
| 2008 | 213.825 | 214.231 | 216.493 | 217.914 | 219.702 | 222.435 | 223.245 | 221.230 | 220.285 | 218.726 | 214.083 | 211.007 | 217.765 | 217.433 | 218.096 | |
| 2009 | 212.454 | 213.234 | 213.013 | 213.405 | 214.446 | 216.145 | 216.128 | 216.628 | 217.302 | 217.474 | 216.618 | 216.233 | 215.257 | 213.783 | 216.730 | -1.15% |
| 2010 | 217.290 | 217.090 | 218.157 | 218.475 | 218.787 | 218.222 | 218.367 | 218.752 | 218.427 | 219.339 | 218.694 | 219.619 | 218.435 | 218.004 | 218.866 | 1.48% |
| 2011 | 221.540 | 222.814 | 225.770 | 227.051 | 226.842 | 225.461 | 224.277 | 224.665 | 226.096 | 226.116 | 225.786 | 224.444 | 225.072 | 224.913 | 225.231 | 3.04% |
| 2012 | 226.245 | 227.585 | 230.281 | 230.023 | 230.180 | 228.917 | 228.446 | 230.229 | 231.085 | 233.431 | 230.426 | 228.940 | 229.649 | 228.872 | 230.426 | 2.03% |
| 2013 | 230.651 | 232.983 | 233.200 | 232.030 | 232.387 | 232.378 | 232.190 | 232.245 | 232.817 | 232.735 | 231.598 | 231.594 | 232.234 | 232.271 | 232.197 | 1.13% |
| 2014 | 232.578 | 233.886 | 235.500 | 235.717 | 236.647 | 236.880 | 236.963 | 236.504 | 236.451 | 235.921 | 233.896 | 232.330 | 235.273 | 235.201 | 235.344 | 1.31% |
| 2015 | 231.063 | 232.975 | 235.991 | 235.697 | 238.816 | 237.792 | 239.889 | 238.755 | 237.324 | 237.472 | 237.190 | 236.787 | 236.646 | 235.389 | 237.903 | 0.58% |
| 2016 | 238.609 | 238.262 | 239.146 | 239.536 | 240.320 | 240.522 | 240.580 | 240.267 | 240.851 | 241.932 | 240.809 | 240.846 | 240.140 | 239.399 | 240.881 | 1.48% |
| 2017 | 242.735 | 244.254 | 244.932 | 245.417 | 246.153 | 245.900 | 246.681 | 247.260 | 248.550 | 249.234 | 249.680 | 249.854 | 246.721 | 244.899 | 248.543 | 2.74% |
| 2018 | 251.785 | 253.243 | 254.451 | 255.379 | 256.652 | 256.208 | 256.632 | 257.318 | 258.246 | 259.899 | 259.064 | 258.101 | 256.415 | 254.620 | 258.210 | 3.93% |
| 2019 | 259.182 | 259.734 | 261.278 | 264.469 | 265.283 | 264.640 | 265.012 | 264.687 | 266.517 | 269.314 | 268.041 | 266.274 | 264.536 | 262.431 | 266.641 | 3.17% |
| 2020 | 268.127 | 268.938 | 266.964 | 265.930 | 267.007 | 268.118 | 270.012 | 270.563 | 270.257 | 270.864 | 270.695 | 268.928 | 268.867 | 262.431 | | 1.64% |

COST OF LIVING ADJUSTMENT

COLA 2015 - 2021



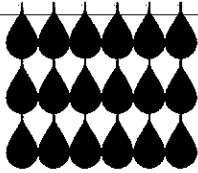
| | | | | | | | |
|------------------------------|------|------|------|------|------|------|------|
| ■ CPI Increase Calculation % | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
| | 1.69 | 0.68 | 1.64 | 2.95 | 3.93 | 3.17 | 1.64 |
| ■ Approved COLA % | 1.35 | 1.00 | 0.00 | 2.00 | 3.00 | 1.60 | 2.00 |



La Puente Valley County Water District

Salary Schedule - Proposed for January 2021

| Range | Position | Time | Proposed | | |
|-------|---|--------|-----------|------------|------------|
| | | | Begin | Mid | End |
| OMS | Operation and Maintenance Superintendent | Annual | \$ 97,414 | \$ 109,591 | \$ 121,768 |
| | | Month | \$ 8,118 | \$ 9,133 | \$ 10,147 |
| | | Hour | \$ 46.83 | \$ 52.69 | \$ 58.54 |
| OM | Office Manager | Annual | \$ 84,966 | \$ 97,411 | \$ 109,856 |
| | | Month | \$ 7,081 | \$ 8,118 | \$ 9,155 |
| | | Hour | \$ 40.85 | \$ 46.83 | \$ 52.82 |
| WTS | Water Treatment & Supply Supervisor | Annual | \$ 84,966 | \$ 97,411 | \$ 109,856 |
| | | Month | \$ 7,081 | \$ 8,118 | \$ 9,155 |
| | | Hour | \$ 40.85 | \$ 46.83 | \$ 52.82 |
| WDS | Water Distribution Supervisor | Annual | \$ 75,999 | \$ 87,131 | \$ 98,263 |
| | | Month | \$ 6,333 | \$ 7,261 | \$ 8,189 |
| | | Hour | \$ 36.54 | \$ 41.89 | \$ 47.24 |
| LWT | Lead Water System Operator (Treatment) | Annual | \$ 69,168 | \$ 79,299 | \$ 89,431 |
| | | Month | \$ 5,764 | \$ 6,608 | \$ 7,453 |
| | | Hour | \$ 33.25 | \$ 38.12 | \$ 43.00 |
| LWD | Lead Water System Operator (Distribution) | Annual | \$ 65,752 | \$ 75,383 | \$ 85,014 |
| | | Month | \$ 5,479 | \$ 6,282 | \$ 7,084 |
| | | Hour | \$ 31.61 | \$ 36.24 | \$ 40.87 |
| WSOII | Water System Operator II | Annual | \$ 61,483 | \$ 70,488 | \$ 79,494 |
| | | Month | \$ 5,124 | \$ 5,874 | \$ 6,624 |
| | | Hour | \$ 29.56 | \$ 33.89 | \$ 38.22 |
| WSOI | Water System Operator I | Annual | \$ 56,359 | \$ 64,614 | \$ 72,870 |
| | | Month | \$ 4,697 | \$ 5,385 | \$ 6,072 |
| | | Hour | \$ 27.10 | \$ 31.06 | \$ 35.03 |
| WMW | Water System Maintenance Worker | Annual | \$ 50,382 | \$ 57,761 | \$ 65,140 |
| | | Month | \$ 4,198 | \$ 4,813 | \$ 5,428 |
| | | Hour | \$ 24.22 | \$ 27.77 | \$ 31.32 |
| LCS | Lead Customer Support & Accounting Clerk | Annual | \$ 53,798 | \$ 61,677 | \$ 69,557 |
| | | Month | \$ 4,483 | \$ 5,140 | \$ 5,796 |
| | | Hour | \$ 25.86 | \$ 29.65 | \$ 33.44 |
| CSII | Customer Support & Accounting Clerk II | Annual | \$ 48,673 | \$ 55,803 | \$ 62,933 |
| | | Month | \$ 4,056 | \$ 4,650 | \$ 5,244 |
| | | Hour | \$ 23.40 | \$ 26.83 | \$ 30.26 |
| CSI | Customer Support & Accounting Clerk I | Annual | \$ 38,854 | \$ 48,133 | \$ 57,412 |
| | | Month | \$ 3,238 | \$ 4,011 | \$ 4,784 |
| | | Hour | \$ 18.68 | \$ 23.14 | \$ 27.60 |



Charles Z. Fedak, CPA, MBA
Christopher J. Brown, CPA, CGMA
Andy Beck, CPA

Fedak & Brown LLP

Certified Public Accountants

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(657) 214-2307
FAX (714) 527-9154

Riverside Office:

1945 Chicago Avenue, Suite C-1
Riverside, California 92507
(951) 783-9149.

December 3, 2020

Mr. Roy Frausto, General Manager
La Puente Valley Water District
112 N. First Street
La Puente, California 91744

Re: Engagement Letter for auditing services for the year ended December 31, 2020

Dear Mr. Roy Frausto, General Manager:

Enclosed is our Engagement Letter to perform auditing services for the La Puente Valley Water District for the year ended December 31, 2020. We look forward to working with you and the rest of the District staff.

Please sign this engagement letter and return it in the envelope provided at your convenience.

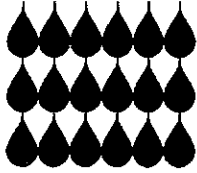
If you have any questions regarding this letter, please let me know.

Cordially,

Christopher J. Brown, CPA, CGMA

Enclosures

CJB/rmm



Charles Z. Fedak, CPA, MBA
Christopher J. Brown, CPA, CGMA
Andy Beck, CPA

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UNDERSTANDING OF THE ENGAGEMENT

December 3, 2020

Mr. Roy Frausto, General Manager
La Puente Valley Water District
112 N. First Street
La Puente, California 91744

Dear Mr. Roy Frausto, General Manager:

We are pleased to confirm our understanding of the services we are to provide for the La Puente Valley Water District (District) for the year ended December 31, 2020. We will audit the financial statements of the business-type activities, including the related notes to the financial statements, which collectively comprise the basic financial statements of the District as of and for the year ended December 31, 2020. Accounting standards generally accepted in the United States of America provide for certain required supplementary information (RSI), such as management's discussion and analysis (MD&A), to supplement the District's basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. As part of our engagement, we will apply certain limited procedures to the District's RSI in accordance with auditing standards generally accepted in the United States of America. These limited procedures will consist of inquiries of management regarding the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We will not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance. The following RSI is required by generally accepted accounting principles and will be subjected to certain limited procedures, but will not be audited:

- Management's Discussion and Analysis
- Schedule of Funding Status – Other Post-Employment Benefit
- Schedule of the District's Proportionate Share of the Net Pension Liability
- Schedule of Pension Plan Contributions

We have also been engaged to report on supplementary information other than RSI that accompanies the District's financial statements. We will subject the supplementary information to the auditing procedures applied in our audit of the financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the financial statements or to the financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America and will provide an opinion on it in relation to the financial statements as a whole.

COPY

The following other information accompanying the basic financial statements will not be subjected to the auditing procedures applied in our audit of the financial statements, and our auditor's report will not provide an opinion or any assurance on that other information.

- Introductory Section

Audit Objectives

The objective of our audit is the expression of opinions as to whether your basic financial statements are fairly presented, in all material respects, in conformity with U.S. generally accepted accounting principles and to report on the fairness of the supplementary information referred to in the second paragraph when considered in relation to the financial statements as a whole. Our audit will be conducted in accordance with auditing standards generally accepted in the United States of America and the standards for financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States; and State Controller's Minimum Audit Requirements for California Special Districts, and will include tests of the accounting records of the District and other procedures we consider necessary to enable us to express such opinions. We will issue a written report upon completion of our audit of the District's financial statements. Our report will be addressed to the District's Board of Directors. We cannot provide assurance that unmodified opinions will be expressed. Circumstances may arise in which it is necessary for us to modify our opinions or add emphasis-of-matter or other-matter paragraphs. If our opinions on the financial statements are other than unmodified, we will discuss the reasons with you in advance. If, for any reason, we are unable to complete the audit or are unable to form or have not formed opinions, we may decline to express opinions or to issue reports, or may withdraw from this engagement.

We will also provide a report (that does not include an opinion) on internal control related to the financial statements and compliance with the provisions of laws, regulations, contracts, agreements, and grant agreements, noncompliance with which could have a material effect on the basic financial statements as required by *Governmental Auditing Standards*. The report on internal control and on compliance and other matters will each include a paragraph that states (1) that the purpose of the report is solely to describe the scope of testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the effectiveness of internal control over financial reporting or on compliance, and (2) that the report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering internal control over financial reporting and compliance. The paragraph will also state that the report is not suitable for any other purpose. If during our audit we become aware the District is subject to an audit requirement that is not encompassed in the terms of this engagement, we will communicate to management and those charged with governance that an audit in accordance with U.S. generally accepted auditing standards and the standards for financial audits contained in *Government Auditing Standards* may not satisfy the relevant legal, regulatory, or contractual requirements.

Audit Procedures - General

Government Auditing Standards require that we communicate, during the planning stage of an audit, certain information to officials of the audited entity, and certain other parties. That information follows:

An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements; therefore, our audit will involve judgment about the number of transactions to be examined and the areas to be tested. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements. We will plan and perform the audit to obtain reasonable rather than absolute assurance about whether the basic financial statements are free of material misstatement, whether from (1) errors, (2) fraudulent financial reporting, (3) misappropriation of assets, or (4) violations of laws or governmental regulations that are attributable to the entity or to acts by management or employees acting on behalf of the entity.

Because the determination of abuse is subjective, *Government Auditing Standards* do not expect auditors to provide reasonable assurance of detecting abuse.

Because of the inherent limitations of an audit combined with the inherent limitations of internal control, and because we will not perform a detailed examination of all transactions, there is a risk that material misstatements may exist and not be detected by us, even though the audit is properly planned and performed in accordance with U.S. generally accepted auditing standards and *Government Auditing Standards*. In addition, an audit is not designed to detect immaterial misstatements or violations of laws or governmental regulations that do not have a direct and material effect on the basic financial statements. However, we will inform the appropriate level of management of any material errors, any fraudulent financial reporting, or misappropriation of assets that come to our attention. We will also inform the appropriate level of management of any violations of laws or governmental regulations that come to our attention, unless clearly inconsequential. Our responsibility as auditors is limited to the period covered by our audit and does not extend to later periods for which we are not engaged as auditors.

We have advised the District of the limitations of our audit regarding the detection of fraud and the possible effect on the financial statements (including misappropriation of cash or other assets). We have offered to perform, as a separate engagement, extended procedures specifically designed to detect fraud and the District has declined to engage us to do so at this time.

Our procedures will include tests of documentary evidence supporting the transactions recorded in the accounts and may include tests of the physical existence of inventories, and direct confirmation of receivables and certain assets and liabilities by correspondence with selected individuals, funding sources, creditors, and financial institutions. We will request written representations from your attorney(s) as part of the engagement, and they may bill you for responding to this inquiry. At the conclusion of our audit, we will also require certain written representations from your responsibilities for the financial statements; compliance with laws, regulations, contracts, and grant agreements; and other responsibilities required by generally accepted auditing standards.

Audit Procedures – Internal Control

Our audit will include obtaining an understanding of the entity and its environment, including internal control, sufficient to assess the risks of material misstatement of the financial statements and to design the nature, timing, and extent of further audit procedures. Tests of controls may be performed to test the effectiveness of certain controls that we consider relevant to preventing and detecting errors and fraud that are material to the financial statements and to preventing and detecting misstatements resulting from illegal acts and other noncompliance matters that have a direct and material effect on the financial statements. Our tests, if performed, will be less in scope than would be necessary to render an opinion on internal control and, accordingly, no opinion will be expressed in our report on internal control issued pursuant to *Government Auditing Standards*.

An audit is not designed to provide assurance on internal control or to identify significant deficiencies or material weaknesses. However, during the audit, we will communicate to management and those charged with governance internal control related matters that are required to be communicated under AICPA professional standards and *Government Auditing Standards*.

Audit Procedures – Compliance

As part of obtaining reasonable assurance about whether the financial statements are free of material misstatement, we will perform tests of the District's compliance with the provisions of applicable laws, regulations, contracts, agreements, and grants. However, the objective of our audit will not be to provide an opinion on overall compliance, and we will not express such an opinion in our report on compliance issued pursuant to *Government Auditing Standards*.

Other Services

We will also assist in preparing the financial statements and related notes of the District in conformity with U.S. generally accepted accounting principles based on information provided by you. We will also assist in preparing the District's Annual State Controller's Report in conformity with the State Controller's Minimum Audit Requirements for California Special Districts. These nonaudit services do not constitute an audit under *Government Auditing Standards* and such services will not be conducted in accordance with *Government Auditing Standards*. We will perform the services in accordance with applicable professional standards. We will perform the services in accordance with applicable professional standards. The other services are limited to the financial statement services previously defined. We, in our sole professional judgment, reserve the right to refuse to perform any procedure or take any action that could be construed as assuming management responsibilities.

Management Responsibilities

Management is responsible for establishing and maintaining effective internal controls, including maintaining and monitoring ongoing activities, to help ensure that appropriate goals and objectives are met; following laws and regulations; and ensuring that management and financial information is reliable and properly reported. Management is also responsible for implementing systems designed to achieve compliance with applicable laws regulations, contracts, and grant agreements. You are also responsible for the selection and application of accounting principles, for the preparation and fair presentation of the financial statements and all accompanying information in conformity with U.S. generally accepted accounting principles, and for compliance with applicable laws and regulations and the provisions of contracts and grant agreements.

Management is also responsible for making all financial records and related information available to us and for the accuracy and completeness of that information. You are also responsible for providing us with (1) access to all information of which you are aware that is relevant to the preparation and fair presentation of the basic financial statements, (2) additional information that we may request for the purpose of the audit, and (3) unrestricted access to persons within the government from whom we determine it necessary to obtain audit evidence.

Your responsibilities include adjusting the financial statements to correct material misstatements and for confirming to us in the written representation letter that the effects of any uncorrected misstatements aggregated by us during the current engagement and pertaining to the latest period presented are immaterial, both individually and in the aggregate, to the financial statements taken as a whole.

You are responsible for the design and implementation of programs and controls to prevent and detect fraud, and for informing us about all known or suspected fraud affecting the government involving (1) management, (2) employees who have significant roles in internal control, and (3) others where the fraud could have a material effect on the financial statements. Your responsibilities include informing us of your knowledge of any allegations of fraud or suspected fraud affecting the government received in communications from employees, former employees, grantors, regulators, or others. In addition, you are responsible for identifying and ensuring that the government complies with applicable laws, regulations, contracts, agreements, and grants and for taking timely and appropriate steps to remedy fraud and noncompliance with provisions of laws, regulations, and contracts or grant agreements, or abuse that we report.

You are responsible for the preparation of the supplementary information, which we have been engaged to report on, in conformity with U.S. generally accepted accounting principles. You agree to include our report on the supplementary information in any document that contains and indicates that we have reported on the supplementary information. You also agree to include the audited financial statements with any presentation of the supplementary information that includes our report thereon.

Your responsibilities include acknowledging to us in the written representation letter that (1) you are responsible for presentation of the supplementary information in accordance with GAAP; (2) you believe the supplementary information, including its form and content, is fairly presented in accordance with GAAP; (3) the methods of measurement or presentation have not changed from those used in the prior period (or, if they have changed, the reasons for such changes); and (4) you have disclosed to us any significant assumptions or interpretations underlying the measurement or presentation of the supplementary information.

Management is responsible for establishing and maintaining a process for tracking the status of audit findings and recommendations. Management is also responsible for identifying and providing report copies of previous financial audits, attestation engagements, performance audits or other studies related to the objectives discussed in the Audit Objectives section of this letter. This responsibility includes relaying to us corrective actions taken to address significant findings and recommendations resulting from those audits, attestation engagements, performance audits, or other studies. You are also responsible for providing management's views on our current findings, conclusions, and recommendations, as well as your planned corrective actions, for the report, and for the timing and format for providing that information.

You agree to assume all management responsibilities relating to the financial statements and related notes and any other nonaudit services we provide. You will be required to acknowledge in the management representation letter our assistance with preparation of the financial statements and related notes and that you have reviewed and approved the financial statements and related notes prior to their issuance and have accepted responsibility for them. Further, you agree to oversee the nonaudit services by designating an individual, preferably from senior management, with suitable skill, knowledge, or experience; evaluate the adequacy and results of those services; and accept responsibility for them.

With regard to using the auditor's report, you understand that you must obtain our prior written consent to reproduce or use our report in bond offering official statements or other documents.

With regard to the electronic dissemination of audited financial statements, including financial statements published electronically on your website, you understand that electronic sites are a means to distribute information and, therefore, we are not required to read the information contained in these sites or to consider the constancy of other information in the electronic site with the original document.

Audit Administration, Fees, and Other

We understand that the District's employees will prepare all confirmations we request and will locate any documentation selected by us for testing.

We will provide copies of our reports to the District; however, management is responsible for distribution of the reports and the financial statements. Unless restricted by law or regulation, or containing privileged and confidential information, copies of our reports are to be made available for public inspection.

The audit documentation for this engagement is the property of Fedak & Brown LLP and constitutes confidential information. However, pursuant to authority given by law or regulation, we may be requested to make certain audit documentation available to various government agencies. We will notify the District of any such request. If requested, access to such documentation will be provided under the supervision of Fedak & Brown LLP personnel. Furthermore, upon request, we may provide copies of selected audit documentation to these government agencies. These parties may intend, or decide, to distribute the copies or information contained therein to others, including other governmental agencies.

The audit documentation for this engagement will be retained for a minimum of seven years under California State Law after the report release date. If we are aware that a federal awarding agency or auditee is contesting an audit finding, we will contact the party(ies) contesting the audit finding for guidance prior to destroying the audit documentation.

We expect to begin our audit planning in December 2020 and to issue our reports no later than May 2021. Our fee for these services will be at our standard hourly rates plus out-of-pocket costs (such as report reproduction, word processing, postage, travel, copies, telephone, etc.) except that we agree that our gross fee, including expenses, will not exceed \$18,798 (with preparation of the District's annual State Controller's Report for \$500, and out-of-pocket cost not to exceed \$500). Our standard hourly rates vary according to the degree of responsibility involved and the experience level of the personnel assigned to the audit. Our invoices for these fees will be rendered each month as work progresses and are payable upon presentation. In accordance with our firm policies, work may be suspended if the District's account becomes 30 days or more overdue and may not be resumed until the District's account is paid in full. If we elect to terminate our services for nonpayment, our engagement will have been deemed to have been completed upon written notification of termination, even if we have not completed our report. The District will be obligated to compensate us for all time expended and to reimburse us for all out-of-pocket costs through the date of termination. The above fee is based on anticipated cooperation from the District's personnel and the assumption that unexpected circumstances will not be encountered during the audit. If significant additional time is necessary, we will discuss it with the District's management and arrive at a new fee estimate before we incur the additional costs.

Our audit engagement ends on delivery of our audit report. Any follow-up services that might be required will be a separate, new engagement. The terms of and conditions of that new engagement will be governed by a new, specific engagement letter for that service.

The District may request that we perform additional services not contemplated by this engagement letter. If this occurs, we will communicate with the District regarding the scope of the additional services and the estimated fees. We also may issue a separate engagement letter covering the additional services.

In the absence of any other written communication from us documenting such additional services, our services will continue to be governed by the terms of this engagement letter.

We appreciate the opportunity to be of service to the District and believe this letter accurately summarizes the significant terms of our engagement. If the District has any questions, please let us know. If the District agrees with the terms of our engagement described in this letter, please sign below and return it to us in the envelope provided. We have enclosed a copy for the District's files.

Very truly yours,

Fedak & Brown LLP

Fedak & Brown LLP

RESPONSE:

This letter correctly sets forth the understanding of the La Puente Valley Water District.

By: _____

Title: _____

Date: _____

COPY

Fedak & Brown LLP • Certified Public Accountants

Member of: American Institute of Certified Public Accountants • California Society of Certified Public Accountants



ANNUAL BUDGET

Year Ending December 31, 2021

THE LA PUENTE VALLEY COUNTY WATER DISTRICT BOARD OF DIRECTORS AND STAFF ARE DEDICATED TO PROVIDING OUR CUSTOMERS HIGH QUALITY WATER, ALONG WITH COURTEOUS AND RESPONSIVE CUSTOMER SERVICE AT THE MOST REASONABLE COST.

BOARD OF DIRECTORS

| | |
|--------------------|-----------|
| Henry P. Hernandez | President |
| William R. Rojas | Director |
| Cesar Barajas | Director |
| John P. Escalera | Director |
| David E. Argudo | Director |

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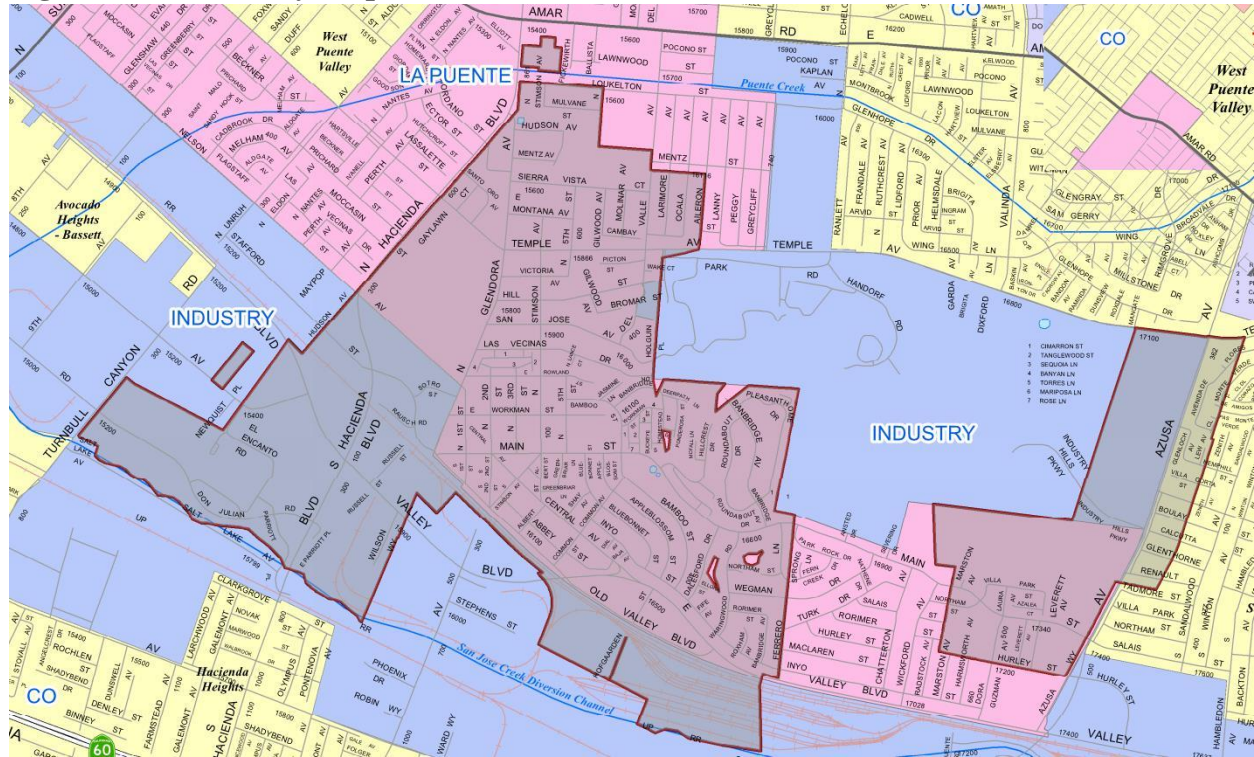
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About La Puente Valley County Water District

La Puente Valley County Water District provides safe, reliable and cost-effective drinking water to approximately 9,600 people within the communities of La Puente and the City of Industry. The District has been providing water service to these communities for over 95 years. The District was formed in August 1924 by popular vote, in accordance with the County Water District Act of 1913. In its infancy, the District consisted of approximately 1,300 acres and 200 water service connections. The area was vastly different from what it is today. At that time, most of the water produced from the District's Well Field was delivered to meet agricultural irrigation needs of the valley. Over the years, the District has grown to approximately 1,600 acres and over 2,500 water service connections. To this day, the District's Well Field continues to be the main source of supply to meet the needs of the District's customers. The boundary map of the District's service area is provided in **Figure 1.1**.

Figure 1.1 - Boundary Map of District's Service Area



A publicly elected, five-member Board of Directors governs the District. Board members serve four-year terms and elections are held every two years with terms staggered to ensure continuity. The Board is responsible for establishing District policy on a variety of issues including, but not limited to, financial planning, infrastructure investment, and water rates. Day-to-day operations are managed by the General Manager who oversees a highly-qualified staff responsible for executing ongoing operational and administrative functions. The District's employees include certified water treatment and distribution operators and an experienced administrative staff.

The District's Water System includes approximately 2,550 service connections, more than 32 miles of distribution and transmission mains, 4 wells, a state-of-the-art groundwater treatment facility, 5 booster pump stations, 4 pressure regulating stations and 3 reservoirs. In addition, the

District manages and operates the Industry Public Utilities Water System, which includes 1,860 service connections, 34.4 miles of distribution and transmission mains, 1 active well, 5 booster pump stations, and 3 reservoirs.

Water Supply and Cost of Water

The District's primary source of supply is from three ground water wells that produce water from the adjudicated Main San Gabriel Basin (Basin). The groundwater rights in the Basin were adjudicated on the basis of mutual prescription resulting in a specific quantity in acre-feet per year for each producer. Such rights were then converted to a Pumper's Share, expressed in percent of the aggregate of all prescriptive rights. The District was adjudicated 1,097-acre feet of water rights based on groundwater production that occurred between calendar years 1953 and 1967. Subsequently, the District obtained the water rights of El Encanto Properties on July 22, 1974, in the amount of 33.40 acre-feet. Thus, the District's total adjudicated water rights are 1,130.40 acre-feet. This represents 0.57197 percent (Pumper's Share) of all adjudicated water rights in the Basin.

Under the Main San Gabriel Basin Judgment, the Main San Gabriel Basin Watermaster (Watermaster) annually establishes the Operating Safe Yield (OSY) for the ensuing year. This is done mainly on the basis of groundwater storage conditions as reflected by the Baldwin Park Key Well. In order to provide sufficient storage capacity in the basin to capture as much of the local stream flow as practicable, the Judgment provides that imported supplemental water will not be spread in the Basin when the Key Well elevation exceeds 250 feet above mean sea level (msl) and will be spread, insofar practicable, to maintain the elevation above 200 feet msl. Each year a producer is allowed to extract, free of Replacement Water Assessment, its share of the OSY which is established in May each year by the Watermaster. This annual share is referred to as the annual production right.

Any producer can extract all the water needed for beneficial use, but the portion of such extraction, which exceeds the annual production right of the OSY, is assessed at a rate (Replacement Water Assessment), which will purchase one acre-foot of imported supplemental water for each acre-foot of excess production. Such water is then purchased by the Watermaster from the appropriate Responsible Agency (municipal water district) and used to replenish the Basin. If Basin storage is low, as indicated by the key well elevation, the OSY is set at a lower level so that more Replacement Water may be purchased to increase Basin storage. If Basin storage is relatively high, the OSY is increased so that Replacement Water will not increase Basin storage to the point that local water runoff will be un-storable.

Due to the historic drought conditions the OSY has been set at a very low level for the last six years at 150,000 acre-feet. This has resulted in a 18% reduction of the District's annual production right as compared to the long-term average annual production right. Approximately 40% of water the District pumps from the Basin each year to meet its water system demand requires the District to lease production rights and/or purchase replacement water.

The District is located within the service area of regional water supplier Upper San Gabriel Valley Municipal Water District (Upper District). The District relies upon Upper District to deliver replacement water for every acre foot of water produced over the District's annual production right. Upper District is a member agency of the Metropolitan Water District of Southern California (MWD), which is the agency that it purchases imported water from for replenishment purposes. The vast majority of imported water is delivered through the State Water Project (SWP) Delivery System. In the past, MWD provided this water at its replenishment water rate. Between 2007 and 2010, imported water at the replenishment rate was unavailable for purchase, but was available at the MWD tier 1 and tier 2 untreated water rates, which were substantially higher. As a result of the import water pricing change, in May 2009, the rate for the Replacement Water Assessment set by Watermaster was increased from \$251.90 per acre foot to \$450.00. In May 2020, the Replacement Water Assessment was set at \$858.00 per acre foot for the 2020-21 production year, which equates to a \$606.10 per acre foot increase over the last ten years.

The District was able to cushion the effect of this increase by purchasing 2,000-acre feet of cyclic storage water (in 2009) at a rate of \$251.90 per acre foot. Cyclic storage water, when available, can be purchased by a producer that has a cyclic storage water agreement in place with Watermaster. Cyclic storage water is replenishment water that has already been delivered into the Basin, which can be used to offset future replenishment water obligations. This water has allowed the District to limit its replenishment water purchase to only 188-acre feet over the last nine years. Currently the District has 828-acre feet in its cyclic storage account. This water also provides a major benefit during times of drought, like we are currently facing. Over the last nine years, the District has also leased groundwater productions rights at a rate 8% to 10% lower than the cost for replacement water, which further reduced the impact of the rising cost of replenishment water. The future cost for replenishment water along with groundwater production assessments will continue to have a substantial financial impact on the District in years to come.

Water Quality and the Cost of Water Treatment

The area of the Basin where the District's wells draw water is contaminated with various contaminants, such as volatile organic compounds (VOC's) and perchlorate. In 2002, the District along with other water entities, entered into an agreement with the parties who were potentially responsible for the groundwater contamination. This agreement is known as the Baldwin Park Operable Unit Project Agreement (BPOU Agreement). Under this Agreement, the water from the District's well field is treated at the District's groundwater treatment facility before it enters the District's service area. Water leaving the facility meets all State and Federal drinking water regulations. The cost to construct, maintain and operate the treatment facility was and continues to be reimbursed by the potentially responsible parties, who are now known as the Cooperating Respondents (CRs). None of these treatment costs are paid for through the District's water rates.

The term of the BPOU Agreement was 15 years and was set to expire in May of 2017. The District, other water entities and the CRs negotiated an extension to the BPOU Agreement (referred to as the 2017 BPOU Agreement), which has secured continued funding of groundwater treatment at the District's well field for an additional ten years.

In 2018, District staff identified that levels of nitrate in the water produced from the District's well field were increasing. Although the levels of nitrate in the water are below the regulatory maximum contaminant level for nitrate, District staff has begun the design and procurement efforts of a nitrate treatment system at the District's groundwater treatment facility. The capital investment and operational cost of a nitrate treatment system will have a substantial financial impact on the District and the cost for water.

Direction of the District

Summarized below are the primary District ventures that will have substantial impact on future revenue and expenses.

Recycled Water Project

The recycled water system required the District, for the first time in several decades, to obtain a loan to finance such a project. The investment in a recycled water system will deliver recycled water to several irrigation customers and replace the use of drinking water for irrigation.

The District has partnered with Upper San Gabriel Valley Municipal Water District to secure a \$428,000 grant from the State Department of Water Resources for Phase 1 of a Recycled Water System Project. The projected cost of Phase 1 is \$2,000,000. The grant will cover approximately 25 percent of the estimated cost of Phase 1, which is expected to serve 55-acre feet per year of recycled water, to be purchased indirectly from Los Angeles County Sanitation Districts, to serve irrigation customers on Don Julian Avenue.

The current cost to produce 55-acre feet of water that is over the District's annual production right is approximately \$57,000. The District secured a loan along with the grant funding to fund this project, which would otherwise not be cost effective. The assumptions of the Recycled Water Project cost and the associated debt service, is included in the five-year forecast. This new drought resistant source of water improves long-term water supply reliability for all the District's customers. The estimated cost of the Recycled Water System Project, loan proceeds, loan payment and other grant funding are included in the 5-year revenue and expense projections.

Puente Valley Operable Unit Intermediate Zone Project

The District prides itself on its efforts over the past 25 years to provide groundwater cleanup (treatment) in the Main San Gabriel Groundwater Basin. In fact, the District was the first water agency in the San Gabriel Valley to provide multi-barrier treatment for various contaminants at its groundwater treatment facility, which kick-started other groundwater treatment projects in the Valley. Over the years, the District's groundwater treatment plant has removed tons of contaminants. Our District's overall goal is to leave the groundwater basin free of contamination for future generations, so that it may continue to be used to meet the needs of its residents.

In mid-2014, the District was presented with an opportunity to further make a difference in remediating groundwater contamination in the Main San Gabriel Basin, more specifically the Puente Valley area. Under an order by US EPA, several industrial companies have been planning for several years to construct a highly efficient groundwater treatment system. This system would

be comprised of 50 monitoring wells, 7 production wells, and multiple treatment technologies. In 2015, a property was purchased, by the lead industrial company, to construct the groundwater treatment facility. This property is located within the District's service area and in close proximity to the District's water distribution facilities. Since District staff already has experience operating a similar groundwater treatment system, the District has agreed to operate the Puente Valley Operable Unit Intermediate Zone (PVOU IZ) treatment facility. The plan was for the District to receive fully treated water, which meets all State and Federal drinking water standards, into its water system to utilize this water as a back-up supply for the District and for the neighboring Puente Basin Water Agency.

In November 2014, the District, the Puente Basin Water Agency, and the lead industrial company signed a Term Sheet to move forward with plans for the District to operate and deliver water from the proposed groundwater treatment plant. The plant will need to be operated on a continual basis and any surplus water in excess of the needs of the District was planned to be conveyed to the Puente Basin Water Agency.

In 2017, the PVOU IZ project was been modified with respect to the delivery of treated water. The treated water is now planned to be delivered to the District, who will in turn deliver a certain amount to neighboring Suburban Water Systems. The other components of the project remain unchanged.

The new treatment facility will improve water quality in the groundwater Basin, provide an additional emergency water supply for the community of La Puente, and create an additional revenue source for the District. The revenue that will be received by the District for conveying water and operating the plant will help keep the District water rates affordable. The groundwater treatment system and associated improvements are anticipated to be constructed over the next years with groundwater treatment starting in 2022. The revenue anticipated from the District's involvement in this project is included in the five-year revenue projections.

Groundwater Treatment System for Nitrate Removal

District staff identified that levels of nitrate in the water produced from the District's well field were increasing in an abnormal trend, as compared to last 5 years. Although the levels of nitrate in the water are below the regulatory maximum contaminant level, the District began the design and procurement process of a nitrate treatment system at the District's groundwater treatment facility.

In addition, the District entered into a Nitrate Funding Agreement with the Cooperating Respondents to fund a portion of the anticipated Nitrate Treatment Project and operations and maintenance cost for water treated and delivered to neighboring Suburban Water Systems. Although, this funding agreement is beneficial to the District, a loan will be needed to fund a portion of the Project.

The estimated cost of a nitrate treatment system, loan proceeds, loan payment, Cooperating Respondent funding and grant funding are included in the 5-year revenue and expense projections.

2021 Objectives

Special emphasis will be placed on accomplishing the following objectives during 2021.

- ❖ Recycled Water System Project
 - Power the Recycled Water Pump Station
 - Initiate Phase 1 Customer Retrofits
- ❖ Complete Design and Begin Construction of the Nitrate Treatment System at the District's Groundwater Treatment Facility
- ❖ Continue Involvement in the PVOU Intermediate Zone Project
- ❖ Secure Groundwater Production Right Leases to Reduce the Impacts of Replacement Water Costs
- ❖ Continue Fulfill Contractual Obligation in Operating and Managing the City of Industry Waterworks System in a Cost-Effective Manner
- ❖ Complete Capital Improvements and Capital Outlay Projects

The Budget

This Budget has been designed to help fulfill the District's Mission to provide high quality water along with courteous and responsive service at the most reasonable cost to our customers. The Budget is intended to support the priorities and policies of the Board of Directors as reflected in the District's Mission Statement and serve as a policy document, a financial plan, a communications device and an operations guide. It provides a comprehensive summary of District activities and capital improvement projects proposed for year ending December 31, 2021. The District is embarking on its District's 97th year of service to the community, which comes with significant challenges. Continued prudent planning of the District is paramount in positioning the District to handle these challenges long into the future.

- ❖ The District's budget is prepared on a full accrual basis of accounting generally accepted in the United States, which is consistent with the District's audited financial statements. Revenues are recorded at the time they are earned and expenses are recorded at the time the liability is incurred. The intent of the District is to establish water rates sufficient to provide for payment of all operations and maintenance expenses along with capital improvements. The annual goal is to present a balanced budget (projected expenses equal to or less than projected revenues) to the Board of Directors for adoption.
- ❖ The preparation and adoption of a comprehensive budget and operating plan is essential for the sound management and financial administration of the District. As an enterprise type of utility, the District is similar to a commercial operation whose expenditures may vary during the year in response to the timing and level of customer service demand. Water service demand is primarily influenced by water consumption practices, weather factors and the continued growth in the number of customers served. Budget objectives must

therefore be structured to respond to fluctuating service demands. Activities are projected from historical data as a baseline to determine the appropriate funding level. Decisions made throughout the year by the Board of Directors and the General Manager is balanced between meeting budget objectives and budgetary constraints.

Executive Summary

A report of the significant findings and recommendations for the calendar year 2021 Budget are:

- ❖ Annual Revenue is expected to be \$5,101,000
- ❖ Annual Expenditures are budgeted at \$4,831,700
- ❖ Annual Net Revenue is expected to be \$269,300
- ❖ Capital Improvement/Outlay Projects are budgeted at \$2,777,400
- ❖ The Districts change in cash is expected to decrease by \$66,700 through 2021

Water Operations Fund

The District's activities identified in this budget are designed to accomplish the District's Mission as it relates to water operations. For the calendar year 2021, the District will need a total operation budget of \$4,831,700 to carry out its Mission.

All of the revenues and expenses that allow the District to function flow either directly or indirectly through the Water Operations Fund. The Water Operations Fund's source of revenue consists of water sales, miscellaneous billing, property taxes, management fees and interest earned on Water Operations Fund related investments. The Water Operations Fund exists to finance operations, maintenance, repair, supplies, depreciation, contingencies, personnel compensation related to water operations, capital improvements and to provide a catastrophic restoration reserve.

The Budget Summary details the projected Water Operations Fund revenues and expenditures for 2021 and compares those revenues and expenditures with the estimate for year-end 2020.

Water Revenue - Operational

Water Sales and Service Charges:

Water sales and service charges are the major sources of revenue for the District. These sales are the result of the District's normal meter reading and billing activities for all classes of water to all active service connections. The distribution of sales provides 34 percent as fixed sales allocated to the service charges on the basis of meter capacity and the remaining 66 percent being variable sales and allocated to the commodity charges. The District forecasts water sales and service charges at \$2,403,100.

Operational Revenue Related to the District's Groundwater Treatment Facility

The District owns and operates a groundwater treatment plant within the Main San Gabriel Basin for the removal of various contaminants. The United States EPA has identified this contaminated area of the Basin as BPOU and has named those parties that are potentially responsible, also known

as the Cooperating Respondents, for the contamination in this area of the Basin. The construction and ongoing operating cost of the District's treatment plant is reimbursable per the BPOU Project Agreement entered into by the Cooperating Respondents, Main San Gabriel Basin Watermaster, San Gabriel Basin Water Quality Authority and the Water Entities; which the District is a party to. As detailed in the Proposed 2021 Budget for the District's Treatment Plant, the District anticipates the operation and maintenance expense for the Treatment Plant to be \$1,221,700, all of which will be reimbursed to the District by the Cooperating Respondents.

Water Revenue – Non-Operational

Interest:

For calendar year 2021, District staff forecasts interest on Water Operations Fund related investments of \$20,000. The estimate is predicated on current interest rates.

Other Revenues:

This includes a total of \$275,000 from Property Taxes; \$328,000 for Fees related to the management of the PVOU IZ Treatment Facility, the BPOU Treatment Plant and the City of Industry Water Works System; \$1,094,700 from Service Fees related to labor reimbursement, \$35,700 from Rental Revenue, \$305,000 from Prop 84 Grant Funds, \$1,490,000 from Loan proceeds and \$850,000 of from funding agreements for the Nitrate Treatment Project and water system improvements for the PVOU IZ Project.

Water Expenditures

Personnel (Salaries and Benefits):

In order to maintain high quality service within the District's service area, fulfill contractual obligations to manage and operate the City of Industry Waterworks System, continue the District's involvement in the PVOU IZ Project and operate the District's Groundwater Treatment Facility, a total of 13 full-time employees and 2 part-time employees will be needed.

(Field Operations) Transmission, Distribution, Treatment and Supply 9

(Office and Management) Customer Service and Administration 6

In calendar year 2021, the District will need a personnel compensation budget of \$1,410,000 for salaries and payroll taxes related to meeting the requirements of water distribution, water treatment & supply, customer service and administrative functions for the District, CIWS, BPOU Treatment Plant Operations and PVOU IZ.

Supply and Treatment:

Water Supply and Treatment make up the variable costs of the District. These costs are generally defined as the annual operating expense to purchase and lease imported water and pump local groundwater to satisfy customer service demand. Variable costs are sensitive to operating factors that are beyond the District's control. These factors include weather, new construction, pricing or incentive programs offered by other agencies, cost of treatment chemicals and materials, energy costs and changes in efficiency of existing equipment. The budget amount can be considered as the best projection of annual costs based on an average weather, growth and consumption. For the calendar year 2021, the District will need a total of \$1,734,400 for the Supply and Treatment costs.

Other Operating Expenses:

These program costs make up a portion of the fixed operating or "overhead" costs required to maintain the District's plant sites and water distribution system (facilities). This includes costs for services, materials, vehicles and equipment for the repair, maintenance and operation of these facilities. For the calendar year 2021, the District will need a total of \$419,300 for Other Operating Expenses.

General and Administrative:

These program costs are "overhead" costs required to maintain District operations as they relate to customer service and administrative functions of the District. This includes costs for office supplies, office building maintenance, office equipment, customer billing, insurance, professional services, public outreach and conservation programs. For the calendar year 2021, the District will need a total of \$455,000 for General and Administrative costs.

Capital Improvements and Capital Outlay

The District is committed to enhancing the condition of its water system through investments in capital improvement projects. These investments will ensure that the water system will deliver high quality water to its customers long into the future. These investments will also ensure that the District's personnel will have the necessary tools to carry out their functions. Capital Improvements and Outlay may include expenditures for construction of new permanent capital facilities, replacement of existing facilities, purchasing fixed assets for various programs in the District and capital purchases necessary to maintain the quality of operations in the District.

Table 1.1 below is a summary for Capital Improvement and Capital Outlay expenses that are necessary to maintain high quality service for District Customers:

Table 1.1: 2021 Capital Improvement Projects & Capital Outlay

| Project | Description | Cost |
|--------------------------------------|--|------------|
| Fire Hydrant Replacements | Replace Inoperable Fire Hydrants as needed. | \$ 5,000 |
| Other Equipment and IT Equipment | Purchase of computer equipment and small construction equipment. | \$ 7,000 |
| Other Field Equipment | Various field equipment needed | \$ 10,000 |
| Valve Replacements | Replace Inoperable Valves as Needed | \$ 20,000 |
| Service Line Replacements | Replace Aging Plastic and/or Galvanized Service Lines as Needed | \$ 20,000 |
| Meter Read Collection System | Expand the Radio Meter Reading Collection System | \$ 20,000 |
| LP-CIWS Interconnection (Ind. Hills) | Upgrades to an interconnection between the CIWS and the District to assist with the delivery of PVOU IZ treated water. | \$ 75,000 |
| New Dump Truck | Purchase a New Service Truck to Replace Fully Depreciated Service Truck | \$ 150,000 |

| | | |
|--|--|--------------|
| Scada Improvements | Assessment of current system and initiate improvements to software and hardware | \$ 125,000 |
| Hudson Plant Improvements | Construct a new pump station for the delivery of PVOU IZ treated water to Suburban Water Systems and improvements to the District's existing pump station. (2 yr. project) | \$ 375,000 |
| Groundwater Treatment System – Nitrate Removal | Complete design and begin construction of a Nitrate treatment system at the District's groundwater treatment facility. (2yr. Project) | \$ 1,660,000 |
| Recycled Water System (Phase 1) | Construct New Recycled Waterlines and Pump Station for 12 Irrigations Customers. (2 yr. project) | \$ 310,400 |

Total: \$ 2,777,400



Table 1.2

La Puente Valley County Water District 2021 Proposed Budget (Summary)

| | LPVCWD | TP | TOTAL | LPVCWD | TP | TOTAL | TOTAL |
|---------------------------------------|---------------------------|---------------------------|---------------------------|----------------------------|----------------------------|----------------------------|---------------------------------|
| | 2020 Adopted Budget | 2020 Adopted Budget | 2020 Adopted Budget | 2021 Proposed Budget | 2021 Proposed Budget | 2021 Proposed Budget | Budget Variance 2021-2020 |
| Revenues | | | | | | | |
| Operational Rate Revenues | \$ 2,265,900 | \$ - | \$ 2,265,900 | \$ 2,403,100 | \$ - | \$ 2,403,100 | \$ 137,200 |
| Operational Non-Rate Revenues | 1,248,500 | 1,340,300 | 2,588,800 | 1,130,500 | 1,221,700 | 2,352,200 | (236,600) |
| Non-Operational Revenues | 329,700 | - | 329,700 | 345,700 | - | 345,700 | 16,000 |
| Total Revenues | 3,844,100 | 1,340,300 | 5,184,400 | 3,879,300 | 1,221,700 | 5,101,000 | (83,400) |
| Expense | | | | | | | |
| Salaries & Benefits | 1,831,800 | 295,000 | 2,126,800 | 1,923,300 | 299,700 | 2,223,000 | 96,200 |
| Supply & Treatment | 976,400 | 848,500 | 1,824,900 | 993,700 | 740,700 | 1,734,400 | (90,500) |
| Other Operating Expenses | 306,000 | 169,300 | 475,300 | 260,000 | 159,300 | 419,300 | (56,000) |
| General & Administrative | 429,000 | 27,500 | 456,500 | 433,000 | 22,000 | 455,000 | (1,500) |
| Total Expense | 3,543,200 | 1,340,300 | 4,883,500 | 3,610,000 | 1,221,700 | 4,831,700 | (51,800) |
| Net Income from Operations | 300,900 | - | 300,900 | 269,300 | - | 269,300 | (31,600) |
| Less: Capital Expenses | (3,865,000) | - | (3,865,000) | (2,777,400) | - | (2,777,400) | 1,087,600 |
| Net Income After Capital | (3,564,100) | - | (3,564,100) | (2,508,100) | - | (2,508,100) | 1,056,000 |
| Capital Reimbursement (OU Projects) | 600,000 | - | 600,000 | 850,000 | - | 850,000 | 250,000 |
| Grant Proceeds | 305,000 | - | 305,000 | 300,000 | - | 300,000 | (5,000) |
| Loan Proceeds | 3,000,000 | - | 3,000,000 | 1,490,000 | - | 1,490,000 | (1,510,000) |
| Loan Payment (Interest & Principal) | - | - | - | (198,600) | - | (198,600) | (198,600) |
| Change in Cash | 340,900 | - | 340,900 | (66,700) | - | (66,700) | (407,600) |
| Contributed Capital (Developer) | - | - | - | - | - | - | - |
| Add: Capital Assets (District-Funded) | 3,865,000 | - | 3,865,000 | 1,627,400 | - | 1,627,400 | (2,237,600) |
| Add: Debt Principal | - | - | - | 113,900 | - | 113,900 | 113,900 |
| Less: Loan Proceeds | (3,000,000) | - | (3,000,000) | (1,490,000) | - | (1,490,000) | 1,510,000 |
| Less: Depreciation Expense | (380,000) | (180,000) | (560,000) | (390,000) | (150,000) | (540,000) | 20,000 |
| Net Income (Loss) | \$ 825,900 | \$ (180,000) | \$ 645,900 | \$ (205,400) | \$ (150,000) | \$ (355,400) | \$ (1,001,300) |



Table 1.3

La Puente Valley County Water District
2021 Proposed Budget (Detail)

| | 2020 Adopted Budget | 2020 Projected Year-End | 2020 Projected Variance | 2021 Proposed Budget | 2021-2020 Budget Variance |
|--|---------------------------|-------------------------------|-------------------------------|----------------------------|---------------------------------|
| Operational Rate Revenues | | | | | |
| Water Sales | \$ 1,405,000 | \$ 1,410,000 | \$ 5,000 | \$ 1,515,800 | \$ 110,800 |
| Service Charges | 712,000 | 717,000 | 5,000 | 770,800 | 58,800 |
| Surplus Sales | 50,000 | 50,000 | - | 50,000 | - |
| Customer Charges | 33,900 | 10,400 | (23,500) | 2,000 | (31,900) |
| Fire Service | 64,000 | 63,000 | (1,000) | 64,000 | - |
| Miscellaneous Income | 1,000 | 500 | (500) | 500 | (500) |
| Total Operational Rate Revenues | 2,265,900 | 2,250,900 | (15,000) | 2,403,100 | 137,200 |
| Operational Non-Rate Revenues | | | | | |
| Management Fees | 432,200 | 432,500 | 300 | 328,000 | (104,200) |
| PVOU Service Fees (Labor) | 93,000 | 8,000 | (85,000) | 75,000 | (18,000) |
| BPOU Service Fees (Labor) | 295,000 | 295,000 | - | 299,700 | 4,700 |
| IPU Service Fees (Labor) | 715,800 | 667,000 | (48,800) | 720,000 | 4,200 |
| Other O&M Fees | 7,500 | 7,900 | 400 | 7,500 | - |
| Total Operational Non-Rate Revenues | 1,543,500 | 1,410,400 | (133,100) | 1,430,200 | (113,300) |
| Non-Operational Revenues | | | | | |
| Taxes & Assessments | 220,000 | 270,000 | 50,000 | 275,000 | 55,000 |
| Rental Revenue | 38,000 | 34,700 | (3,300) | 35,700 | (2,300) |
| Interest Revenue | 50,000 | 30,000 | (20,000) | 20,000 | (30,000) |
| Miscellaneous Income | 16,700 | 24,000 | 7,300 | 15,000 | (1,700) |
| Developer Fees | 5,000 | 1,800 | (3,200) | - | (5,000) |
| Total Non-Operational Revenues | 329,700 | 360,500 | 30,800 | 345,700 | 16,000 |
| Total Revenues | 4,139,100 | 4,021,800 | (117,300) | 4,179,000 | 39,900 |
| Add: Capital Assets (District-Funded) | | | | | |
| Total District Wide Labor | 1,267,700 | 1,250,000 | (17,700) | 1,300,000 | 32,300 |
| Directors Fees & Benefits | 118,200 | 102,000 | (16,200) | 115,000 | (3,200) |
| Benefits | 317,300 | 310,000 | (7,300) | 330,000 | 12,700 |
| OPEB Payments | 158,800 | 145,000 | (13,800) | 150,000 | (8,800) |
| Payroll Taxes | 98,800 | 98,000 | (800) | 110,000 | 11,200 |
| Retirement Program Expense | 166,000 | 177,000 | 11,000 | 218,000 | 52,000 |
| Total Salaries & Benefits | 2,126,800 | 2,082,000 | (44,800) | 2,223,000 | 96,200 |
| Labor Analysis: | | | | | |
| <i>Offsetting Revenue</i> | (1,103,800) | (970,000) | 133,800 | (1,094,700) | 9,100 |
| <i>District Labor Net Total</i> | 1,023,000 | 1,112,000 | 89,000 | 1,128,300 | 105,300 |
| Supply & Treatment | | | | | |
| Purchased & Leased Water | 483,800 | 450,000 | (33,800) | 468,200 | (15,600) |
| Power | 167,900 | 163,500 | (4,400) | 170,000 | 2,100 |
| Assessments | 276,700 | 280,000 | 3,300 | 310,000 | 33,300 |
| Treatment | 9,500 | 4,000 | (5,500) | 7,000 | (2,500) |



Table 1.3

La Puente Valley County Water District
2021 Proposed Budget (Detail)

| | 2020 Adopted Budget | 2020 Projected Year-End | 2020 Projected Variance | 2021 Proposed Budget | 2021-2020 Budget Variance |
|---|---------------------------|-------------------------------|-------------------------------|----------------------------|---------------------------------|
| Well & Pump Maintenance | 38,500 | 7,500 | (31,000) | 38,500 | - |
| Total Supply & Treatment | 976,400 | 905,000 | (71,400) | 993,700 | 17,300 |
| Other Operating Expenses | | | | | |
| General Plant | 56,300 | 25,000 | (31,300) | 35,000 | (21,300) |
| Transmission & Distribution | 94,700 | 55,000 | (39,700) | 80,000 | (14,700) |
| Vehicles & Equipment | 31,500 | 26,000 | (5,500) | 28,000 | (3,500) |
| Field Support & Other Expenses | 66,500 | 50,000 | (16,500) | 60,000 | (6,500) |
| Regulatory Compliance | 57,000 | 34,000 | (23,000) | 57,000 | - |
| Total Other Operating Expenses | 306,000 | 190,000 | (116,000) | 260,000 | (46,000) |
| General & Administrative | | | | | |
| District Office Expenses | 63,100 | 63,100 | - | 50,000 | (13,100) |
| Customer Accounts | 25,000 | 27,000 | 2,000 | 30,000 | 5,000 |
| Insurance | 67,900 | 76,500 | 8,600 | 78,000 | 10,100 |
| Professional Services | 125,000 | 82,000 | (43,000) | 160,000 | 35,000 |
| Training & Certification | 42,500 | 4,300 | (38,200) | 35,000 | (7,500) |
| Public Outreach & Conservation | 33,000 | 9,800 | (23,200) | 15,000 | (18,000) |
| Other Administrative Expenses | 72,500 | 72,500 | - | 65,000 | (7,500) |
| Total General & Administrative | 429,000 | 335,200 | (93,800) | 433,000 | 4,000 |
| Total Expense | 3,838,200 | 3,512,200 | (326,000) | 3,909,700 | 71,500 |
| Net Income from Operations | 300,900 | 509,600 | 208,700 | 269,300 | (31,600) |
| Capital Expenses | | | | | |
| Fire Hydrant Repair/Replacements | (5,000) | (6,000) | (1,000) | (5,000) | - |
| Service Line Replacements | (20,000) | (11,000) | 9,000 | (20,000) | - |
| Valve Replacements | (15,000) | (11,300) | 3,700 | (20,000) | (5,000) |
| Meters - Reading System & Replacement | (25,000) | (18,000) | 7,000 | (20,000) | 5,000 |
| SCADA Improvements | (125,000) | - | 125,000 | (125,000) | - |
| Ferrero Lane and Rorimer St. Improvements | (65,000) | - | 65,000 | - | 65,000 |
| 5th Street Waterline Improvement | - | - | - | - | - |
| Hudson Avenue Pumping Improvements | (375,000) | - | 375,000 | (375,000) | - |
| LP-CIWS Interconnection (Ind. Hills) | (75,000) | - | 75,000 | (75,000) | - |
| Well No. 5 Rehab | (30,000) | (30,000) | - | - | 30,000 |
| Nitrate Treatment System | (1,130,000) | (370,000) | 760,000 | (1,660,000) | (530,000) |
| Phase 1 - Recycled Water System | (1,880,000) | (1,779,600) | 100,400 | (310,400) | 1,569,600 |
| Dump Trucks | - | - | - | (150,000) | (150,000) |
| Service Trucks (Operations) | (110,000) | - | 110,000 | - | 110,000 |
| Other Field Equipment | (5,000) | (5,000) | - | (10,000) | (5,000) |
| Office / Computer Equipment | (5,000) | (5,000) | - | (7,000) | (2,000) |
| Total Capital Expenses | (3,865,000) | (2,235,900) | 1,629,100 | (2,777,400) | 1,087,600 |
| Net Income After Capital | (3,564,100) | (1,726,300) | 1,837,800 | (2,508,100) | 1,056,000 |



Table 1.3

La Puente Valley County Water District
2021 Proposed Budget (Detail)

| | 2020 Adopted Budget | 2020 Projected Year-End | 2020 Projected Variance | 2021 Proposed Budget | 2021-2020 Budget Variance |
|---|---------------------------|-------------------------------|-------------------------------|----------------------------|---------------------------------|
| Funding & Debt Payments | | | | | |
| Capital Reimbursement (OU Projects) | 600,000 | 150,000 | (450,000) | 850,000 | 250,000 |
| Grant Revenues | 305,000 | - | (305,000) | 300,000 | (5,000) |
| Loan Proceeds | 3,000,000 | 1,490,000 | (1,510,000) | 1,490,000 | (1,510,000) |
| Loan Payment - Interest | - | (12,876) | (12,876) | (84,700) | (84,700) |
| Loan Payment - Principal | - | (62,612) | (62,612) | (113,900) | (113,900) |
| Change in Cash | 340,900 | (161,788) | (502,688) | (66,700) | (407,600) |
| Contributed Capital | - | 238,870 | 238,870 | - | - |
| Add: Capitalized Assets (District Funded) | 3,865,000 | 2,235,900 | (1,629,100) | 1,627,400 | (2,237,600) |
| Add: Debt Principal | - | 62,612 | 62,612 | 113,900 | 113,900 |
| Less: Loan Proceeds | (3,000,000) | (1,490,000) | 1,510,000 | (1,490,000) | 1,510,000 |
| Less: Depreciation Expense | (380,000) | (380,000) | - | (390,000) | (10,000) |
| Net Income (Loss) | \$ 825,900 | \$ 505,594 | \$ (320,306) | \$ (205,400) | \$ (1,031,300) |



Table 1.4

BPOU Treatment Plant
2021 Proposed Budget (Detail)

| | 2020 Projected Year-End | 2020 Adopted Budget | 2020 Projected Variance | 2021 Proposed Budget | 2021-2020 Budget Variance |
|--|-------------------------------|---------------------------|-------------------------------|----------------------------|---------------------------------|
| Operational Non-Rate Revenues | | | | | |
| Reimbursements from CR's | \$ 1,361,200 | \$ 1,340,300 | \$ 20,900 | \$ 1,221,700 | \$ (118,600) |
| Total Operational Non-Rate Revenues | 1,361,200 | 1,340,300 | 20,900 | 1,221,700 | (118,600) |
| Salaries & Benefits | | | | | |
| BPOU TP Labor *(1) | 295,000 | 295,000 | - | 299,700 | 4,700 |
| Total Salaries & Benefits | 295,000 | 295,000 | - | 299,700 | 4,700 |
| Supply & Treatment | | | | | |
| NDMA, 1,4-Dioxane Treatment | 232,900 | 201,000 | 31,900 | 197,900 | (3,100) |
| VOC Treatment | 5,000 | - | 5,000 | 18,600 | 18,600 |
| Perchlorate Treatment | 293,700 | 351,500 | (57,800) | 250,800 | (100,700) |
| Other Chemicals | 9,800 | 53,000 | (43,200) | 44,100 | (8,900) |
| Treatment Plant Power | 213,000 | 195,000 | 18,000 | 181,300 | (13,700) |
| Treatment Plant Maintenance | 42,100 | 48,000 | (5,900) | 48,000 | - |
| Well & Pump Maintenance | 12,100 | - | 12,100 | - | - |
| Total Supply & Treatment | 808,600 | 848,500 | (39,900) | 740,700 | (107,800) |
| Other Operating Expenses | | | | | |
| Contract Labor | 121,600 | - | 121,600 | 20,000 | 20,000 |
| General Plant | 26,000 | 35,000 | (9,000) | 15,000 | (20,000) |
| Vehicles & Equipment | 12,400 | 9,300 | 3,100 | 9,300 | - |
| Field Support & Other Expenses | 200 | 15,000 | (14,800) | - | (15,000) |
| Regulatory Compliance | 79,800 | 110,000 | (30,200) | 115,000 | 5,000 |
| Total Other Operating Expenses | 240,000 | 169,300 | 70,700 | 159,300 | (10,000) |
| General & Administrative | | | | | |
| Add: Capital Assets (District-Funded) | - | 2,500 | (2,500) | 2,500 | - |
| Insurance | 10,300 | 10,000 | 300 | 12,000 | 2,000 |
| Professional Services | 7,300 | 15,000 | (7,700) | 7,500 | (7,500) |
| Total General & Administrative | 17,600 | 27,500 | (9,900) | 22,000 | (5,500) |
| Total Expense | 1,361,200 | 1,340,300 | 20,900 | 1,221,700 | (118,600) |
| Operational Net Income | - | - | - | - | - |
| Capital Expenses | | | | | |
| N/A | - | - | - | - | - |
| Less: Total Capital Expenses | - | - | - | - | - |
| Less: Depreciation Expense | (140,000) | (180,000) | 40,000 | (150,000) | 30,000 |
| Net Income (Loss) | \$ (140,000) | \$ (180,000) | \$ 40,000 | \$ (150,000) | \$ 30,000 |

*(1) The labor expense depicted here is the amount of labor billed to the BPOU in which the District receives reimbursement which is shown on Table 1.3 in operational non-rate revenue (BPOU Service Fees).

STAFF REPORT



Meeting Date: December 14, 2020

To: Honorable Board of Directors

Subject: Consideration of Proposal from Evoqua Water Technologies to Purchase the Nitrate Removal Ion Exchange Treatment System.

Purpose - *To Purchase of Nitrate Removal Ion Exchange System Equipment for the treatment of nitrate levels at the District's groundwater treatment facility in support of the District's Nitrate Treatment System Project.*

Recommendation - *Authorize the General Manager to proceed with the purchase of the Nitrate Removal Ion Exchange System Equipment from Evoqua Water Technologies LLC (Evoqua), for an amount not to exceed \$947,663.*

Fiscal Impact - *The District's 2020 Capital Budget appropriates \$1,130,000 for the Nitrate Treatment System Project. The year-to-date balance for this expense category is \$143,876. The purchase of the Nitrate Removal Ion Exchange System Equipment is a project expense and will be within the 2020 appropriation.*

Background

Over the past several years, the District's nitrate levels have been trending upward in all its wells. This trend has resulted in an average Nitrate level at 80% of the 10 mg/L Maximum Contaminant Level (MCL). In September 2019, the Board authorized Staff to work with Geosyntec Consultants to prepare a technical memorandum to evaluate groundwater treatment systems for nitrate removal. This study was completed and indicated the need for nitrate treatment and ranked Evoqua's regenerable ion exchange treatment system as the preferred system for the District's groundwater treatment facility.

Summary

In March of 2020, the Board authorized Staff to work with Evoqua to prepare the Nitrate Removal Ion Exchange Treatment System design. Over the past several months, Staff has worked with Evoqua in providing current water quality data and specific design parameters for the system. At the conclusion of the design process, it was determined that the system would be configured with 3 vessels to meet current water quality needs with the ability to install a future fourth vessel into the treatment system as nitrate levels increased. The system will operate with one or two vessels online, depending on the amount of nitrates present in the feed water. The remaining vessels will be in standby mode. When one vessel goes through a regeneration cycle, the flow is handled by the standby vessel(s), maintaining full capacity during operation.

Evoqua has provided the District with the final equipment design plan and cost proposal for the system equipment and necessary components. These components will be incorporated into the final project

design and construction plans that Geosyntec is currently working with Staff. This purchase of the Nitrate Removal Ion Exchange System equipment from Evoqua will consist of (3) nitrate removal vessels, (1) brine making system skid and bulk brine storage tank, (1) water softener system skid, and (1) main PLC control panel. All of the treatment equipment will be built as module skid assemblies and include all the necessary components such as valves, piping, sensors, and control instruments. Once all vessels and equipment skids are constructed, Evoqua will ship the equipment to the site, and will be installed by the contractor who is awarded the Nitrate Treatment System construction as a part of their project scope.

As a part of this proposal (included as *Enclosure 1*), Evoqua will be providing commissioning and start-up services along with an Operating and Maintenance Support (O&M) contract with this proposal. These services will include a qualified team of service technicians, engineers and programmers to be on-site during the nitrate treatment system's start-up process. Included in the services are 2 additional days of training sessions for the District's field operations staff. The training sessions will provide a hands-on walk-through of the equipment and control systems. The service will also include electronic copies of training presentations and reference materials. In addition to the start-up support, Evoqua will also provide a three-month service contract to start once the Nitrate Treatment System is fully operational. The three-month service contract will include 162 hours of service, divided between on-site visits and time analyzing data to providing reports outlining the treatment system's performance. Evoqua estimated the nitrate treatment system's build and delivery time at 17-22 weeks after final design approval. Enclosed as *Enclosure 2* is a copy of the schedule for the entirety of the project for reference.

Fiscal Impact

The District's 2020 Capital Budget appropriates \$1,130,000 for the Nitrate Treatment System Project. The purchase of the Nitrate Removal Ion Exchange Treatment System Equipment is a project expense and will be within the 2020 Budget appropriation. The Nitrate Treatment System Project is a multi-year project which began in 2019 and is anticipated to be completed in May of 2022.

Recommendation

Staff recommends that the Board authorize the General Manager to proceed with the purchase of the Nitrate Removal Ion Exchange System Equipment from Evoqua Water Technologies LLC (Evoqua), for an amount not to exceed \$947,633.

Respectfully Submitted,

Roy Frausto

General Manager

Enclosure(s)

- *Proposal from Evoqua Water Technologies LLC for the Nitrate Removal Ion Exchange System Equipment*
- *Copy of the Nitrate Treatment System Project Schedule*



eVOQUA

WATER TECHNOLOGIES

**WATER TREATMENT PROPOSAL FOR
LA PUENTE VALLEY COUNTY WATER DISTRICT
NITRATE REMOVAL SYSTEM
LA PUENTE, CA**

December 9, 2020

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Evoqua Firm Proposal 335706 Rev 1

Submitted by:
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Section 1. Offer Summary

Evoqua Water Technologies is pleased to provide the following proposal for the Nitrate Removal Ion Exchange System for La Puente Valley County Water District. Evoqua appreciates the trust La Puente has put in Evoqua in years past as your resin and carbon supplier. We never stop trying to improve. Our focus is to provide excellent service to La Puente while ensuring safe and compliant drinking water. We are committed to be your partner in the long-term.

Ion exchange (IX) is a tried and true method of removing metals and other inorganic compounds from water. Arsenic, cadmium, chromium, copper, lead, nickel, selenium, radionuclides, and zinc are just a few examples of the compounds that our ion exchange systems have removed from water. Ion exchange systems can also be used to remove non-metallic compounds such as ammonia, nitrate, perchlorate, and silicate. We have used ion exchange at mine sites, coal-ash ponds, construction sites, remediation sites and in other applications.

A resin bed's capacity to pull contaminants from a solution is determined by the number of available exchange sites, called "exchange capacity." When there are several cations or anions are present in water, those cations or anions will compete each other for the exchange sites. When all the exchange sites are used, the resin is "exhausted." Evoqua's selected media, PWA-5 resin, can be regenerated upon exhaustion. Regeneration involves passing a regenerant solution over the resin to displace the contaminant ions from the exchange sites. The liberated ions pass from the resin bed into solution. Waste solution generated during regeneration has high levels of contaminants and require safe treatment and disposal.

The system is designed to be operated as a blending system, with varying flow being treated by the ion exchange system and the remaining feed bypassed. Blend/bypass flow is controlled by a flow meter and flow control valve. The blended water will be sent to the customer's existing low pressure UV.

Three (3) IX vessels are supplied for nitrate reduction, with room for a fourth vessel to be added in the future. The system will operate with one or two vessels online, depending on the amount of nitrates present in the feed water. The remaining vessels will be in standby mode. When one vessel goes through a regeneration cycle, the flow is handled by the standby vessel(s), maintaining full capacity during operation. Evoqua has provided enough resin to fill two (2) vessels at start-up. Additional resin can be purchased at a later time depending on the client's needs.

A brine pump skid is provided for onsite regeneration. The brine regeneration process consists of three steps:

1. Brine In- introduction of 10% brine to the IX vessel.
2. Slow rinse- rinsing of IX vessel with dilution water
3. Fast Rinse- Further rinsing of the IX vessel at higher flow.

A brine system is provided for onsite regeneration. The brine system consists of one (1) brine tank, one (1) brine pump skid, and one (1) water softener. Supply water is sent through the Evoqua PTI softener to remove hardness, before using it as dilution water for regeneration cycle. The regeneration system includes controls and instrumentation. Dry salt and water for the softener are by others.

Valves, instrumentation and control system integral to the IX system, brine system are supplied by Evoqua as detailed in the P&ID. Interconnecting valves, instrumentation, and interconnecting piping not identified as part of Evoqua's supplied scope is by others. Please refer to the attached P&ID for further information. Generally, all items with tag numbers are provided.



The total price for the system as detailed in this proposal is \$902,537. Please reference the Pricing / Commercial Details section of this proposal for further details.

We would like to thank you again for the opportunity to provide our quality equipment and service. Please consider that Evoqua treats billions of gallons of water every year throughout North America and around the world. Allow us to put this experience to work for you.

Section 2. System/Process Description

Evoqua is proposing to provide a Nitrate Removal System to La Puente Valley County Water District. The system includes three (3) nitrate removal vessels with a nitrate specific resin.

The treatment plant is providing 1,500 gpm of water to the Nitrate Removal System. The system operates on a bypass flow, based on the inlet nitrate (NO₃ as N) level with one, two or three vessels online. The system is designed and programmed for a future fourth vessel.

When the vessels are exhausted, they are in-situ regenerated with a 10% brine solution.

The system also includes a brine making system, brine pump skid and a duplex softener to provide softened water to the nitrate removal system and as makeup to the brine maker tank.

This offering includes the equipment scope as defined below.

Equipment List (see P&ID/PFD and layout drawings for further details)

1. Evoqua Nitrate Removal Vessel – Qty: Three (3)

Each vessel contains the following items supplied skid-mounted.

- One (1) 84" x 96" nitrate vessels, design flux rate; 6 - 9 gpm/ft²; 1.5 – 2.5 gpm/ft³
- Two (2) Manways, 14' x 18" top, 14" x 18" side
- Epoxy-lined carbon steel construction, ASME code
- Bray Series 31 butterfly valves
- Media: (each vessel, shipped loose for field installation)
- 900 lbs of #4 quartz support bed.
- 154 cu. ft. resin (nitrate specific), DOW PWA-5 per vessel (total of 308 cf included, enough for two vessels)
- Schedule 80 PVC face piping
- Upper distributor: 316 Stainless steel multi-point distributor
- Lower distributor: 316 Stainless steel hub and radial
- One (1) Resin trap
- Instrumentation:
 - Ashcroft Pressure gauges and Signet paddle wheel sensors
 - Ashcroft Differential pressure switch
 - Three (3) Allen-Bradley Remote I/O panels and solenoids

The following electrical / instrument air control equipment is included:

- Local panel with remote I/O and solenoids, NEMA 4

The following items will be shipped loose:

- Two (2) brine inlet manual valves
- Two (2) brine inlet check valves
- Two (2) Nitrate analyzers, Hach
- Three (3) solenoid auto-sample valves
- Three (3) Inlet mag flow meters, E&H

- One (1) sight glass
- One (1) Conductivity analyzer, Hach
- Two (2) Brine rinse automatic valves
- One (1) Modulating flow control valve
- Three (3) flow control isolation valves
- One (1) bypass mag flow meters, E&H

2. BrineMaker Inc. Bulk Briner, 45 ton – Qty: One (1)

The following items will be shipped attached to the tank:

- One (1) 12' x 12'-6" Bulk briner tank, FRP, designed to ASTM D3299
 - Single walled, constructed with UV Protective coating for outdoor use
- One (1) lot, 304SS anchor lugs and lifting lugs
- One (1) each, 24" top manway, 24" side manway; 304SS hardware

The following electrical / instrument air control equipment is included:

- Local junction box, NEMA 4X

The following items will be shipped loose:

- One (1) Salt inlet assembly
- One (1) Brine outlet assembly
- One (1) Vent assembly
- One (1) Water inlet assembly
- One (1) Water level control package
- One (1) Salt level indicator
- One (1) Brine concentration monitor
- One (1) FRP ladder with cage
- One (1) Dust bag housing
- Two (2) Spare dust bags
- One (1) 12" gravel bed
- Three (3) expansion joints – inlet, outlet and drain
- One (1) Inlet water solenoid valve
- One (1) Ultrasonic level switch
- Two (2) isolation ball valves

3. Brine Pump Skid – Qty: One (1)

The following items will be shipped attached to the skid:

- Two (2) 100% brine pumps at 30 gpm, 92' TDH; Fybroc mag drive
- 5 hp – 460 VAC/60 Hz/ 3ph, 1,750 rpm, premium efficiency
- One (1) E+H pump pressure transmitter
- One (1) Ashcroft Pump discharge pressure gauge
- Manual pump suction, discharge and isolation valves
- Process piping is SCH80PVC (3" suction/2" discharge)
- Epoxy coated carbon steel skid

The following electrical / instrument air control equipment is included:

- One (1) Allen-Bradley Remote I/O panel and solenoids, NEMA 4
- One (1) Motor disconnect panel, NEMA 4

The following items will be shipped loose:

- One (1) pump discharge magnetic flow meter

4. Evoqua Duplex Softener System – Qty: One (1)

The following items will be shipped attached to the skid:

- Two (2) 36" x 60" softening vessels, design flux rate; 3 gpm/ft³
- Model – Duplex, Plus
- Two (2) Access openings, 4" x 6" hand hole, 12" x 16" opening
- Epoxy-lined Carbon steel construction, ASME code
- Bray Series 31 butterfly valves
- 16 ft³ of quartz support bed.
- 40 cu. ft. resin
- Schedule 80 PVC face piping
- Upper distributor: S80PVC single-point distributor
- Lower distributor: S80PVC hub and radial
- One (1) Resin trap
- Instrumentation:
- Pressure gauges and paddle wheel sensors

The following electrical / instrument air control equipment is included:

- One (1) Allen-Bradley Remote I/O panel and solenoids, NEMA 4

The following items will be shipped loose:

- One (1) 48" diameter x 48" brine tank
- One (1) Brine eductor
- One (1) Pressure regulator
- One (1) pump discharge magnetic flow meter
- One (1) Automatic brine fill valve
- One (1) Brine level switch
- One (1) Brine manual modulating valve

NOTE: See Appendix K “Components and Certifications” for a description of certified per ANSI/NSF Standards 61 and 60, respectively materials and equipment coming in contact with process and rinse water and chemical feed system

5. Main Control Panel – Qty: One (1)

The following items will be shipped panel mounted:

- CompactLogix PLC – ethernet based
- PanelView Plus 7 HMI, 15”
- Remote I/O
- Power supply
- NEMA 4 enclosure

Section 3. Installation/Commissioning/Startup Services

Installation is not included.

Commissioning and Start Up Scope Matrix

| Scope Item | Responsibility | |
|--|----------------|----------|
| | Evoqua | Customer |
| Pre-Commissioning: | | |
| Hydro testing (Evoqua to provide proof of shop testing for vessels and tanks) | X | X |
| Continuity checks | | X |
| Check rotating equipment | X | X |
| Commissioning: | | |
| Supervise the loading of media and membranes, if applicable. | X | |
| Validate correct operational and alarm set points | X | X |
| Operate each unit of the system through its cycles, includes chemical set ups. | X | X |
| Perform equipment and piping hydraulic check | X | X |
| Setup and configure instrument devices. Perform calibrations as needed | X | X |
| Update SOPs & O&M Manuals | | X |
| Check instrument/motor/safety control loops. | X | X |
| Add logic to Evoqua PLC for communication with Customer's DCS, if applicable. | X | X |
| Check automatic control function. | X | X |
| Start-Up: | | |
| Verify the system is running and producing water per the process requirements. | X | |
| Optimize system and process. | X | |
| Troubleshoot system and make any necessary adjustments, if required | X | |

Commissioning and Start-up Description

Evoqua will provide a qualified team of service technicians to complete the commissioning phase of the project.

A total of ten (10) man-days and up to two (2) trips (Monday through Friday) have been included. It is recommended that the facility operating personnel work with Evoqua's field service technicians during start-up to gain familiarity and comfort with the equipment operation.

Training

In addition to the 10 days above, a total of two (2) days and one (1) trip (Monday through Friday) of custom classroom training has been included for training sessions. Site specific PowerPoint presentations will be generated, and a hands-on walkthrough of the equipment and control systems are part of the training. At the end of the training, the customer receives electronic copies of the presentations.

Section 4. Service and Operations

O&M Support Contract

Evoqua is pleased to include an Operating and Maintenance Support (O&M) contract with our offer. As part of this O&M contract, Evoqua will be responsible for optimizing the operation of the plant and providing additional training of the onsite operators on how to run the system in the most cost effective and efficient way. The goal would be to optimize run times and reduce salt, water and brine costs. Our local trained and certified service professionals will be responsible for providing technical support (operational training and troubleshooting assistance). At the end of the 3-month term, La Puente has the choice to continue with a service only contract or run the plant internally.

Evoqua Start-Up Support + 3 month Service Contract:

- Start-Up Support (2 weeks) – 76 hours total
 - Technician = 4 hours per day, 6 days/wk. (48 h)
 - Engineer = 4 hours per day, total of 4 days (16 h)
 - Includes the provision of 1 half-day of classroom training
 - Programmer = 4 hours per day, total of 3 days (12 h)
- 3 Month Service Contract (162 hours)
 - Technician = Average of 8 hours / week (112 hours)
 - Engineer = Two Trips (16 hours)
 - Programmer = Two Trips (16 hours)
 - Management/Analysis Time = 1 hour per week
- Optimize Operations
 - Salt usage
 - Backwash water
 - Run times

Evoqua has a Service Professional, Programmer, and an Operations Engineer who specialize in these systems that would support your site.

Example Schedule:

START UP:

Tentative Schedule for Start Up of Nitrate System:

- | | |
|--------|--|
| Week 1 | Finalize programming |
| Week 2 | Perform the Dry Test Managed by LPVCWD. <i>Evoqua technician on site.</i> |
| Week 3 | Perform the wet test (1-day duration). Managed by LPVCWD. <i>Evoqua technician on site.</i> |
| Week 4 | Evoqua receives delivery of PWA-5. Perform chlorination |
| Week 5 | Resin fill. PWA-5 and Softener resin |

- Week 6 Sampling class (Evoqua to provide training overview of how the system works and review what they will be testing for during the following week's sampling and monitoring event. Focus on the PLC system)
- Week 7 Sampling and monitoring- Support from Evoqua during the sampling and monitoring 5-6 days.
- Week 8 Operator training (IX exchange basics, softeners, and Nitrate removal)
- 4 hours Classroom Training (Evoqua Service Professional and Evoqua Sales Professional)
 - HMI training – Instrumentation – Lab Testing

PROPOSED TRAINING TOPICS AND SCHEDULE

| Topic | Description | | Time duration (hrs) | TIMING |
|-------------------------------|---|---|---------------------|---|
| Science | Basic Math Units of measurements → Length Mass Time emperature | Basic Chemistry Density Specific Gravity Periodic Table Atoms/Elements/Ions Bonds pH Hardness Ion Exchange Concentration → dilution ppm/mg/L TSS/TDS/Conductivity | 1 | 1 week before startup of plant Qualifies for Continuing Ed credits |
| Data Sheet | Regen Data Sheet Operation Data sheet | Where to take readings What readings should we be taking? | 1 | 1 week before startup of plant |
| Test Kit | Hardness Kit Conductivity meter Hydrometer Nitrate Kit | softener Waste, softener Brine & regen | 1 | Week of start up |
| Maintenance & Troubleshooting | Equipment Resin Troubleshooting guidelines HMI | Go through O&M Resin exhaustion (how do you know?) dP? | 2-4 | During Dry test, Wet test, and startup |
| | | Total | 5-7 | |

OPTIMIZING SERVICE:

Tentative Schedule for Service once start up is complete:

- Month 1, Weeks 1-2: The Evoqua Service Professional, Programmer, and Operations Engineer will be onsite daily. During this time, they will be focused on starting up the system, working with La Puente operators to teach them how to run it and begin data collection for trend analysis.
- Month 1, Weeks 2-4: The Evoqua Service Professional will be onsite daily for 2 hours. During this time, they will provide operations support.
- Months 2 & 3 - The Evoqua Service Profession will be onsite two days a week for 4 hours each day. Focus on optimizing throughput and minimizing brine, salt, and waste. Initially, the idea would be to take data twice a week and see if the system is running on design conditions.
- The frequency and duration of visits may need to be adjusted.

PROPOSED SERVICE SCHEUDLE

After the initial startup, the three-month contract commences. The contract includes 162 hours of service. This is divided between onsite time and time to analyze data and provide reports. The chart below provides an outline of how we anticipate the time being spent. Please note, we will adjust these hours and days to best serve the plant, but we feel this is a good starting point and will allow us to interface with all the operators and a variety of times and days. The term can be extended upon request. Additional support can be provided at an hourly rate of \$185/man hour.

| | | Sun | Mon | Tues | Wed | Thurs | Fri | Sat |
|---------|---------|-----|-----|------|-----|-------|-----|-----|
| Month 1 | Week 1 | | 3 | 3 | 3 | 3 | 3 | |
| | Week 2 | 3 | | 3 | 3 | 3 | 3 | |
| | Week 3 | 3 | | 3 | 3 | 3 | 3 | |
| | Week 4 | 3 | | 2 | 2 | 2 | 2 | |
| Month 2 | Week 5 | 3 | | 2 | 2 | 2 | 2 | |
| | Week 6 | 2 | | 2 | 2 | 2 | 2 | |
| | Week 7 | | 4 | | | 4 | | |
| | Week 8 | | | 4 | | | 4 | |
| | Week 9 | 4 | | | 4 | | | |
| Month 3 | Week 10 | | 4 | | | 4 | | |
| | Week 11 | | | 4 | | | 4 | |
| | Week 12 | 4 | | | 4 | | | |
| | Week 13 | | 4 | | | 4 | | |

* This schedule is just a framework for us to work off of. The actual days on site and duration on site may vary to meet the requirements of the plant.

** We will want to capture regeneration cycles within some of our visits. This will require our onsite time to be longer than may be listed above. We will adjust the overall hours as needed.

*** Additional time can be added at a rate of \$185/hr

Reports:

Evoqua will provide monthly reports that include trend analysis of the throughput, brine waste, salt usage, regeneration efficiency, and the feed water quality.

Reports would include the following sections:

- Objective
- Observations
- Discussion/Review of findings (including graphs and trend analysis)
- Suggestions (recommendations)
- Conclusion

| RECOMMENDED MAINTENANCE SCHEDULE | | |
|--|---------------------|-----------------|
| Description of Services | Scheduled Frequency | Frequency Limit |
| Routine Service / Maintenance Visits | Weekly | NA |
| Mechanical / Electrical Checks | Quarterly | NA |
| Operational Checks | Quarterly | NA |
| Collect and Analyze Data | Weekly | NA |
| | | |
| Instrumentation Maintenance | As Scheduled | As Scheduled * |
| Calibration of Instruments | As Scheduled | As Scheduled * |
| Analytical Services | As Scheduled | As Scheduled * |
| | | |
| Resin Replacement | As Required | As Required ** |
| | | |
| Covered Equipment Repair or Replacement | | As Required ** |
| Emergency Call-Out Service | | As Required ** |
| Call-Out Services | | As Required ** |
| | | |
| <p><i>*As Scheduled* - If additional quantities are required, they will be quoted and charged separately. This is done in order to minimize the inclusion of costs which are unlikely and/or unexpected or which may be unpredictable.</i></p> | | |
| <p><i>**As Required ** - For "As Required" a frequency is listed, but the actual frequencies and quantities may be greater or fewer. The resulting frequencies will be guided by the quantity and quality guarantee.</i></p> | | |
| | | |

Section 5. Pricing / Commercial Details

Pricing

| System Purchase | |
|---|-----------------------|
| Capital equipment with 3-month Service contract | \$ 869,350 USD |
| NSF Compliance Adder | + \$ 28,641 USD |
| Anchoring & Seismic Calcs | + \$ 4,546 USD |
| | |
| Total System Price | \$ 902,537 USD |

Provisions

Payment Terms: Payments are to be made in US Dollars, net 30 days after invoice.

Progress Payments:

- 25% upon PO acceptance
- 10% upon submittal of P&IDs
- 25% upon start of manufacturing
- 25% upon shipping & acceptance (NTE 60 days after Notice of Ability to Ship)
- 15% withheld until performance test completed

Delivery: Estimated delivery time is 17-22 weeks after approved P&ID's.

Project Schedule: Detailed project schedule will be provided after award

Freight: All equipment is shipped DAP, jobsite.

Taxes: Pricing excludes all applicable taxes.

Bid Validity: Pricing is valid for 60 days from the date of this proposal, subject to receipt of prior orders. The shipment schedule and project document schedule are subject to review based upon current workload, when written purchase order is received.

Bonds: Payment and/or performance bonds are excluded from the proposal pricing.

Terms and Conditions: This proposal is contingent upon the Terms and Conditions set forth in the Terms and Conditions Appendix. Evoqua reserves the right to review and negotiate all terms and conditions and update its proposal prior to acceptance of an order.

Appendix A. System Operation Specifications

Electrical Service Requirements (estimated values)

| Service | Qty | Frequency/Phase | Voltage | | Amperage/hp | |
|--------------------|-----|-----------------|---------|------|-------------|-----|
| Brine pump, 2x100% | 2 | 60hz / 3ph | 480 | volt | 5 | hp |
| Softener panel | 1 | 60hz / 1ph | 120 | volt | 10 | amp |
| Nitrate panel | 3 | 60hz / 1ph | 120 | volt | 20 | amp |
| Bulk briner panel | 1 | 60hz / 1ph | 120 | volt | 10 | amp |

Equipment Weights & Dimensions (approximate)

| Component | Weight (lb) | Length (in) | Depth (in) | Height (in) |
|----------------------|----------------|-------------|------------|-------------|
| Softener | 2,350 / 7,500 | 92 | 74 | 115 |
| Nitrate vessel, each | 6,500 / 26,000 | 95 | 106 | 175 |
| Bulk briner | 3,000 / 80,000 | 144 dia. | - | 150 |
| Brine pump skid | 450 / 600 | 60 | 48 | 55 |

Chemical Consumption (estimated values)

| Chemical | Nitrate level | Lbs/day |
|----------|---------------|---------|
| Salt | 8 mg/L | 886 |
| Salt | 10 mg/L | 3,093 |
| Salt | 12 mg/L | 5,255 |

Utility Consumption (estimated values)

| Utility | |
|----------------|--|
| Compressed Air | < 8 SCFM (only when vessel valves operate) |
| Potable water | 4,180 gpm per regeneration (brine step, slow rinse, brine tank refill) |

IX Unit Pressure Drop (estimated values)

| Flow | Clean bed dP (psig) | Dirty Bed dP (psig) |
|--------------|---------------------|---------------------|
| For 575 gpm: | 21.3 | 31.3 |
| For 350 gpm: | 10.75 | 20.75 |
| For 225 gpm: | 6.41 | 16.41 |

Appendix B. Field Service Policy

1. Field Services

The services of an Evoqua Field Service Representative are available as an additional option for support of equipment installation, start-up, troubleshooting and/or training when such services have not been included in the base contract.

2. Authorization

Authorization is limited to the maximum amount within the Purchase Order issued for the above services. If an additional funding authorization is required, customer will be notified when 75% of allocated monies have been used on the original Purchase Order. Additional work will not be performed until receipt of additional Purchase Order.

3. Responsibility

Unless otherwise specifically authorized in writing, the Field Service Representative shall act only in an advisory capacity interpreting drawings, recommending sequence of work in erection, installation, start-up and training.

Evoqua shall not be responsible for any acts, omissions or workmanship of employees, subcontractors or agents of the owner or for their failure to follow the advice or instructions of the Field Service Representative.

The customer at its own cost and expense shall supply all labor, materials, tools, equipment, and facilities necessary for the execution of the work, unless agreed to otherwise in writing.

4. Reports

Daily summary reports are completed by the Field Service Representative and are available for customer's review and signature upon request.

5. Travel Time

Travel time to destination depends on availability of personnel, but will vary and shall be at Evoqua discretion. Any travel to a foreign country other than Canada or Mexico where an individual segment exceeds 10 hours (600 minutes) of continuous flight point to point will be business class and charged to the customer.

Evoqua Field Service Representatives are allowed one trip home every two weeks in North America and PR, and one trip home every four (4) weeks for international jobs. Travel time (charged at standard billing rate) and travel expenses will be billed at actual cost plus 10% admin fee.

6. Rates

Field Service Representative rates apply in the manner set forth below:

Standard Rate: – Standard Rate shall be charged for time worked on a regular (non-holiday) schedule of 10 hours per calendar day between 7:00 a.m. and 6:00 p.m., Monday through Friday, unless something other is mandated by state or local regulations.

Travel time shall be charged at the Standard Rate.

Premium Rate: – Premium Rates shall be charged for time worked in excess of 10 hr/day Monday through Friday, or at times other than the above regular schedule, unless something other is mandated by state or local regulations.

As long as the Field Service Representative is retained by the customer, the minimum charge for weekdays will be 10 hours at the rates described below whether requested to work or not. If a Field Service Representative is retained over a weekend but does not work, the charge for the weekend will be limited to expenses incurred by the Field Service Representative +10% administrative fee.

Evoqua’s standard daily Field Service rates within the US, Canada, Mexico and Puerto Rico at the time of this proposal are:

| Day | Time | Price |
|-----------------------|---|--|
| Monday through Friday | Up to 8 hours | \$150/hour, 8 hours min. charge. Does not include per-diem. |
| Monday through Friday | 1 to 4 hours above 8 hours | Premium Rate @ 50% above Standard Rate (1.5 x Std. Rate) |
| Monday through Friday | > 4 hours above 12 hours | Premium Rate @ 100% above Standard Rate (2 x Std. Rate) |
| Saturday | Up to 8 hours Minimum Charge 8 hours | Premium Rate @ 50% above Standard Rate (1.5 x Std. Rate), 8 hours minimum charge |
| Saturday | In excess of 8 hours | Premium Rate @ 100% above Standard Rate (2 x Std. Rate) |
| Sunday | Minimum Charge 8 hours | Premium Rate @ 100% above Standard Rate (2 x Std. Rate), 8 hours minimum charge |
| Sunday | In excess of 8 hours | Premium Rate @ 200% above Standard Rate (3 x Std. Rate) |
| Holidays | Minimum Charge 8 hours not to exceed 10 hours | Premium Rate @ 200% above Standard Rate (3 x Std. Rate) |

The Customer shall be charged for the services of the Field Service Representative at the job site when service cannot be rendered because of delays or conditions beyond Evoqua’s control. In cases of undue delay, Evoqua reserves the right to recall the Field Service Representative. Prior to arriving at the site, the Customer will be required to complete the Exhibit 1 Site Readiness Checklist to document the site completion status. Failure to complete the checklist or to do so inaccurately could result in delays and standby charges if contracted services cannot commence as planned.

The Customer may reschedule or cancel the scheduled startup date 14 days prior to on site mobilization. The Customer shall be charged for one week of the Field Service Rate set forth in the proposal if a reschedule or cancellation is requested within the 14 day window preceding the scheduled startup date.

7. Expenses

The rates for services of Evoqua personnel do not include air fare. Air Fare shall be charged at cost +10% admin fees.

8. Invoicing

Invoices will be rendered on a biweekly basis. Payment shall be made 15 days net.

9. Default Provision

Upon the failure of Purchasers to make payment for service, or any part thereof, when due or upon breach of this agreement or upon the filing of a Petition in Bankruptcy, whether voluntary or involuntary; the filing of any proceedings under the provisions of Bankruptcy Act; a common law extension; Assignment for the Benefit of Creditor; receivership liquidation; dissolution; or any act of Bankruptcy, the entire unpaid balance shall, at the option of Evoqua, at once become due and payable. In the event of litigation, Purchaser shall be liable for all of Evoqua's costs and expense, including but not limited to, reasonable attorney's fees in the amount of twenty percent (20%) of the unpaid balance. Further, upon default interest on the unpaid balance shall accrue at the rate of one percent (1%) per month.

10. Advance Notice and Preparation

Support of Start-up – Due to the indefinite nature of many field service calls, precise scheduling of service Rep. time is difficult. As sufficient advance notice is the customer's best means of ensuring an on-target visit, Evoqua recommends a minimum of four (4) weeks advance notice of the intended start-up date.

Adequate preparation is equally important to a good start-up. Failure to complete the equipment installation in all respects will result in serious delays. Typical deficiencies encountered are failure to pipe in drain lines, inadequate drain facilities, no regenerant chemicals on hand, inadequate inlet supply pressure, no operating personnel available, etc. A general list of preliminary start-up requirements and precautions is included in the Evoqua operating manual. Refer to the Exhibit 1 Site Readiness Checklist and the aforementioned need to complete this checklist in advance of the start of on-site services.

When Purchaser or Purchaser's agent is responsible for installation, this shall include unloading and setting up the equipment, assembling loose items, loading of media, fixing of minor leaks due to loosening during shipment, calibration of instruments, and all other labor not included in the proposal which is required to make the equipment ready for operation.

In the event that adjustments to the controls or to other components in the system are required prior to or during start-up as defined in Exhibit 1, Purchaser or the authorized

contractor should make these adjustments promptly to avoid delays which will be charged at the above rate if delays are the result of improper preparation and/or delays in making necessary adjustments.

Other Field Service – Routine service calls are scheduled in the same way as start-ups. Four (4) weeks' notice should be given. Urgent trouble calls are handled on an emergency basis and, in most cases, a Representative can be dispatched within 48 hours. However, a large share of these problems can be dealt with effectively through telephone consultation with our area Evoqua Branch Representative or one of our Field Service Department personnel or by contacting the 1-800-466-7873 Customer Support Line.

11. Acceptance of Equipment

Upon completion of start-up, the Purchaser will be asked to accept the equipment and release Evoqua personnel. This written acceptance (see Exhibit 2 Customer Acceptance Letter) serves as an acknowledgment that the equipment was brought into satisfactory operation, the customer's operations personnel were fully instructed in its operation, and suitable arrangement were made for correction of any outstanding problems.

Acceptance does not, in any way, relieve Evoqua of its responsibilities under the mechanical and performance guarantees, if any.

Appendix C. Document Deliverables

Appendix D. Project Schedule

| Activity (Preliminary) | Weeks after Purchaser Order Acceptance |
|--|---|
| Purchase Order Acceptance | 1 Week |
| Process and Instrumentation Diagram (P&ID) | 3 Weeks |
| Drawing review/approval | 1 Week |
| Delivery to Site | 17-22 Weeks after approved P&ID |
| Commissioning and Startup | 2 Weeks |

Schedule: A detailed project schedule will be provided after award.



Appendix E. Drawing Package

Process Flow Diagram

P&ID


General Arrangement Layout

LA PUENTE VALLEY COUNTY WATER DISTRICT LA PUENTE, CA

NITRATE REMOVAL SYSTEM

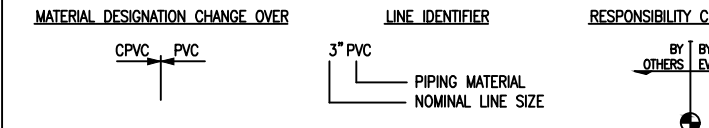
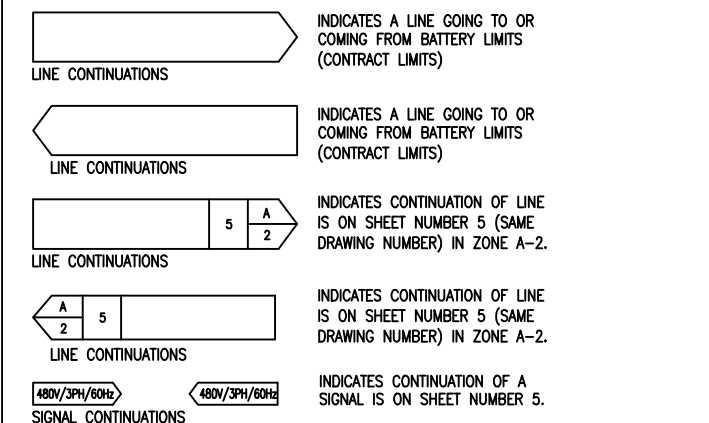
EVOQUA WATER TECHNOLOGIES PROJECT 335706

CONFIDENTIAL

| | | | | | | | | | |
|---|--------------------------------|----------|-----|---------------------|-----------------|--|----------------|-----------------|--|
| <p>COMPANY CONFIDENTIAL THIS DOCUMENT AND ALL INFORMATION CONTAINED HEREIN ARE THE PROPERTY OF EVOQUA AND/OR ITS AFFILIATES. THE DESIGN CONCEPTS AND INFORMATION CONTAINED HEREIN ARE PROPRIETARY TO EVOQUA AND ARE SUBMITTED IN CONFIDENCE. THEY ARE NOT TRANSFERABLE AND MUST BE USED ONLY FOR THE PURPOSE FOR WHICH THE DOCUMENT IS EXPRESSLY ISSUED. THEY MUST NOT BE DISCLOSED, REPRODUCED, LOANED OR USED IN ANY OTHER MANNER WITHOUT THE EXPRESS WRITTEN CONSENT OF EVOQUA. IN NO EVENT SHALL THEY BE USED IN ANY MANNER DETRIMENTAL TO THE INTEREST OF EVOQUA. ALL PATENT RIGHTS ARE RESERVED. UPON THE DEMAND OF EVOQUA THIS DOCUMENT, ALONG WITH ALL COPIES AND EXTRACTS, AND ALL RELATED NOTES AND ANALYSES, MUST BE RETURNED TO EVOQUA OR DESTROYED, AS INSTRUCTED BY EVOQUA. ACCEPTANCE OF THE DELIVERY OF THIS DOCUMENT CONSTITUTES AGREEMENT TO THESE TERMS.</p> | | | | | | | DESIGNER TH | DATE 10/9/20 | TITLE NITRATE REMOVAL SYSTEM PRELIMINARY PROCESS & INSTRUMENTATION DIAGRAM COVER PAGE |
| 0 | - | 10/9/20 | TH | CHECKER PMH | DATE 10/9/20 | CLIENT LA PUENTE VALLEY LA PUENTE, CA | | | |
| C | UPDATED PER COMMENTS 8/31/2020 | 9/4/2020 | SMA | ENGINEER PMH | DATE 10/9/20 | | | | |
| B | GENERAL REVISIONS | 06/30/20 | PMH | MANAGER - | DATE - |  EVOQUA WATER TECHNOLOGIES COLORADO SPRINGS, CO. (719) 570-9600 | | | |
| A | INITIAL RELEASE TO CONTRACTORS | 05/18/20 | - | FILE: P&ID 335706_0 | SCALE: NONE | PROJECT 335706 CODE DRAWING P&ID 335706 SHEET 1 OF 9 REV 0 | | | |
| REV | DESCRIPTION | DATE | DWN | CHKD | APVD | ECN | | | |

FLAWS & LINES

- NEW MAJOR WATER FLOW LINES, AND REVISION CLOUDS(MAGENTA)
- NEW MINOR WATER FLOW LINES, NEW CHEMICAL FLOW LINES, NEW MAIN EQUIPMENT, NEW CONCRETE BARRIERS (GREEN)
- NEW AIR FLOW LINES, NEW SECONDARY EQUIPMENT (BLUE)
- NEW VALVES, NEW INSTRUMENTATION SYMBOLS, NEW FITTINGS, NEW INSTRUMENTATION LINES (RED)
- FUTURE FLOW LINES & EQUIPMENT
- EXISTING FLOW LINES & EQUIPMENT
- PACKAGE UNIT/SKID LIMITS
- PNEUMATIC LINES
- DATALINK
- DCS-PLC
- HYDRAULIC WATER LINES
- CAPILLARY
- EQUIPMENT DETAILS (HATCHING, INTERIOR COMPONENTS, ETC.)
- BY CUSTOMER



ABBREVIATIONS

- | | | |
|--|--|--|
| B - BLOWER OR AIR HANDLING | MD - MEMBRANE DEGASIFIER CONTACTOR | SSH - STRAIGHT SIDE HEIGHT |
| CDI - CONTINUOUS DEIONIZATION CELL PACK | MMF - MULTIMEDIA FILTER | SST - STAINLESS STEEL TUBE |
| CFM - CUBIC FEET PER MINUTE | MOC - MATERIAL OF CONSTRUCTION | SV - SAMPLE VALVE |
| CS - CARBON STEEL | MW - MANWAY | SW - SEAL WATER |
| CW - CITY WATER (POTABLE) | NO - NORMALLY OPEN | SWL - PLANT WATER LEVEL |
| DA - STEAM DEAERATOR | NC - NORMALLY CLOSED | T - TANK (LIQUID OR CHEMICAL STORAGE, NEUTRALIZATION) |
| DIA - DIAMETER | NF - NANOFILTER | TDH - TOTAL DYNAMIC HEAD (FEET OF FLUID) |
| DWG - DRAWING | OD - OUTSIDE DIAMETER | TYP - TYPICAL |
| EPSS - ELECTRO POLISHED STAINLESS STEEL | OZ - OZONE GENERATOR | UF - ULTRAFILTER MODULE |
| F - FILTER VESSEL (CARTRIDGE, MEDIA, CARBON, PRECOAT, AIR) | P - PUMP | UV - ULTRAVIOLET LIGHT (STERILIZER, TOC OR O3 REMOVAL) |
| FC - FAIL CLOSED | PE - POLYETHYLENE | VAC - VACUUM |
| FDD - FORCED DRAFT DECARBONATOR VESSEL | PP - POLYPROPYLENE | VD - VACUUM DEGASIFIER VESSEL |
| FO - FAIL OPEN | PSIA - POUNDS PER SQUARE INCH - ABSOLUTE | VFD - VARIABLE FREQUENCY DRIVE |
| FRP - FIBERGLASS REINFORCED PLASTIC | PSIG - POUNDS PER SQUARE INCH - DIFFERENTIAL | WC - WATER COLUMN |
| GAL - GALLONS | PVC - POLY VINYL CHLORIDE | |
| GPD - GALLONS PER DAY | PVDF - POLYVINYLIDENE FLUORIDE | |
| GPH - GALLONS PER HOUR | PW - PLANT WATER | |
| GPM - GALLONS PER MINUTE | RO - REVERSE OSMOSIS | |
| HG - INCHES OF MERCURY | RPM - REVOLUTIONS PER MINUTE | |
| HOA - HAND/OFF/AUTO | RT - RESIN TRAP | |
| HP - HORSEPOWER | SB - SPRAYBALL | |
| HDPE - HIGH DENSITY POLYETHYLENE | SCFM - STANDARD CUBIC FEET PER MINUTE | |
| HX - HEAT EXCHANGER | SCH - SCHEDULE | |
| IA - INSTRUMENT AIR | SG - SPECIFIC GRAVITY | |
| ID - INSIDE DIAMETER | SOV - SOLENOID VALVE | |
| IX - ION EXCHANGER | SP - SETPOINT | |
| M - MIXER (AGITATOR, AERATOR) | SS - STAINLESS STEEL | |

ACTUATOR SYMBOLS

- CYLINDER
- DIAPHRAGM
- DOUBLE DIAPHRAGM
- ELECTRO-PNEUMATIC
- MOTOR
- POSITIONER
- RELIEF
- SOLENOID
- MANUAL ACTUATOR
- FAIL CLOSED
- FAIL OPEN
- TRAVEL STOP

VALVE SYMBOLS

- 3-WAY
- 4-WAY
- AIR RELEASE
- AIR RELIEF
- BALL
- BUTTERFLY
- BLOCK & BLEED
- CHECK
- DIAPHRAGM
- GATE
- GLOBE
- KNIFE
- NEEDLE
- PLUG
- PRESSURE REDUCING
- RELIEF
- VACUUM BREAKER (STYLE 1)
- CONSERVATION
- Y - DIAPHRAGM
- BACK PRESSURE

PIPING ACCESSORIES

- DIAPHRAGM SEAL
- DRAIN
- EDUCTOR/EJECTOR
- EXPANSION JOINT
- FLANGE
- FLEXIBLE HOSE
- HOSE CONNECTION
- INSULATION
- INSULATED PIPE WITH ELECTRIC HEAT TRACE
- INSULATED PIPE WITH STEAM HEAT TRACE
- ORIFICE
- UNION
- PIGTAIL
- PULSATION DAMPENER
- PUMP
- METERING PUMP
- QUICK DISCONNECT
- REDUCER (CONCENTRIC)
- REDUCER (ECCENTRIC)
- RUPTURE DISK
- SANITARY COUPLING
- SIGHT FLOW INDICATOR
- SIGHT FLOW STRAINER
- SPRAYBALL
- STATIC MIXER
- STEAM TRAP
- STRAINER
- VIC COUPLING

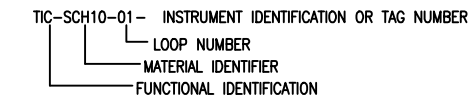
INSTRUMENTATION, ELECTRICAL AND RELATED ITEMS

- MAGNETIC FLOW METER
- SONIC FLOW METER
- TURBINE FLOW METER
- VORTEX FLOW METER
- PADDLEWHEEL FLOW METER
- ROTAMETER
- PILOT LIGHT
- VARIABLE FREQUENCY DRIVE
- CALIBRATION COLUMN
- ULTRASONIC SENSOR
- RESIN TRAP

| | PRIMARY LOCATION NORMALLY ACCESSIBLE TO OPERATOR (IE: LOCAL PANEL MOUNTED) | FIELD MOUNTED (IE: PIPE MOUNTED) | AUXILIARY LOCATION NORMALLY ACCESSIBLE TO OPERATOR (IE: REMOTE PANEL MOUNTED) | LOCATION NORMALLY INACCESSIBLE TO OPERATOR (IE: MOUNTED INSIDE PANEL) | BY OTHERS** |
|--------------------------------|--|----------------------------------|---|---|-------------|
| DISCRETE INSTRUMENTS | 1 | 2 | 3 | 4 | 5 |
| SHARED DISPLAY, SHARED CONTROL | 6 | 7 | 8 | 9 | 10 |
| COMPUTER FUNCTION | 11 | 12 | 13 | 14 | 15 |
| PROGRAMMABLE LOGIC CONTROL | 16 | 17 | 18 | 19 | 20 |

* ABBREVIATIONS OF THE USER'S CHOICE SUCH AS IP1 (INSTRUMENT PANEL #1), IC2 (INSTRUMENT CONSOLE #2), CC3 (COMPUTER CONSOLE #3), ETC., MAY BE USED WHEN IT IS NECESSARY TO SPECIFY, INSTRUMENT OR FUNCTION LOCATION.
 ** PRIMARY LOCATION SYMBOL FOR EACH INSTRUMENT TYPE IS SHOWN AS AN EXAMPLE OF "BY OTHERS"
 *** AI,AO,DI,DO

INSTRUMENT TAG NUMBERS



WHERE:
 (LEGEND BASED ON ISA STANDARD S 5.1)

| ISA INSTRUMENT IDENTIFICATION TABLE | | | |
|-------------------------------------|---------------------------|----------------------|--|
| FIRST LETTER | SUCCEEDING LETTERS | | |
| | PROCESS VARIABLE | MODIFIER (IF NEEDED) | READOUT OR COMPUTER FUNCTION |
| A | ANALYSIS | | ALARM |
| B | BURNER, COMBUSTION | | USER'S CHOICE |
| C | USER'S CHOICE | | CONTROL |
| D | USER'S CHOICE | DIFFERENTIAL | |
| E | VOLTAGE | | SENSOR (PRIMARY ELEMENT) |
| F | FLOW RATE | RATIO (FRACTION) | |
| G | USER'S CHOICE | | GLASS, VIEWING DEVICE |
| H | HAND | | HIGH |
| I | CURRENT (ELECTRICAL) | | INDICATE |
| J | POWER | SCAN | |
| K | TIME, TIME SCHEDULE | TIME RATE OF CHANGE | CONTROL STATION |
| L | LEVEL | | LIGHT |
| M | USER'S CHOICE | MOMENTARY | MIDDLE, INTERMEDIATE |
| N | USER'S CHOICE | | USER'S CHOICE |
| O | USER'S CHOICE | | ORIFICE (RESTRICTION) |
| P | PRESSURE, VACUUM | | POINT (TEST CONNECTION) |
| Q | QUANTITY | INTEGRATE, TOTALIZE | |
| R | RADIATION | | RECORD |
| S | SPEED, FREQUENCY, SIGHT | SAFETY | SWITCH |
| T | TEMPERATURE | | TRANSMIT |
| U | MULTIVARIABLE | | MULTIFUNCTION |
| V | VIBRATION, MECH. ANALYSIS | | VALVE, DAMPER, LOUVER |
| W | WEIGHT, FORCE | | WELL |
| X | UNCLASSIFIED | X-AXIS | UNCLASSIFIED |
| Y | EVENT, STATE OR PRESENCE | Y-AXIS | RELAY, COMPUTE, CONVERT |
| Z | POSITION, DIMENSION | Z-AXIS | DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT |

PRELIMINARY
 NOT FOR CONSTRUCTION

| REV | DESCRIPTION | DATE | DWN | CHKD | APVD | ECN |
|-----|-------------|------|-----|------|------|-----|
| - | - | - | - | - | - | - |
| - | - | - | - | - | - | - |
| - | - | - | - | - | - | - |
| - | - | - | - | - | - | - |
| - | SEE PAGE 1 | - | - | - | - | - |

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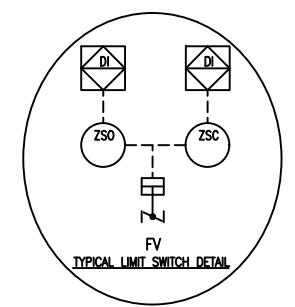
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|---------------------|-------------|---|
| DESIGNER | DATE | TITLE |
| TH | 10/9/20 | NITRATE REMOVAL SYSTEM |
| CHECKER | DATE | PRELIMINARY PROCESS & INSTRUMENTATION DIAGRAM |
| PMH | 10/9/20 | LEGEND PAGE 1 |
| ENGINEER | DATE | CLIENT LA PUENTE VALLEY |
| PMH | 10/9/20 | LA PUENTE, CA |
| MANAGER | DATE | |
| | | |
| FILE: P&ID 335706.0 | SCALE: NONE | |
| PROJECT | CODE | DRAWING |
| 335706 | | P&ID 335706 |
| SHEET | REV | |
| 2 OF 9 | 0 | |



WATER TECHNOLOGIES
 COLORADO SPRINGS, CO.
 (719) 570-9600

PUMP DIAGRAM NOTES:

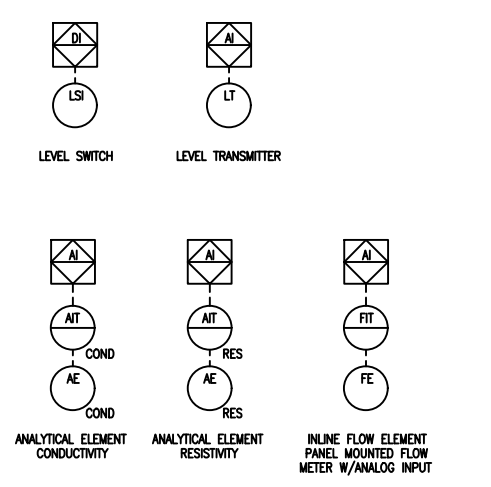
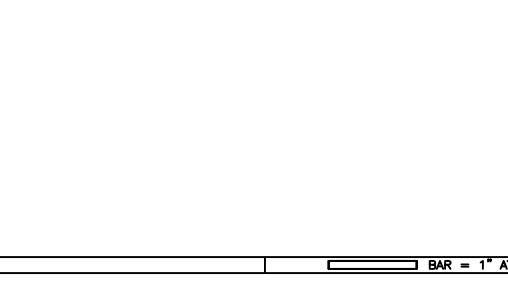
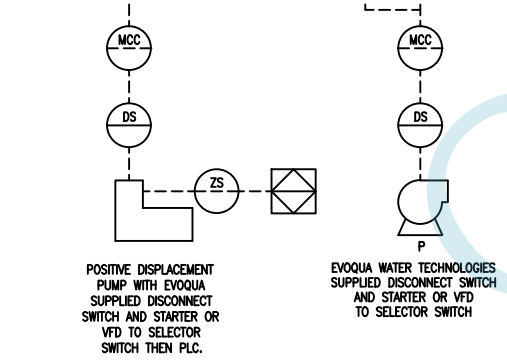
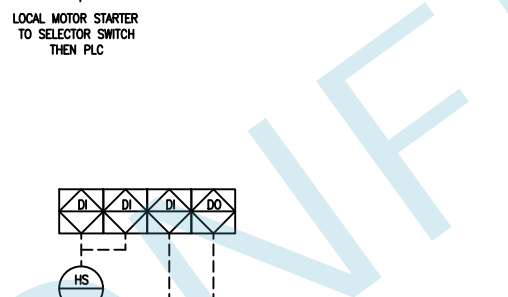
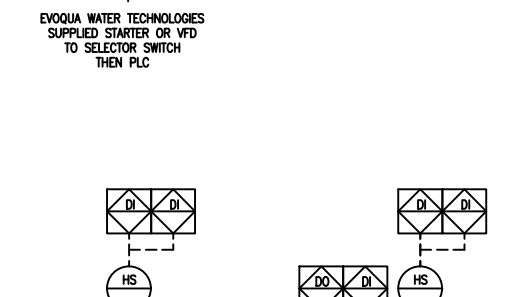
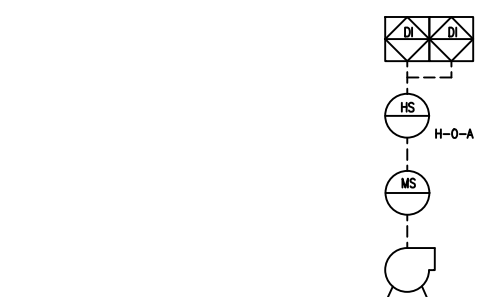
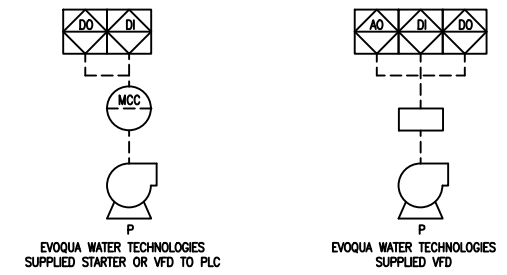
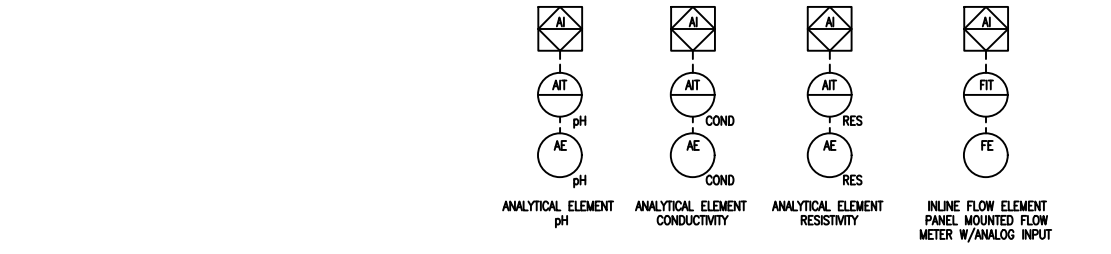
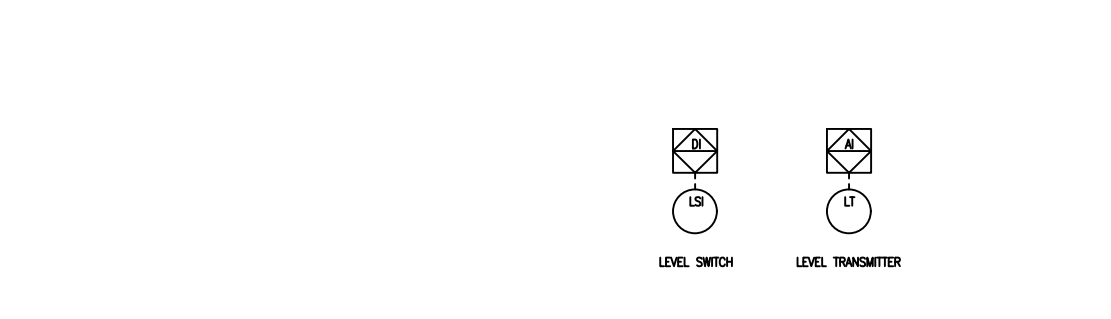
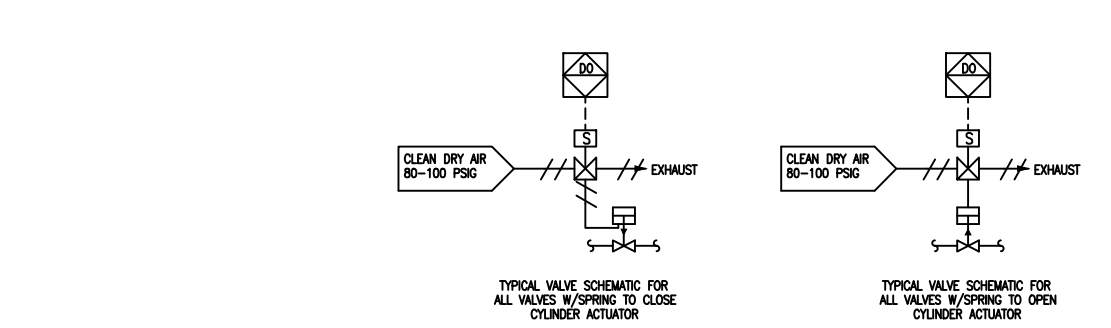
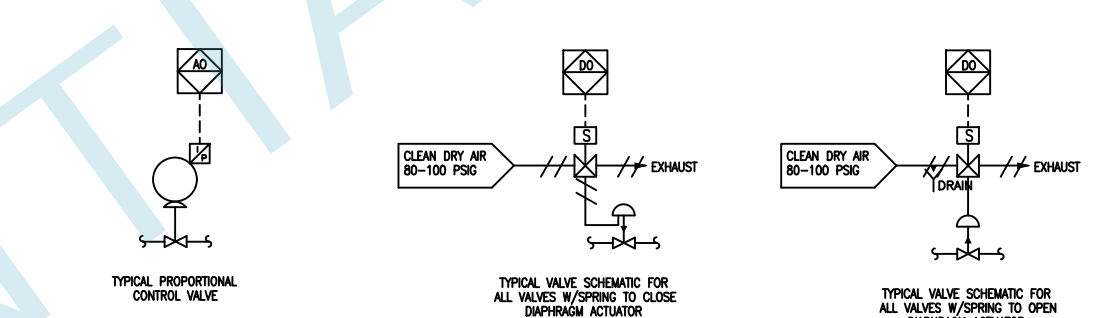
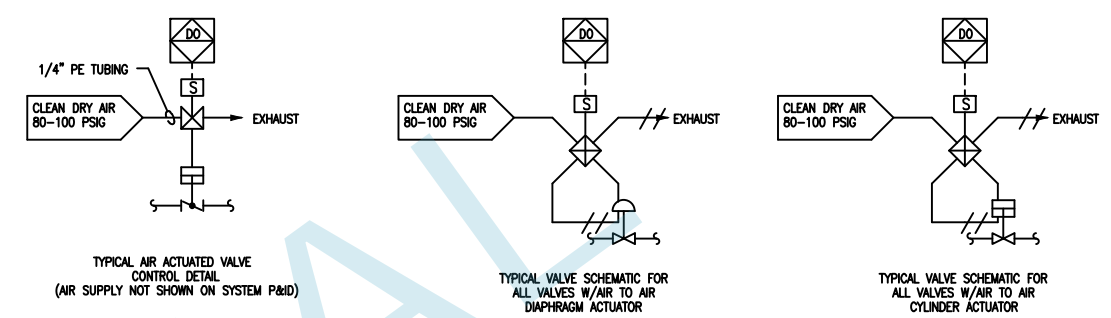
- HAND-OFF-AUTO (H-O-A) COULD BE REPLACED BY HAND-OFF (H-O).
- MOTOR CONTROL CENTER (MCC), MOTOR STARTER (MS), VARIABLE FREQUENCY DRIVE (VFD) OR DISCONNECT SWITCH (DS) COULD BE BY CUSTOMER OR EVOQUA WATER TECHNOLOGIES.
- ZS INDICATES VOLUME ADJUSTMENT, EITHER FREQUENCY OR STROKE LENGTH. EXAMPLE INDICATES ADJUSTMENT FROM THE PLC.
- THE POSITIVE DISPLACEMENT PUMP CAN HAVE THE SAME COMBINATIONS AS SHOWN FOR THE CENTRIFUGAL PUMP.



ZSO ← AS SHOWN IN P & ID
ZSC

AUTO VALVE ACTUATORS

- CYLINDER ACTUATOR - DOUBLE ACTING (FAIL INDETERMINANT)
- CYLINDER ACTUATOR - SPRING RETURN (FAIL CLOSED)
- CYLINDER ACTUATOR - SPRING RETURN (FAIL OPEN)
- DIAPHRAGM ACTUATOR - DOUBLE ACTING (FAIL OPEN)
- DIAPHRAGM ACTUATOR - SPRING RETURN (FAIL CLOSED)
- DIAPHRAGM ACTUATOR - SPRING RETURN (FAIL OPEN)
- MANUAL OVERRIDE OR HANDWHEEL



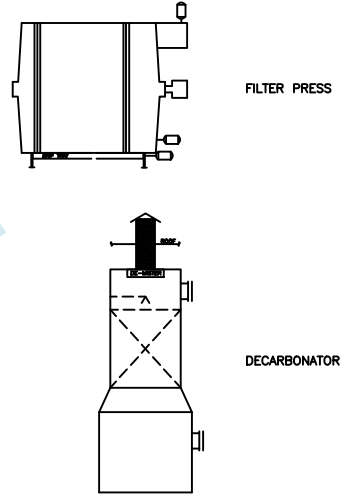
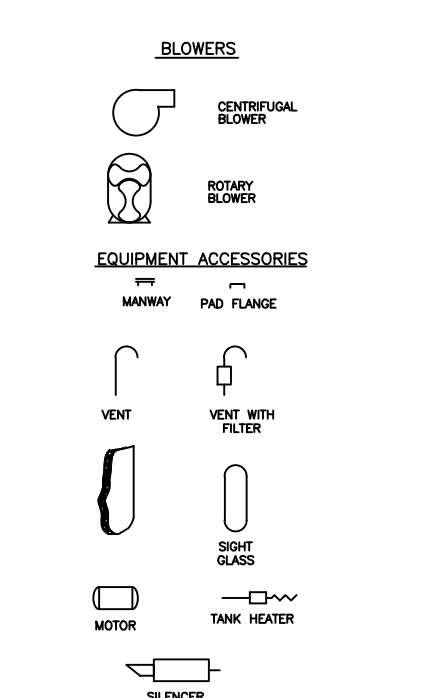
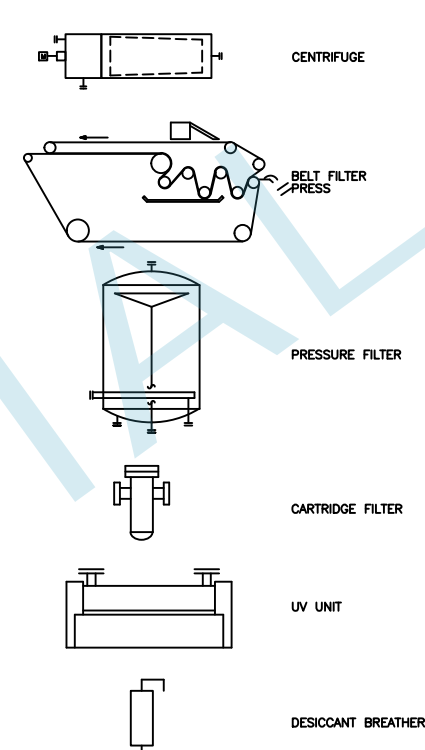
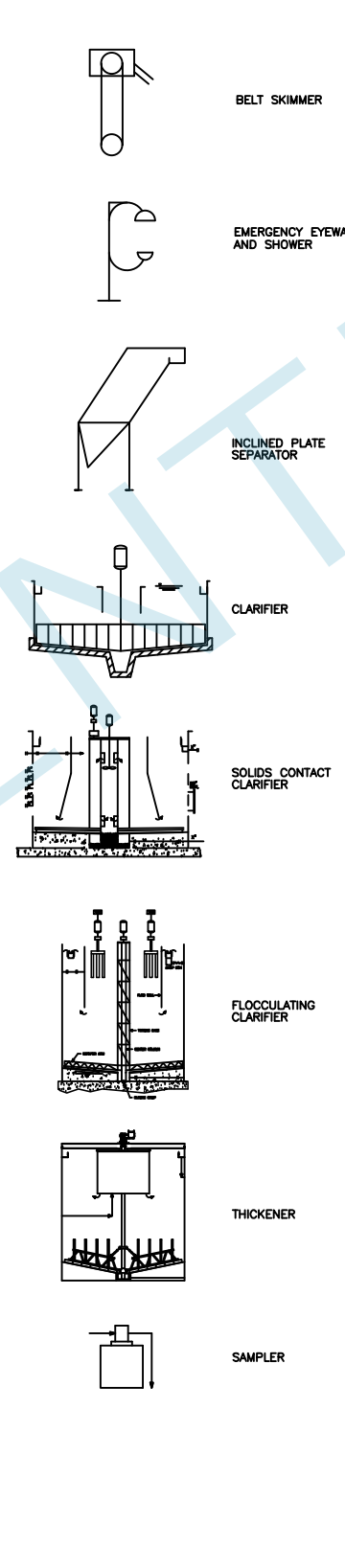
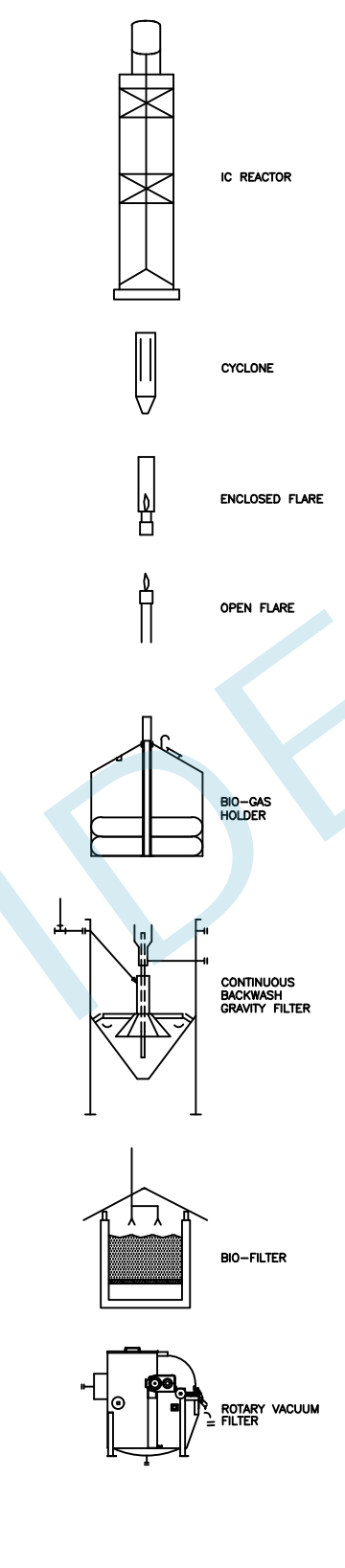
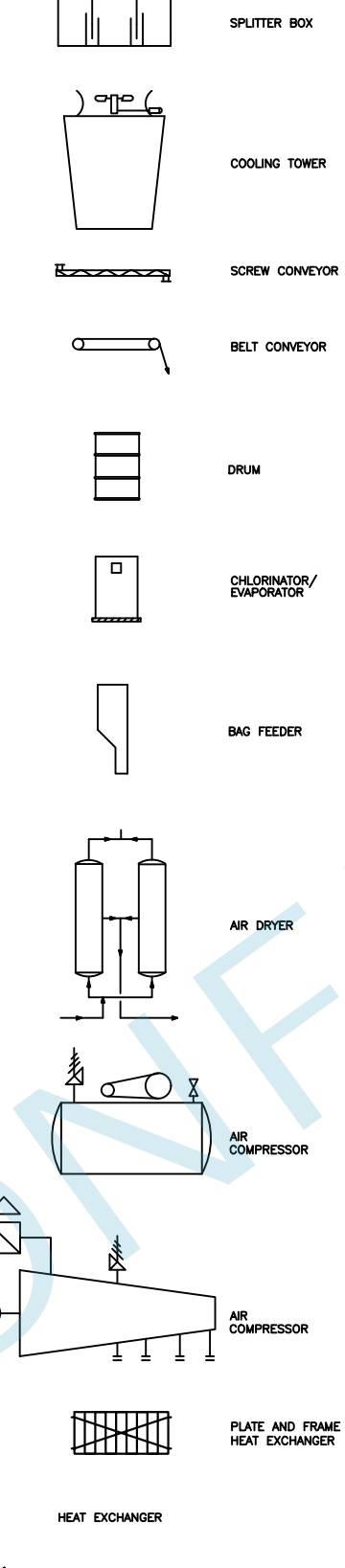
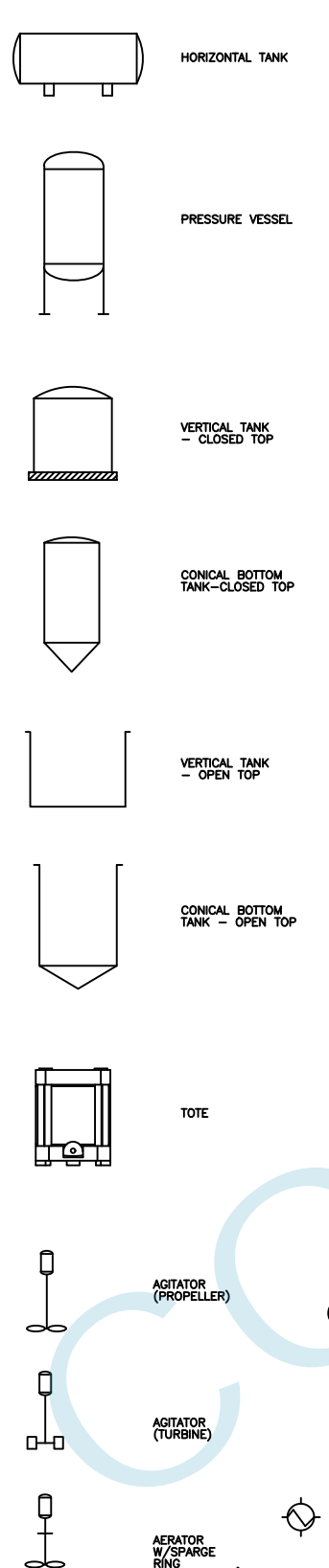
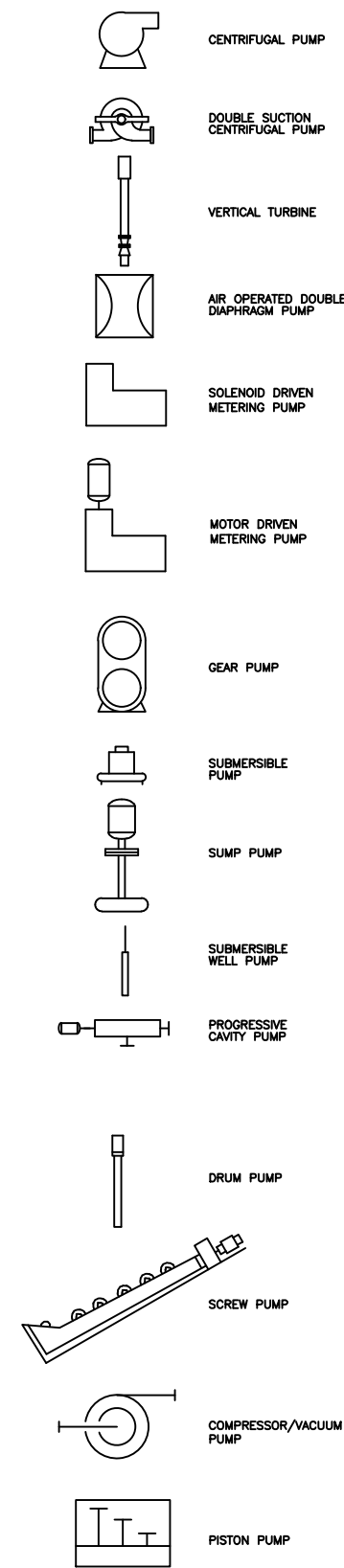
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| - | - | - | - | - | CHECKER PMH | DATE 10/9/20 | CLIENT LA PUENTE VALLEY LA PUENTE, CA |
| - | - | - | - | - | ENGINEER PMH | DATE 10/9/20 | |
| - | - | - | - | - | MANAGER - | DATE - | |
| - | SEE PAGE 1 | - | - | - | FILE: P&ID 335706.0 | SCALE: NONE | |
| REV | DESCRIPTION | DATE | DWN | CHKD | APVD | ECN | PROJECT 335706 |
| | | | | | | | CODE P&ID 335706 |
| | | | | | | | DRAWING 3 OF 9 |
| | | | | | | | REV 0 |

PUMPS

TANKS AND ACCESSORIES

MISCELLANEOUS EQUIPMENT

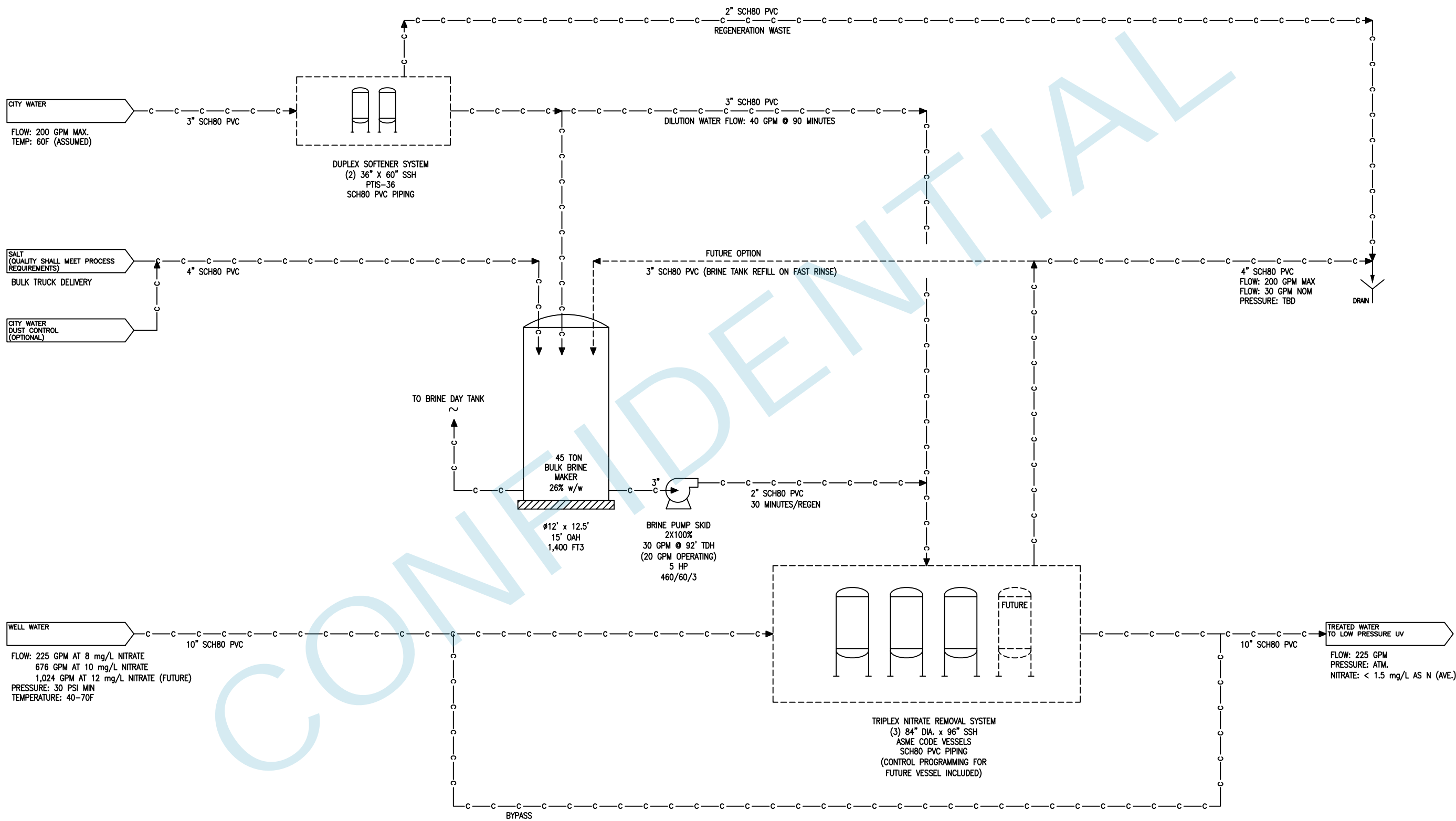


EQUIPMENT TAG NUMBERS

| | |
|---------|---|
| XXXXX | SEQUENTIAL NUMBER |
| XXXXX | DRAWING/SHEET NUMBER |
| XXXXX | AGITATOR, PUMP, SKID... |
| AXXXX | AGITATORS, AERATORS |
| BXXXX | AIR HANDLING-BLOWERS |
| BXXXX | BIN ACTIVATOR |
| CXXXX | COMPRESSORS |
| CSXXXX | COMPOSITE SAMPLER |
| CVXXXX | CONVEYOR/AUGER |
| DXXXX | DRIVES (CLARIFIERS, THICKENERS, SEPARATORS, RAKE) |
| DRXXXX | DRYERS |
| EXXXX | HEAT EXCHANGER |
| FXXXX | FILTERS-VACUUM, PRESSURE, CENTRIFUGES |
| FLXXXX | FLARE |
| HTXXXX | HEATERS |
| HDRXXXX | HEADERS, DIFFUSERS, DISTRIBUTORS |
| IXXXXX | SOFTENERS, DEMINERALIZERS |
| PXXXX | PUMPS |
| PBXXXX | POLYMER BLENDING UNIT |
| PCXXXX | PACKED COLUMN |
| ROXXXX | REVERSE OSMOSIS UNITS |
| SXXXX | SILO |
| SCXXXX | SCREEN |
| SCRXXXX | SCRUBBER |
| SGXXXX | STEAM GENERATORS |
| SKXXXX | SKID |
| SPXXXX | SEPARATOR |
| SSXXXX | SAFETY SHOWER/EMERGENCY EYEWASH |
| TXXXX | TANKS |

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NOT FOR CONSTRUCTION

| | | | | | | | | |
|---------|-------------|---------|----------|---------------|---------|---------|------------------|---|
| TH | DATE | 10/9/20 | DESIGNER | TH | DATE | 10/9/20 | TITLE | NITRATE REMOVAL SYSTEM |
| CHECKER | DATE | 10/9/20 | ENGINEER | DATE | 10/9/20 | CLIENT | LA PUENTE VALLEY | PRELIMINARY PROCESS & INSTRUMENTATION DIAGRAM |
| MANAGER | DATE | 10/9/20 | FILE: | P&ID 335706_0 | SCALE: | NONE | LA PUENTE, CA | LEGEND PAGE 3 |
| PROJECT | 335706 | CODE | | | | | | |
| DRAWING | P&ID 335706 | SHEET | 4 | OF | 9 | REV | 0 | |



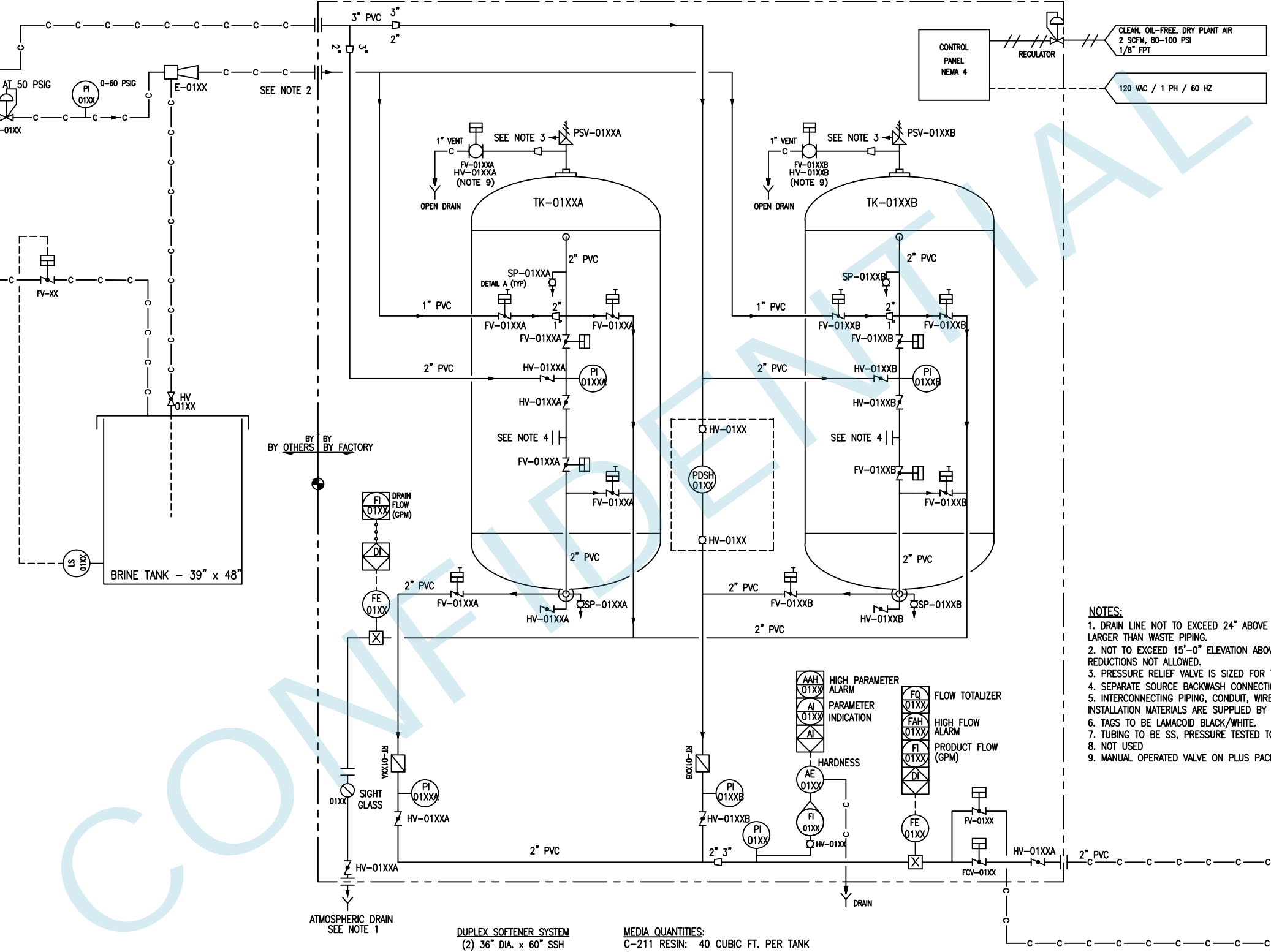
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| CHECKER DATE 10/9/20 | | | | | CLIENT LA PUENTE VALLEY LA PUENTE, CA | PROJECT 335706 |
| ENGINEER DATE 10/9/20 | | | | | MANAGER DATE - | CODE P&ID 335706 |
| FILE: P&ID 335706_0 | | | | | SCALE: NONE | SHEET 5 OF 9 |
| - SEE PAGE 1 | | | | | REV DESCRIPTION DATE DWN CHKD APVD ECN | REV 0 |

FEED PRESS - 45 PSIG MIN
 - 90 PSIG RECOMMENDED MAX
 (90% OF PSV SETTING)
 FEED TEMP - 90°F MAX (120°F SS PIPING)
 SUSP SOLIDS - 5 NTU MAX
 TDS - 750ppm MAX
 FREE CHLORINE - 1.5 PPM MAX
 Fe & Mn - 0.5ppm MAX

CITY WATER
 FLOW: 200 GPM MAX.
 FLOW: 2.6 GPM NOM.
 TEMP: 60F (ASSUMED)

BRINE FROM
 FROM BULK MAKER
 REFER TO SHEET 8



- NOTES:
1. DRAIN LINE NOT TO EXCEED 24" ABOVE DRAIN LINE EXIT. ATMOSPHERIC DRAIN LINE TO BE ONE SIZE LARGER THAN WASTE PIPING.
 2. NOT TO EXCEED 15'-0" ELEVATION ABOVE BRINE VESSEL ON UNITS WITH BRINE EDUCTORS. BRINE LINE REDUCTIONS NOT ALLOWED.
 3. PRESSURE RELIEF VALVE IS SIZED FOR THERMAL RELIEF ONLY. SET TO 100 PSIL.
 4. SEPARATE SOURCE BACKWASH CONNECTION (NOT USED, BLIND FLANGE)
 5. INTERCONNECTING PIPING, CONDUIT, WIRE, SUPPORTS, ANCHOR BOLTS, AND ALL OTHER INSTALLATION MATERIALS ARE SUPPLIED BY OTHERS UNLESS OTHERWISE NOTED.
 6. TAGS TO BE LAMACOID BLACK/WHITE.
 7. TUBING TO BE SS, PRESSURE TESTED TO 80 PSIG.
 8. NOT USED
 9. MANUAL OPERATED VALVE ON PLUS PACKAGES.

DUPLEX SOFTENER SYSTEM
 (2) 36" DIA. x 60" SSH
 ASME CODE VESSELS
 SCH80 PVC PIPING
 BRINE DAY TANK
 (GRAVITY REFILL)

MEDIA QUANTITIES:
 C-211 RESIN: 40 CUBIC FT. PER TANK
 #4 QUARTZ: 4 CUBIC FT. PER TANK
 1/4" X 1/8" QUARTZ: 12 CUBIC FT. PER TANK

TO TRIPLEX NITRATE REMOVAL SYS
 REFER TO SHEET 7

TO BRINE TANK REFILL
 REFER TO SHEET 9

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| | CHECKER PMH | DATE 10/9/20 | CLIENT LA PUENTE VALLEY LA PUENTE, CA | | | |
| | ENGINEER PMH | DATE 10/9/20 | | | | |
| | MANAGER | DATE | | | | |
| | FILE: P&ID 335706_0 | | | | | |
| | SCALE: NONE | | | | | |
| PROJECT 335706 | CODE | DRAWING P&ID 335706 | SHEET 6 OF 9 | | | |
| | | | REV 0 | | | |

| REV | DESCRIPTION | DATE | DWN | CHKD | APVD | ECN |
|-----|-------------|------|-----|------|------|-----|
| - | - | - | - | - | - | - |
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| - | - | - | - | - | - | - |
| - | SEE PAGE 1 | - | - | - | - | - |

FEED WATER SUPPLY

FLOW: 225 GPM AT 8 mg/L NITRATE
 676 GPM AT 10 mg/L NITRATE
 1,024 GPM AT 12 mg/L NITRATE (FUTURE)

PRESSURE: 30 PSI MIN
 TEMPERATURE: 40-70F

BRINE FROM BULK BRINE MAKER
 SOFT WATER FROM SOFTENER SKID
 REFER TO SHEET 6 & 8

40 to 60 GPM

CLEAN, OIL-FREE, DRY PLANT AIR
 2 SCFM, 80-100 PSI
 1/8" FPT, 3 PLACES

120 VAC / 1 PH / 60 HZ
 1/8" FPT
 3 PLACES

TK-02XXA
 GENERIC SOFTENER SHOWN
 PLEASE SEE SHEET 8 FOR DETAILS

TK-02XXB
 GENERIC SOFTENER SHOWN
 PLEASE SEE SHEET 8 FOR DETAILS

TK-02XXC
 GENERIC SOFTENER SHOWN
 PLEASE SEE SHEET 8 FOR DETAILS

TK-02XXD
 (FOR FUTURE USE)
 GENERIC SOFTENER SHOWN
 PLEASE SEE SHEET 8 FOR DETAILS

NITRATE REDUCTION UNITS
 TRIPLEX SYSTEM
 (3) 84" DIA X 96" SIDE VESSELS
 (1) 84" DIA X 96" SIDE VESSEL (FOR FUTURE USE)
 100 PSI ASME CODE
 110V-1PH-60HZ
 NEMA 4 ENCLOSURES
 VOLUME INITIATED REGENERATION
 (1-2) UNITS IN SERVICE, (1-2) ON STANDBY/REGENERATION

MEDIA QUANTITIES:
 RESIN: 154 CUBIC FT. PER TANK
 #4 QUARTZ: 9 CUBIC FT. PER TANK
 1/4" X 1/8" QUARTZ: 51 CUBIC FT. PER TANK

- NOTES:
- DRAIN LINE NOT TO EXCEED 24" ABOVE DRAIN LINE EXIT. ATMOSPHERIC DRAIN LINE TO BE ONE SIZE LARGER THAN WASTE PIPING.
 - PRESSURE RELIEF VALVE IS SIZED FOR THERMAL RELIEF ONLY. SET TO 90 PSI.
 - SEPARATE SOURCE BACKWASH CONNECTION (NOT USED, BLIND FLANGE)
 - INTERCONNECTING PIPING, TUBING, CONDUIT, WIRE, SUPPORTS, ANCHOR BOLTS, AND ALL OTHER INSTALLATION MATERIALS ARE SUPPLIED BY OTHERS UNLESS OTHERWISE NOTED.
 - TAGS TO BE LAMACOID BLACK/WHITE.
 - TUBING TO BE SS, PRESSURE TESTED TO 80 PSIG.

STD: BORDER-0106-24X36D1

INTL REF:

BAR = 1" AT PLOT SCALE

| REV | DESCRIPTION | DATE | DWN | CHKD | APVD | ECN |
|-----|-------------|------|-----|------|------|-----|
| - | - | - | - | - | - | - |
| - | - | - | - | - | - | - |
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| - | - | - | - | - | - | - |
| - | SEE PAGE 1 | - | - | - | - | - |

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 SCALE: NONE

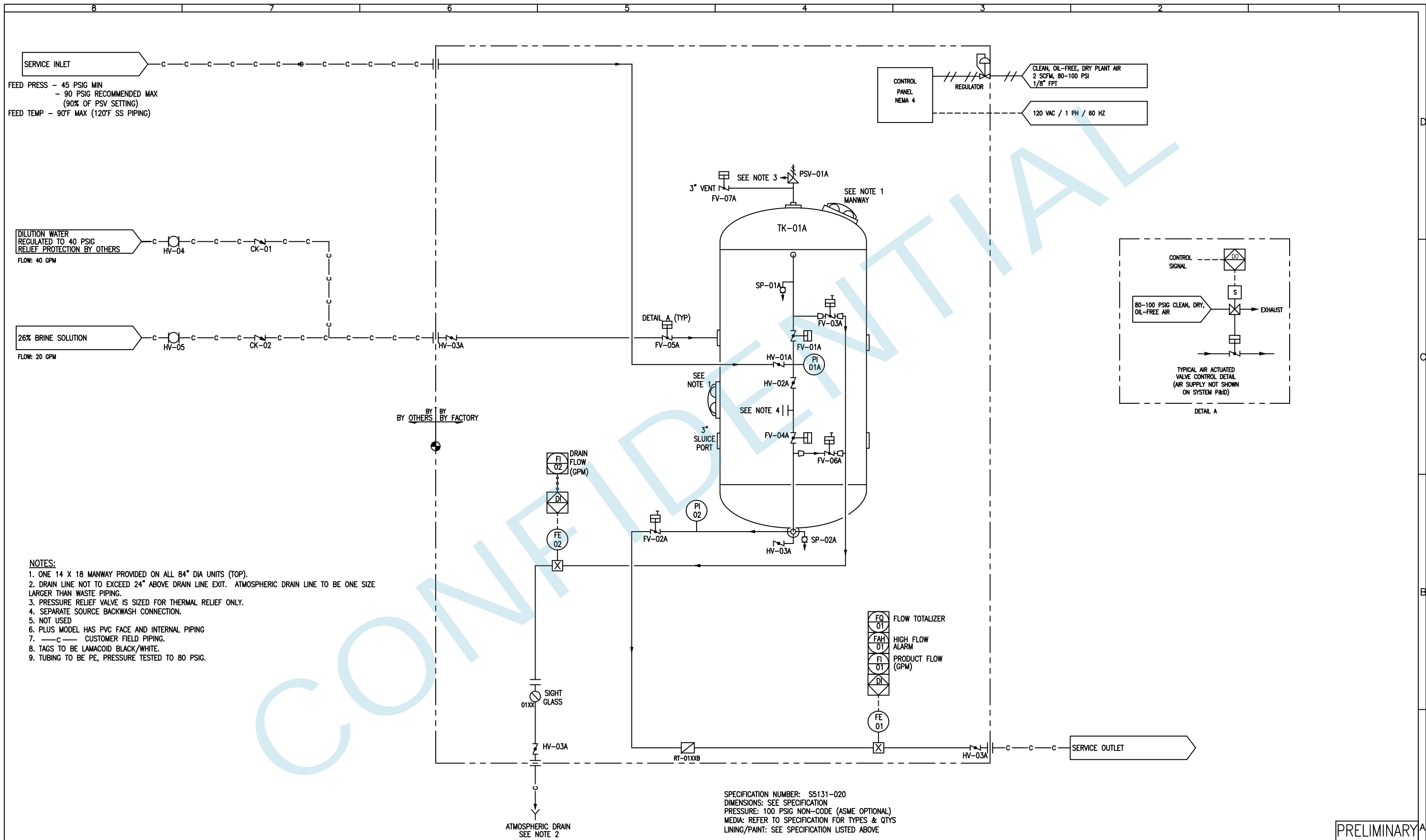
TITLE: NITRATE REMOVAL SYSTEM
 PRELIMINARY PROCESS & INSTRUMENTATION DIAGRAM
 TRIPLEX NITRATE REMOVAL SYSTEM - (QUAD IN FUTURE)

CLIENT: LA PUENTE VALLEY
 LA PUENTE, CA

EVOQUA WATER TECHNOLOGIES
 COLORADO SPRINGS, CO.
 (719) 570-9600

PROJECT: 335706
 CODE: -
 DRAWING: P&ID 335706
 SHEET: 7 OF 9
 REV: 0

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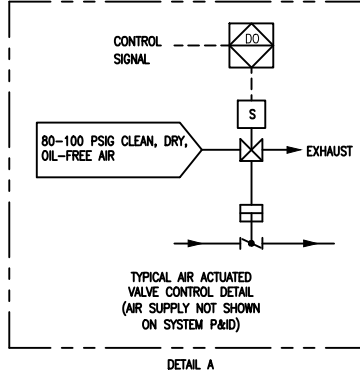


SERVICE INLET
 FEED PRESS - 45 PSIG MIN
 - 90 PSIG RECOMMENDED MAX
 (90% OF PSV SETTING)
 FEED TEMP - 90°F MAX (120°F SS PIPING)

DILUTION WATER
 REGULATED TO 40 PSIG
 RELIEF PROTECTION BY OTHERS
 FLOW: 40 GPM

26% BRINE SOLUTION
 FLOW: 20 GPM

CONTROL PANEL NEMA 4
 REGULATOR
 CLEAN, OIL-FREE, DRY PLANT AIR
 2 SCFM, 80-100 PSI
 1/8" FPT
 120 VAC / 1 PH / 60 HZ



- NOTES:
- ONE 14 X 18 MANWAY PROVIDED ON ALL 84" DIA UNITS (TOP).
 - DRAIN LINE NOT TO EXCEED 24" ABOVE DRAIN LINE EXIT. ATMOSPHERIC DRAIN LINE TO BE ONE SIZE LARGER THAN WASTE PIPING.
 - PRESSURE RELIEF VALVE IS SIZED FOR THERMAL RELIEF ONLY.
 - SEPARATE SOURCE BACKWASH CONNECTION.
 - NOT USED
 - PLUS MODEL HAS PVC FACE AND INTERNAL PIPING
 - c— CUSTOMER FIELD PIPING.
 - TAGS TO BE LAMACOID BLACK/WHITE.
 - TUBING TO BE PE, PRESSURE TESTED TO 80 PSIG.

SPECIFICATION NUMBER: S5131-020
 DIMENSIONS: SEE SPECIFICATION
 PRESSURE: 100 PSIG NON-CODE (ASME OPTIONAL)
 MEDIA: REFER TO SPECIFICATION FOR TYPES & QTYS
 LINING/PAINT: SEE SPECIFICATION LISTED ABOVE

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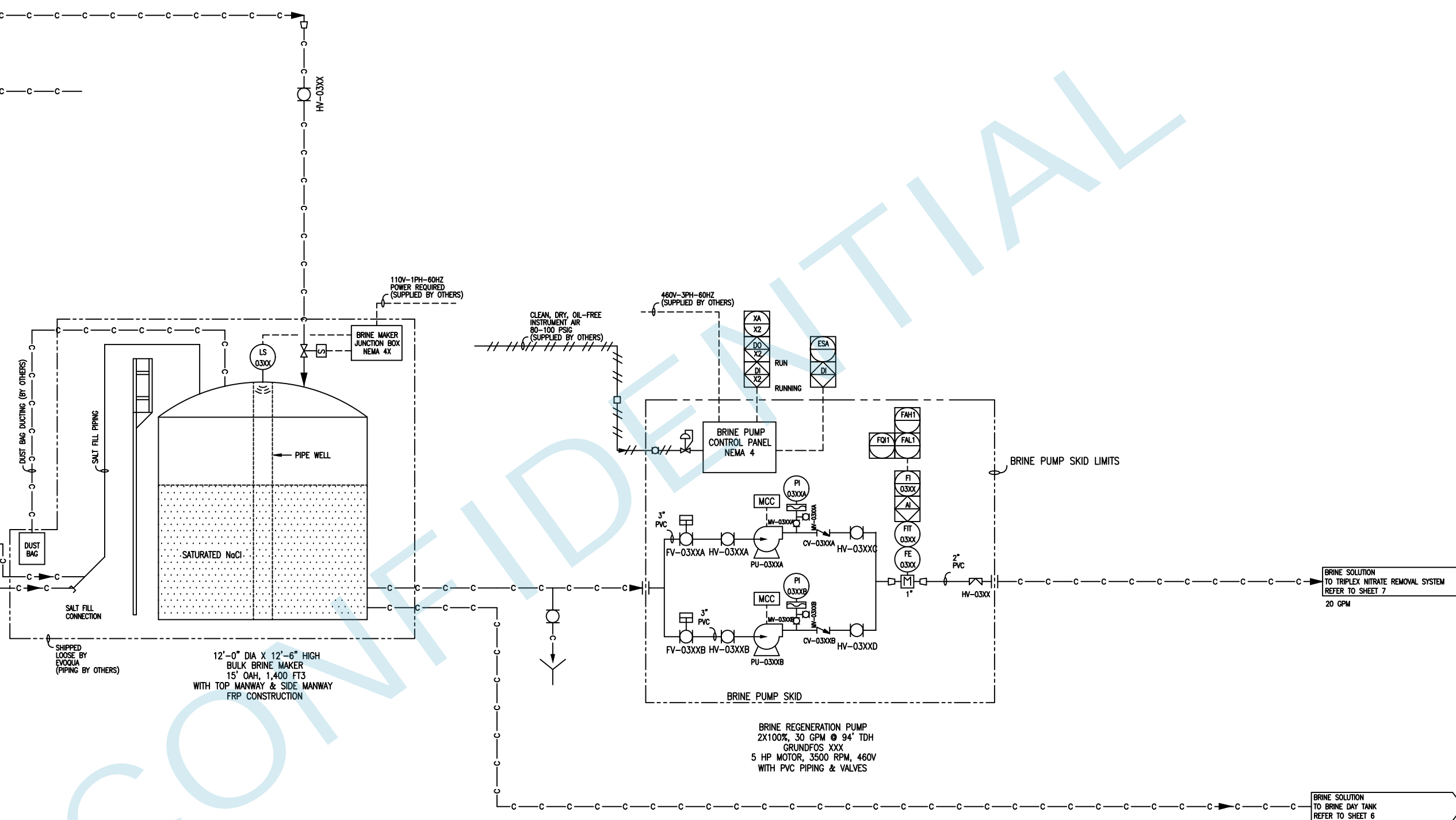
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| | CHECKER PMH | DATE 10/9/20 | CLIENT LA PUENTE VALLEY LA PUENTE, CA | | | | | |
| | ENGINEER PMH | DATE 10/9/20 | | | | | | |
| | MANAGER | DATE | | | | | | |
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| PROJECT 335706 | CODE | DRAWING P&ID 335706 | SHEET 8 OF 9 | | | | | |
| REV | DESCRIPTION | DATE | DWN CHKD APVD ECN | | | | | |

FROM SOFTENERS
REFER TO SHEET 6
PEAK FLOW: 200 GPM

FROM NITRATE SYSTEM FAST RINSE
REFER TO SHEET 7
OPTIONAL FUTURE USE

CITY WATER
DUST CONTROL

SALT
(QUALITY SHALL MEET PROCESS
REQUIREMENTS)
BULK TRUCK DELIVERY



- NOTES:**
1. ALL INTERCONNECTING PIPING, CONDUIT, WIRE, SUPPORTS, ANCHOR BOLTS & ALL OTHER INSTALLATION MATERIALS ARE SUPPLIED BY OTHERS, UNLESS OTHERWISE NOTED.
 2. ALL MECHANICAL AND ELECTRICAL INSTALLATION LABOR BY THE INSTALLATION CONTRACTOR.

PRELIMINARY
NOT FOR CONSTRUCTION

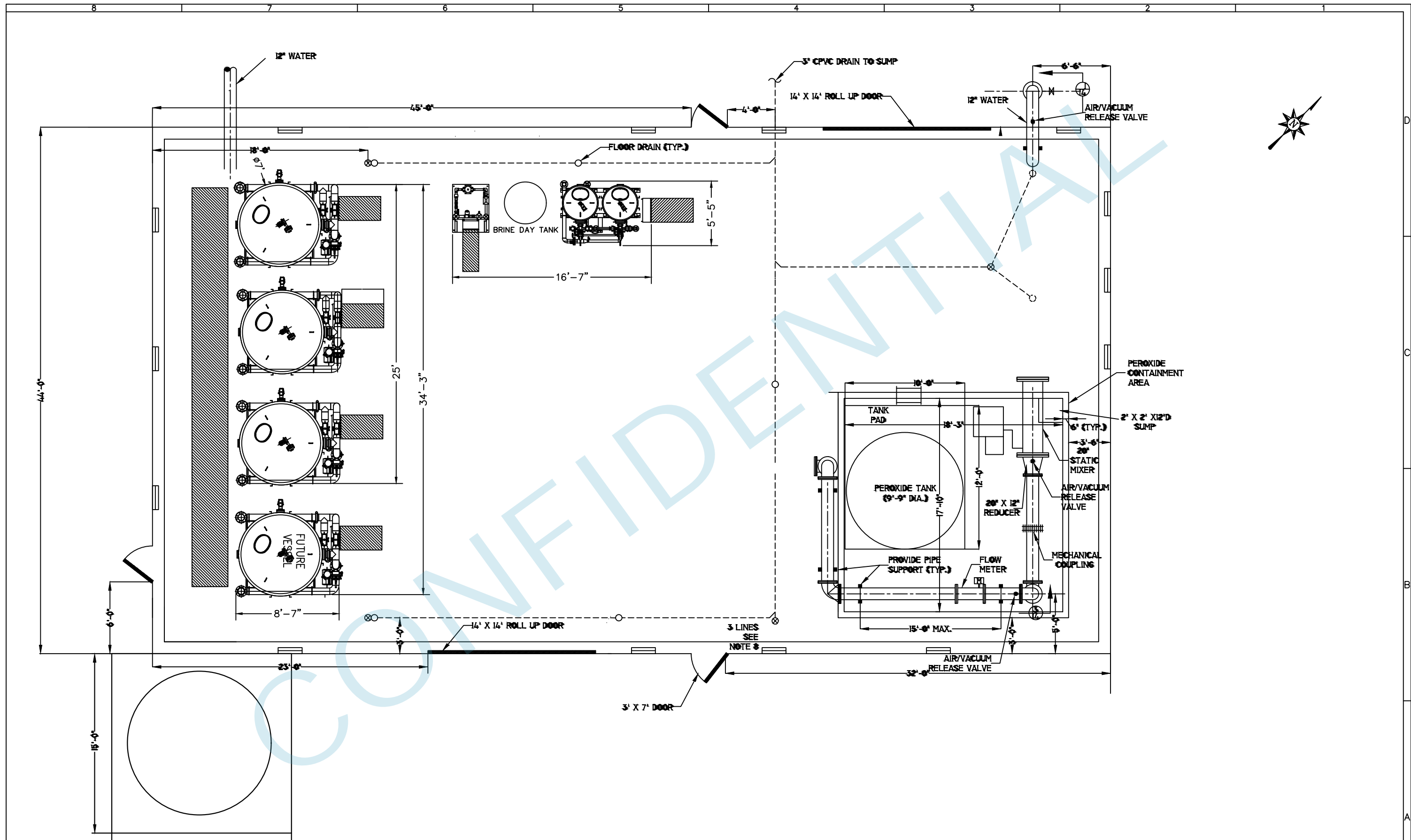
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| <p>TH CHECKER DATE 10/9/20</p> | <p>CLIENT LA PUENTE VALLEY LA PUENTE, CA</p> | <p>PROJECT 335706</p> | | | |
| <p>ENGINEER DATE 10/9/20</p> | <p>MANAGER DATE -</p> | <p>CODE P&ID 335706</p> | | | |
| <p>FILE: P&ID 335706_0</p> | <p>SCALE: NONE</p> | <p>SHEET 9 OF 9</p> | | | |
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| <p>REV</p> | <p>DATE</p> | <p>CHKD</p> | | | |
| <p>REV</p> | <p>DATE</p> | <p>APVD</p> | | | |
| <p>REV</p> | <p>DATE</p> | <p>ECN</p> | | | |

LA PUENTE VALLEY COUNTY WATER DISTRICT LA PUENTE, CA

GENERAL LAYOUT

EVOQUA WATER TECHNOLOGIES PROJECT 335706

| | | | | | | | | | | | | | |
|---|--|--|--|--|--|--|----------|-------------|---|-----------------------------------|------|---------|-------|
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| | | | | | | | ENGINEER | DATE | CLIENT | LA PUENTE VALLEY LA PUENTE, CA | | | |
| | | | | | | | MANAGER | DATE | EVOQUA <small>WATER TECHNOLOGIES COLORADO SPRINGS, CO. (719) 570-9600</small> | | | | |
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Appendix F. Product Literature

36" PTI Softener

84" PTI Softener (nitrate specific resin)

Equipment Specifications

PTI Series Softener

(24"-60" Diameter)



GENERAL SYSTEM DESCRIPTION

General Description

The softening units are designed and manufactured for industrial applications in sizes from 24" to 60" diameter tanks. The units are available in three configurations (Simplex, Duplex, and Triplex) and with four packaged options (Economy, Plus, Deluxe, and Select). Triplex configurations are available on the Plus, Deluxe, and Select packages. Duplex and triplex configurations have multiple modes of operation to maximize operational flexibility.

They are rugged, pre-engineered, pre-assembled units that minimize expensive installation and start-up costs. They require simple utility connections, media loading, and minor configuration for immediate online service. The softener's simple design maximizes the efficiency and repeatability of the unit during the service and regeneration modes in order to provide a truly reliable water treatment unit.

Media is not provided with the units and must be ordered separately. Details on the media types and order quantities are listed in the *Media Ordering Guide* section below. Installation quantities and procedure are in the *Vessel Loading* section of the Operation and Maintenance Manual.

Mechanical Description

The softener consists of steel pressure vessel(s) that are designed to use C-211 cation resin along with two support bed layers. The pressure vessels are sandblasted, lined with an NSF approved material, and painted with a durable epoxy coating. The piping and tank internals are constructed of Schedule 80 PVC or Schedule 10, 316L stainless steel. Four structural steel legs, designed to meet International Building Code (IBC) to meet the requirements in 98% of North American installations, support each vessel. Duplex and triplex units are supplied with a structural steel beam frame under the vessel legs and interconnect piping. A relief valve sized for thermal expansion pressure relief is supplied on each tank as a part of the Plus, Deluxe, and Select packages.

Separate source backwash manifold option kits are available for Plus, Deluxe, and Select trim packages. See the Options section for ordering information.

One high-density polyethylene brine tank with cover is included with an eductor, a level controlled brine draw, and refill valve. The brine tank is designed as a "wet" system. This means the salt level in the tank is always below the air check on the brine draw valve. The brine tank is sized to hold enough salt for at least three consecutive vessel regenerations before additional salt must be loaded. The brine tank is shipped loose and will require a separate customer-supplied water connection to the brine tank for brine dilution/re-fill. Additionally, the customer must connect the brine tank to the softener with Schedule 80 PVC or similar corrosion resistant material.

An overview of the trim packages and the options associated with each follows on the next page.

| Overview | | | | | |
|---------------------------------|------------------|---------------|------------|------------|--------------|
| | | Trim Packages | | | |
| Item | Detail | Economy | Plus | Deluxe | Select |
| Configurations | Simplex | X | X | X | X |
| | Duplex | X | X | X | X |
| | Triplex | - | X | X | X |
| Control | | Stager | PLC/HMI | PLC/HMI | PLC/HMI |
| Vessel | Non - Code | X | X | X | X |
| | ASME | - | X | X | X |
| Face Piping | Material | PVC | PVC | 316L SS | 316L SS |
| Internals | Upper/Lower | PVC | PVC | PVC | 316L SS |
| Separate Source Backwash | | - | Option Kit | Option Kit | Option Kit |
| Other | Hardness Monitor | - | Option Kit | Option Kit | X |
| | DL Sight Glass | - | PVC | PVC | Borosilicate |
| | PSV (Thermal) | - | X | X | X |
| | Air Vent | - | Manual | Automatic | Automatic |

Electrical Description

Economy

The softener is controlled by an Aquamatic® 962 series electronic controller. It is combined with an Aquamatic (948 or 958) stager in a NEMA-rated enclosure. The Aquamatic stager is a rotary style valve with multiple ports for directing fluid or air to operate the various valves installed in the softener system. This trim package is available in simplex or duplex alternating operation only.

Plus, Deluxe, and Select

The softener controls are housed in a single NEMA 4 Control Panel mounted on the Simplex, Duplex, or Triplex Skid. All skid wiring (for instrumentation, etc.) and pneumatic tubing (for automated valves) originate from this panel. This single Control Panel will provide control and monitoring for Simplex, Duplex, and Triplex configurations. The Control Panel is provided complete with a programmable logic controller (PLC) and a 7" Color Touch Screen operator interface (HMI). An Ethernet connection is provided for communication with a SCADA or other control system.

Operational Description

The Softener has the following Modes of Operation and Regeneration Cycle steps based on the flow configuration and vessel arrangement (Simplex, Duplex, or Triplex configuration):

Simplex (all trim packages)

- Modes of Operation: 3 (Offline, Service, and Regeneration)
- Regeneration Cycle Steps: 4 (Backwash, Brine Intro, Slow Rinse, and Fast Rinse)

Simplex operation consists of one vessel that will run in Service mode. Upon request of a Regeneration Cycle, the unit will regenerate accordingly. After completion of the Regeneration Cycle, the unit will return to Service mode.

Duplex Parallel (Plus, Deluxe, and Select trim packages)

- Modes of Operation: 3 (Offline, Service, and Regeneration)
- Regeneration Cycle Steps: 4 (Backwash, Brine Intro, Slow Rinse, and Fast Rinse)

Duplex Parallel operation consists of two vessels that will both run in Service mode. Upon request of a Regeneration Cycle, both units will regenerate consecutively (Unit A, then, Unit B), leaving one unit online at all times.

Duplex Alternating (all trim packages)

- Modes of Operation: 4 (Offline, Standby, Service, and Regeneration)
- Regeneration Cycle Steps: 4 (Backwash, Brine Intro, Slow Rinse, and Fast Rinse)

Duplex Alternating operation consists of two vessels that will run with one in Service mode, and one in Standby mode. Upon request of a Regeneration Cycle, the vessel in Service mode will regenerate, while the vessel in Standby mode will enter Service mode.

Duplex Pro-Flo (Plus, Deluxe, and Select trim packages)

- Modes of Operation: 4 (Offline, Standby, Service, and Wash)
- Wash Cycle Steps: 3 (Backwash, Settle, and Rinse)

Duplex Pro-Flo operation consists of two vessels that will run with one in Service mode (Primary vessel), and one in Standby mode (Secondary vessel). When product flow rises above a pre-defined setpoint, the vessel in Standby mode will enter Service mode. This vessel will return to Standby mode when product flow falls below the pre-defined return to standby setpoint. Upon request of a Wash Cycle, all units will wash consecutively. When a vessel is being washed, the remaining vessel will be in Service mode. After completion of the Wash Cycles, the vessel assignment will return to the state they were in prior to the initiation of the Wash Cycle.

Triplex Parallel (Plus, Deluxe, and Select trim packages)

- Modes of Operation: 3 (Offline, Service, and Regeneration)
- Regeneration Cycle Steps: 4 (Backwash, Brine Intro, Slow Rinse, and Fast Rinse)

Triplex Parallel operation consists of three vessels that will all run in Service mode. Upon request of a Regeneration Cycle, all units will regenerate consecutively (Unit A, then, Unit B, then, Unit C), leaving two unit online at all times.

Triplex 2 Online / 1 Standby (Plus, Deluxe, and Select trim packages)

- Modes of Operation: 4 (Offline, Standby, Service, and Regeneration)
- Regeneration Cycle Steps: 4 (Backwash, Brine Intro, Slow Rinse, and Fast Rinse)

Triplex 2 Online / 1 Standby operation consists of three vessels that will run with two in Service mode, and one in Standby mode. Upon request of a Regeneration Cycle, the vessels in Service mode will regenerate consecutively. The vessel in Standby will enter

Service mode. After completion of the Regeneration Cycles, the last vessel to be regenerated will enter Standby mode.

Triplex Pro-Flo (Plus, Deluxe, and Select trim packages)

- Modes of Operation: 4 (Offline, Standby, Service, and Regeneration)
- Regeneration Cycle Steps: 4 (Backwash, Brine Intro, Slow Rinse, and Fast Rinse)

Triplex Pro-Flo operation consists of three vessels that will run with a minimum of one in Service mode, and the others in Standby mode. When product flow rises above a pre-defined setpoint, the vessel in Standby mode will enter Service mode. This vessel will return to Standby mode when product flow falls below the pre-defined return to standby setpoint. Separate setpoints are provided for the 2nd and 3rd vessels. Upon request of a Regeneration Cycle, all units will regenerate consecutively (Primary vessel, Secondary vessel, then, Tertiary vessel). When a vessel is being regened, the remaining two vessels will be in Service mode. After completion of the Regeneration Cycles, the vessel assignment will return to the state they were in prior to the initiation of the Regeneration Cycle.

SYSTEM DESIGN SPECIFICATIONS

The design specifications for the PTI series softeners are listed in this section. Values assume the media types and quantities are purchased (See the *Media Ordering Guide* below) and installed per the *Vessel Loading* section of the Operations and Maintenance Manual. Note: exact performance is subject to specific feedwater conditions and flowrates and a specific analysis must be performed.

PRODUCT OFFERING OVERVIEW:

| Model Number | Economy Product Flow Rates | | | | | | | |
|--------------|----------------------------|---------|------------|---------|------------|---------|------------|---------|
| | Min. Flow (2 gpm/sqft) | | 3 gpm/cuft | | 5 gpm/cuft | | 7 gpm/cuft | |
| | Simplex | Duplex* | Simplex | Duplex* | Simplex | Duplex* | Simplex | Duplex* |
| PTIS 24X48 | 6.3 | 13 | 20 | 40 | 33 | 67 | 47 | 93 |
| PTIS 30X60 | 9.8 | 20 | 45 | 90 | 75 | 150 | 105 | 210 |
| PTIS 36X60 | 14 | 28 | 60 | 120 | 100 | 200 | 140 | 280 |
| PTIS 42X60 | 19 | 38 | 105 | 210 | 175 | 350 | 245 | 490 |
| PTIS 48X72 | 25 | 50 | 120 | 240 | 200 | 400 | 280 | 560 |
| PTIS 54X72 | 32 | 64 | 150 | 300 | 250 | 500 | 350 | 700 |
| PTIS 60X72 | 39 | 79 | 180 | 360 | 300 | 600 | 420** | 840** |

* While operating in a duplex alternating mode, the product flow rates are the same as a simplex unit.

** Not recommended due to high piping velocities.

| Model Number | Plus, Deluxe, and Select Product Flow Rates (gpm) | | | | | | | | | | | |
|--------------|---|---------|-----------|------------------------|---------|-----------|--------------------------|---------|-----------|------------------------|---------|-----------|
| | Min. Flow (2 gpm/sqft) | | | Best Flow (3 gpm/cuft) | | | Better Flow (5 gpm/cuft) | | | Good Flow (7 gpm/cuft) | | |
| | Simplex | Duplex* | Triplex** | Simplex | Duplex* | Triplex** | Simplex | Duplex* | Triplex** | Simplex | Duplex* | Triplex** |
| PTIS 24X48 | 6.3 | 13 | 19 | 21 | 42 | 63 | 35 | 70 | 105 | 49 | 98 | 147 |
| PTIS 30X60 | 9.8 | 20 | 29 | 42 | 84 | 126 | 70 | 140 | 210 | 98 | 196 | 294 |
| PTIS 36X60 | 14 | 28 | 42 | 60 | 120 | 180 | 100 | 200 | 300 | 140 | 280 | 420 |
| PTIS 42X60 | 19 | 38 | 58 | 81 | 162 | 243 | 135 | 270 | 405 | 189 | 378 | 567 |
| PTIS 48X72 | 25 | 50 | 75 | 105 | 210 | 315 | 175 | 350 | 525 | 245 | 490 | 735 |
| PTIS 54X72 | 32 | 64 | 95 | 135 | 270 | 405 | 225 | 450 | 675 | 315 | 630 | 945 |
| PTIS 60X72 | 39 | 79 | 118 | 168 | 336 | 504 | 280 | 560 | 840 | 392 | 784 | 1176 |

* While operating in a duplex alternating mode, the product flow rates are the same as a simplex unit.

** While operating in a 2 to 1 mode, the flow rates match a duplex unit. While operating in a progressive flow mode, the minimum flow rate matches the duplex

DESIGN PARAMETERS:

| | |
|------------------------------|---|
| Configuration | Simplex (Economy, Plus, Deluxe, and Select) Duplex (Economy, Plus, Deluxe, and Select) Triplex (Plus, Deluxe, and Select) |
| Feed Temperature | 60°F |
| Feed Pressure | 45 psig |
| Maximum Inlet Turbidity* | 5 NTU (Nephelometric Turbidity Units) |
| Maximum Inlet TDS* | 750 ppm as CaCO ₃ (29.2 grains/gallon) |
| Sizing: Service Flow Rate | 3 gpm/ft ³ 5 gpm/ft ³ 7 gpm/ft ³ |
| Backwash Flow Rate | 5.5 gpm/ft ² at 60°F (Economy) Adjustable on Plus, Deluxe, and Select |
| Rinse Flow Rate | Economy - Service flow Rate Plus, Deluxe, Select – 1.5 gpm/ft ³ |
| Bed Depth | Economy – 26.5” to 37” Plus, Deluxe, & Select – 26.5” to 34.5" minimum |
| Freeboard | Economy - 36% tank free board (minimum) Plus, Deluxe, & Select - 50% tank free board (minimum) |
| Resin | Resintech CG-8 (NA) |
| Capacities | 30,000 grains/ft ³ * |
| Regeneration | 15 lbs (dry) NaCl per ft ³ (6.05 gallons of saturated NaCl/ ft ³) |
| Support Bed | 3” depth of #4 quartz (1.54mm average size) 2" over laterals - ¼" x ⅛" quartz |

If process is not within the given limit, then contact applications engineering for assistance.

**Theoretical maximum with 100% resin exhaustion. True system capacity to hardness breakthrough will vary depending on conditions and operation so a specific application profile must be run to ensure desired performance.*

OPERATING LIMITS:

| | |
|---|--|
| Feedwater Temperature: Minimum Maximum | 45°F 95°F for PVC piping systems 120°F for stainless steel piping systems |
| Feedwater Pressure: Minimum Recommended Maximum Maximum | 45 psig 90 psig max recommended to prevent premature discharge of pressure relief valve on Plus, Deluxe, and Select 100 psig max (Economy) |
| Note: If the feedwater to the brine introduction system is >50psig, install PSV-1 and PI-1. If feed pressure is <50 psig, PSV-1 and PI-1 are not necessary. | |

GENERAL SPECIFICATIONS:
Pressure Vessels

| Tank Property | Unit Description | Description |
|---------------------|--------------------------------|---|
| Materials | All | Carbon steel |
| Rating | All Trim Packages | 100 psig non-code |
| | Plus, Deluxe, Select | 100 psig ASME code with stamp |
| Support: | Simplex - All | Four structural steel legs, Seismic IBC* |
| | Duplex - All | Four structural steel legs and two structure steel beams (skid), all Seismic IBC* |
| | Triplex / Plus, Deluxe, Select | Four structural steel legs and two structure steel beams (skid), all Seismic IBC* |
| Access Openings: | 24"-30" dia. | Two 4" by 6" hand holes (top and bottom) |
| | 36" dia. | One 4" by 6" hand hole and one 12" by 16" crab style |
| | 42" – 60" dia. | One 12" by 16" crab style |
| Process Connections | All except vent | Carbon Steel pad flanges |
| | Vent | 316L stainless steel FPT |
| Paint | All | 4 to 6 mils DFT epoxy |
| Lining | All | 8 - 16 mil DFT epoxy nominal (NSF-61 Approved) |

* See Regulations and Standards for detailed seismic information.

Distribution Systems

| Distributor | Unit Description | Description |
|---------------------|-------------------------|--|
| Upper | Economy, Plus, Deluxe | Schedule 80 PVC Single point distributor |
| | Select | Schedule 10 316L stainless steel Single point distributor |
| Lower (under drain) | Economy, Plus, & Deluxe | Schedule 80 PVC hub and radial |
| | Select | 316L stainless steel hub and radial |

Piping Systems

| Piping | Unit Description | Description |
|--|------------------|---|
| Face Piping | Economy, Plus | Schedule 80 PVC socket welded, flanged, threaded, and grooved connections (NSF Approved Fittings and Pipe) |
| | Deluxe, Select | 316L stainless steel flanged, threaded, and grooved connections |
| Separate Source Backwash Option Header Kit | Duplex, Triplex | Plus - Schedule 80 PVC socket welded, flanged (NSF Approved Fittings and Pipe) Deluxe – 316L Stainless Steel, butt-welded, flanged |

GENERAL SPECIFICATIONS (continued):
Process Valves

| Package | Size | Description |
|----------------------|----------------|---|
| Economy | 3" and smaller | AquaMatic V52 series, Noryl™, angle pattern globe |
| | Actuator | Line pressure to open, hydraulic pressure to close |
| | 4" and larger | Bray, cast iron butterfly with EPDM seats and stainless steel disk |
| | Actuator | Air to Close / Spring Open |
| Plus, Deluxe, Select | 1" and larger | <u>Air Vent</u> – Plus: GF Series 546 PVC manual ball valve Deluxe and Select: Flow-Tek 316SS ball valve with RPTFE seat and PTFE seals (Manual on Plus, Automated on Deluxe and Select) <u>Process</u> - Bray, cast iron butterfly with EPDM seats and stainless steel disk (wafer design 1" through 1.5", lug design for 2" and larger). The brine valve as well as service, backwash, and drain outlet valves have adjustable travel stops to set flows. |
| | Actuation | Air to Open / Spring to Close |

Sample Valves

| Valve | Unit Description | Description |
|------------------------|------------------|--------------------------|
| Inlet Sample | Economy, Plus | One ¼" PVC ball valve |
| | Deluxe, Select | One ¼" 316 SS plug valve |
| Product & Drain Sample | Economy, Plus | One ¼" PVC ball valve |
| | Deluxe, Select | One ¼" 316 SS plug valve |

INSTRUMENTATION SPECIFICATIONS:

| Instrument | Unit Description | Description |
|------------------------------|------------------|---|
| Pressure Gauges | All | 316 SS, 63mm dial, FDA approved glycerin filled, ¼" NPT |
| Flow Sensors | Economy | Product - Signet 2536 paddlewheel |
| | Plus, Del, & Sel | Product & Drain - Signet 2536 paddlewheel |
| Hardness Monitor | Plus, Deluxe | Optional (See Options Section) Hach SP-510 |
| | Select | Included – Hach SP-510 |
| Pressure Differential Switch | Option Kit | 316ss process connection and diaphragm, ¼" NPT |

CONTROLS SPECIFICATIONS FOR TIMECLOCK CONTROLLER PACKAGE (ECONOMY MODEL):

| | |
|----------------------|--|
| Timeclock Controller | AquaMatic 948 (simplex) or 958 (duplex) stager with 962 controller |
| Timeclock Enclosure | NEMA 4X fiberglass (Indoor Installation Only) |

CONTROLS SPECIFICATIONS FOR PLC PACKAGES (PLUS, DELUXE AND SELECT MODELS):

No PLC - Includes remote I/O to main panel

| | |
|-------------------------------------|--|
| Main control panel | Carbon Steel enclosure, frame mounted, NEMA 4, ANSI 61 gray (Indoor Installation Only) |
| Programmable Logic Controller (PLC) | Siemens S7/1215C, model 6ES7 215-1BG40-0XB0 w/ Ethernet OR Allen-Bradley Micrologix 1100, model 1763-L16BWA w/Ethernet |
| PLC input/output | Discrete 24 point (14 input and 10 output) (Expandable) Analog 2 input and 1 output (Expandable) Discrete 8 point output module(s) for larger configurations |
| HMI – 7 Inch Color Touch Screen | Siemens TP700 Comfort Panel, model 6AV2124-0GC01-0AX0 with Ethernet OR Allen-Bradley PV+ 7, model 2711P-T7C22D9P with Ethernet |
| Shutdown alarms | Emergency Stop Pushbutton Activated |
| HMI status indicator/value | All alarms (popup alarm banner) Product flow, drain flow Process inlet, process outlet, backwash outlet, backwash inlet, brine inlet, rinse outlet valve status Softener status |
| HMI Switches / Pushbuttons | Manual control of all valves offline / online select Regeneration cycle method select Manual regeneration cycle initiate Regeneration cycle step advance Regeneration cycle step hold Totalized flow reached – regeneration cycle start delay Totalized product flow reset Alarm silence Alarm reset Remote Control Enable/Disable |
| Miscellaneous controls | Alarm horn and alarm pilot light Auxiliary contacts for fault |

INTERFACE COMMUNICATION SPECIFICATIONS:

| | |
|------------------------------|--|
| In regeneration cycle | Activation of this signal confirms that the Softener is in a regeneration cycle. (Dry contacts) |
| Fault | Activation of this signal confirms that the Softener is in a fault condition. (Dry contacts) |
| Backwash Pump (not included) | Activation of this signal confirms that the Softener is in backwash step of a regeneration cycle. (Dry contacts) |

REGULATIONS & STANDARDS:

| | |
|-----------------------|---|
| Pressure Vessel Codes | None <i>Optional: ASME Section VIII</i> |
| Surface Preparation | SSPC SP-10 for vessel interior SSPC SP-6 for external steel surfaces |
| Electrical | NEMA 4 (IP 65) Indoor Installation Only |
| Seismic Rating | IBC (2006) S ₁ = 1.1 S _s = 2.5 Seismic Use = Group I Seismic Design Category = E Site Class = B Response Modification Factor = 3 Concrete = 3000 psi minimum ultimate 28 day strength. |
| Piping | Hydrotested to 100 psig |

DOCUMENTATION PACKAGE:

| | |
|-------------------|--|
| Documents | Storage, installation and operating instructions |
| Drawings | Process & Instrumentation Diagram (P&ID), General Arrangement (GA) and Electrical Schematic (Plus, Deluxe, and Select) |
| Quality Documents | None <i>Optional: U-1A form with ASME Code vessels</i> |

PRESSURE DROP SPECIFICATIONS:

All pressure drops are based on a simplex unit with a clean bed. Pressure drop includes all losses from the inlet flange to the outlet flange on the face piping. Interconnect piping on duplex and triplex systems are not included in these calculations. All values are approximate, based on sch80 PVC, 77°F water, and the media types and quantities are purchased (See the *Media Ordering Guide* below) and installed per the *Vessel Loading* section of the Operations and Maintenance Manual.

ECONOMY

| | | Flow (gpm) / Pressure Drop (psi) | | | | | | |
|------------------------|---------|----------------------------------|----------|----------|----------|----------|----------|------------|
| | Config* | 24 x 48 | 30 x 60 | 36 x 60 | 42 x 60 | 48 x 72 | 54 x 72 | 60 x 72 |
| 7 gpm/ft ³ | S | 50 / 19 | 105 / 12 | 140 / 20 | 245 / 23 | 280 / 10 | 350 / 14 | 420** / 19 |
| 5 gpm/ ft ³ | S | 35 / 12 | 75 / 8 | 100 / 12 | 175 / 14 | 200 / 6 | 250 / 9 | 300 / 11 |
| 3 gpm/ ft ³ | S | 20 / 6 | 45 / 4 | 60 / 6 | 105 / 7 | 120 / 4 | 150 / 5 | 180 / 6 |

* S is simplex. For Duplex systems, the flow rate doubles, but the pressure drop remains the same.

** Not recommended due to excessively high piping velocities.

PLUS, DELUXE, & SELECT

| | | Flow (gpm) / Pressure Drop (psi) | | | | | | |
|------------------------|---------|----------------------------------|-----------|------------|------------|-----------|------------|------------|
| | Config* | 24 x 48 | 30 x 60 | 36 x 60 | 42 x 60 | 48 x 72 | 54 x 72 | 60 x 72 |
| 7 gpm/ft ³ | S | 49 / 14.4 | 98 / 18.8 | 140 / 13 | 189 / 15.1 | 245 / 13 | 315 / 14.6 | 392 / 17.2 |
| 5 gpm/ ft ³ | S | 35 / 10.5 | 70 / 12.9 | 100 / 10.5 | 135 / 10.9 | 175 / 9.8 | 225 / 10.8 | 280 / 11.9 |
| 3 gpm/ ft ³ | S | 21 / 7.6 | 42 / 8.7 | 60 / 7.5 | 81 / 7.9 | 105 / 7.5 | 135 / 7.9 | 168 / 8.3 |

* S is simplex. For Duplex systems, the flow rate doubles and for Triplex, the flow rate triples, but the pressure drop remains the same.

REGENERATION SEQUENCE, TIMES, AND FLOW RATE:

ECONOMY

| Regeneration Step | Time (minutes) |
|-------------------|----------------|
| Backwash | 12 |
| Brine Intro | 30 |
| Slow Rinse | 21 |
| Fast Rinse | 15 |
| Total Time | 78 |

| STEP | Flow Rate (gpm) | | | | | | |
|--------------------|-------------------|---------|---------|---------|---------|---------|---------|
| | 24 x 48 | 30 x 60 | 36 x 60 | 42 x 60 | 48 x 72 | 54 x 72 | 60 x 72 |
| Backwash @ 60°F | 17 | 27 | 39 | 53 | 69 | 87 | 108 |
| Saturated Brine | 1 | 3 | 4 | 6 | 8 | 10 | 12 |
| Dilute (10%) Brine | 4 | 8 | 11 | 17 | 22 | 28 | 34 |
| Dilution Water | 3 | 6 | 7 | 11 | 15 | 18 | 22 |
| Slow Rinse | 3 | 6 | 7 | 11 | 15 | 18 | 22 |
| Fast Rinse* | SERVICE FLOW RATE | | | | | | |

* Rinse outlet valve is supplied with an adjustable travel stop for field set.

REGENERATION SEQUENCE, TIMES, AND FLOW RATE (continued):
PLUS, DELUXE, & SELECT

| Step | Series (Dia-Side Sht) | Std. Duration (min) | Flow Rate (gpm) | | | | | |
|------------------|-----------------------|---------------------|-------------------|--------------|--------------|--------------|--------------|--------------|
| | | | <40°F | 40°F to 50°F | 50°F to 60°F | 60°F to 70°F | 70°F to 80°F | 80°F to 90°F |
| Backwash* | 24X48 | 15 | 13 | 16 | 17 | 19 | 22 | 24 |
| | 30X60 | | 21 | 25 | 27 | 29 | 34 | 37 |
| | 36X60 | | 30 | 35 | 39 | 42 | 49 | 53 |
| | 42X60 | | 40 | 48 | 53 | 58 | 67 | 72 |
| | 48X72 | | 53 | 63 | 69 | 75 | 88 | 94 |
| | 54X72 | | 67 | 80 | 87 | 95 | 111 | 119 |
| | 60X72 | | 82 | 98 | 108 | 118 | 137 | 147 |
| Saturated Brine | 24X48 | 30 | 1.4 | | | | | |
| | 30X60 | | 2.8 | | | | | |
| | 36X60 | | 4.0 | | | | | |
| | 42X60 | | 5.4 | | | | | |
| | 48X72 | | 7.0 | | | | | |
| | 54X72 | | 9.0 | | | | | |
| | 60X72 | | 11.2 | | | | | |
| Dilute Brine 10% | 24X48 | 30 | 3.9 | | | | | |
| | 30X60 | | 7.8 | | | | | |
| | 36X60 | | 11.1 | | | | | |
| | 42X60 | | 15.0 | | | | | |
| | 48X72 | | 19.4 | | | | | |
| | 54X72 | | 25.0 | | | | | |
| | 60X72 | | 31.1 | | | | | |
| Slow Rinse | 24X48 | 15 | 2.5 | | | | | |
| | 30X60 | | 5.0 | | | | | |
| | 36X60 | | 7.1 | | | | | |
| | 42X60 | | 9.6 | | | | | |
| | 48X72 | | 12.4 | | | | | |
| | 54X72 | | 16.0 | | | | | |
| | 60X72 | | 19.9 | | | | | |
| Fast Rinse* | 24X48 | 10 | Service Flow Rate | | | | | |
| | 30X60 | | | | | | | |
| | 36X60 | | | | | | | |
| | 42X60 | | | | | | | |
| | 48X72 | | | | | | | |
| | 54X72 | | | | | | | |
| | 60X72 | | | | | | | |

* Outlet Valve is provided with an adjustable travel stopped valve to be field set based on water temperature.

BRINE TANK SPECIFICATIONS:

Brine tank is to be loaded with 6" of ¾" x ½" gravel to cover the brine well slots before being loaded with salt.

| Vessel Size (inches) | 24 x 48 | 30 x 60 | 36 x 60 | 42 x 60 |
|-------------------------------------|---------|---------|---------|---------|
| Brine Tank Diameter (inches) | 24 | 30 | 48 | 52 |
| Brine Tank Height (inches) | 48 | 60 | 48 | 60 |
| Operating Weight (lbs. worst case)* | 980 | 1,897 | 3,918 | 5,702 |
| Storage (lbs.)** | 315 | 685 | 1,845 | 3,050 |
| Storage (regeneration quantity)*** | 3 | 3 | 6 | 6 |
| Brine Draw (inches) | 21 | 28 | 15 | 19 |

| Vessel Size (inches) | 48 x 72 | 54 x 72 | 60 x 72 |
|-------------------------------------|---------|---------|---------|
| Brine Tank Diameter (inches) | 52 | 55 | 55 |
| Brine Tank Height (inches) | 60 | 70 | 70 |
| Operating Weight (lbs. worst case)* | 5,702 | 7,407 | 7,407 |
| Storage (lbs.)** | 2,555 | 3,360 | 2,860 |
| Storage (regeneration quantity) | 3 | 4 | 3 |
| Brine Draw (inches) | 25 | 29 | 34 |

* Based on Tank with 6" gravel and completely filled with 26% brine solution.

** Based on 83#/cuft salt density.

*** Individual tank regenerations **not** system regenerations.

NOTE: *The brine tank requires a minimum salt volume for the brine refill to result in a saturated brine solution.*

CUSTOMER CONNECTION SPECIFICATIONS:

All connections are class 150 flanges or equivalent unless otherwise noted.

ECONOMY

| | Config | 24 x 48 | 30 x 60 | 36 x 60 | 42 x 60 | 48 x 72 | 54 x 72 | 60 x 72 |
|------------------------|--------|-----------|---------|-----------|---------|---------|---------|---------|
| Service Inlet / Outlet | S | 1-1/2" | 2-1/2" | 2-1/2" | 3" | 4" | 4" | 4" |
| | D | 2" / 1.5" | 2-1/2" | 3" / 2.5" | 4" / 3" | 4" | 4" | 6" / 4" |
| Drain | S | 1-1/2" | 2" | 2-1/2" | 3" | 3" | 4" | 4" |
| | D | 1-1/2" | 2" | 2" | 3" | 3" | 4" | 4" |
| Brine | All | 3/4" | 1" | 1" | 1-1/2" | 1-1/2" | 1-1/2" | 1-1/2" |

PLUS

| | Config | 24 x 48 | 30 x 60 | 36 x 60 | 42 x 60 | 48 x 72 | 54 x 72 | 60 x 72 |
|------------------------|--------|------------|---------|---------|---------|---------|---------|---------|
| Service Inlet & Outlet | S | 1-1/2" | 2" | 3" | 3" | 4" | 4" | 4" |
| | D | 2" | 3" | 3" | 4" | 4" | 6" | 6" |
| | T | 3" | 3" | 4" | 4" | 6" | 6" | 8" |
| Drain | All | 1-1/2" | 2" | 3" | 3" | 4" | 4" | 4" |
| Brine* | All | 1" | 1" | 1" | 1-1/2" | 1-1/2" | 1-1/2" | 1-1/2" |
| PSV Outlet | All | 1-1/4" FPT | | | | | | |
| Vent Outlet | All | 1" | | | | | | |

* One brine connection per vessel.

DELUXE AND SELECT

| | Config | 24 x 48 | 30 x 60 | 36 x 60 | 42 x 60 | 48 x 72 | 54 x 72 | 60 x 72 |
|------------------------|--------|------------|---------|---------|---------|---------|---------|---------|
| Service Inlet / Outlet | S | 1-1/2" | 2" | 2" | 3" | 3" | 3" | 4" |
| | D | 1-1/2" | 2" | 3" | 3" | 3" | 4" | 4" |
| | T | 2" | 3" | 4" | 4" | 4" | 6" | 6" |
| Drain | All | 1-1/2" | 2" | 2" | 3" | 3" | 3" | 4" |
| Brine* | S/D | 1" | 1" | 1" | 1-1/2" | 1-1/2" | 1-1/2" | 1-1/2" |
| PSV Outlet | All | 1-1/4" FPT | | | | | | |
| Vent Outlet | All | 1" | | | | | | |

* One brine connection per vessel.

UTILITY REQUIREMENTS:

| Vessel Size (inches) | 24 x 48 | 30 x 60 | 36 x 60 | 42 x 60 | 48 x 72 | 54 x 72 | 60 x 72 |
|--|---|---------|---------|---------|---------|---------|---------|
| Ambient air limitation | 100°F maximum for all trim packages | | | | | | |
| Electrical service | 120 VAC/1 Phase/60 Hz/10 Full Load Amps | | | | | | |
| Feedwater pressure range | All - 45 psig minimum Economy - 100 psig maximum Plus, Deluxe, and Select - 90 psig maximum recommended to prevent premature discharge of pressure relief valve | | | | | | |
| Air (Plus, Del., Sel. and 60" Economy) | 2 scfm @ 80 – 100 psig clean, oil-free, dry air | | | | | | |
| Drain requirements | Floor & waste drains for general maintenance purposes | | | | | | |
| Maximum Drainage (gpm)* | 49 | 98 | 140 | 189 | 245 | 315 | 392 |

* Based on worst case service flow for a single unit (fast rinse).

PHYSICAL DIMENSION SPECIFICATIONS:

NOTE: *Dimensions do not include operating space requirements. All weights are approximate and are based on the heaviest options.*

SOFTENER ECONOMY MODELS

| | Config | LENGTH | WIDTH | HEIGHT | SHIPPING WEIGHT* | OPERATING WEIGHT |
|-------|--------|------------|-----------|------------|------------------|------------------|
| | | (in / mm) | (in / mm) | (in / mm) | (lbs / kg) | (lbs / kg) |
| 24x48 | S | 41 / 1041 | 41 / 1041 | 76 / 1930 | 597 / 271 | 1494 / 679 |
| | D | 97 / 2464 | 41 / 1041 | 80 / 2032 | 1010 / 459 | 2809 / 1277 |
| 30x60 | S | 47 / 1194 | 51 / 1295 | 90 / 2286 | 560 / 255 | 2511 / 1142 |
| | D | 97 / 2464 | 51 / 1295 | 94 / 2388 | 1510 / 686 | 5018 / 2281 |
| 36x60 | S | 51 / 1295 | 57 / 1448 | 96 / 2438 | 1080 / 491 | 3603 / 1637 |
| | D | 101 / 2565 | 57 / 1448 | 100 / 2540 | 1989 / 904 | 7039 / 3199 |
| 42x60 | S | 55 / 1397 | 63 / 1600 | 100 / 2540 | 1284 / 584 | 4739 / 2155 |
| | D | 133 / 3378 | 63 / 1600 | 104 / 2642 | 2560 / 1164 | 9358 / 4254 |
| 48x72 | S | 62 / 1575 | 76 / 1930 | 118 / 2997 | 1706 / 775 | 7123 / 3237 |
| | D | 133 / 3378 | 76 / 1930 | 122 / 3099 | 3265 / 1484 | 14098 / 6408 |
| 54x72 | S | 65 / 1651 | 82 / 2083 | 121 / 3073 | 1918 / 872 | 8778 / 3991 |
| | D | 158 / 4013 | 82 / 2083 | 123 / 3124 | 4040 / 1836 | 17515 / 7962 |
| 60x72 | S | 70 / 1778 | 88 / 2235 | 127 / 3226 | 2369 / 1077 | 10840 / 4928 |
| | D | 158 / 4013 | 97 / 2464 | 127 / 3226 | 4699 / 2136 | 21641 / 9837 |

* Dry unit without media

**PHYSICAL DIMENSION SPECIFICATIONS (continued):
 SOFTENER PLUS MODELS**

| | Config | LENGTH | WIDTH | HEIGHT | SHIP HT. | SHIPPING WEIGHT** | OPERATING WEIGHT |
|-------|--------|------------|------------|------------|------------|-------------------|------------------|
| | | (in / mm) | (in / mm) | (in / mm) | (in / mm) | (lbs / kg) | (lbs / kg) |
| 24x48 | S | 40 / 1016 | 53 / 1346 | 91 / 2311 | 76 / 1930 | 615 / 280 | 1525 / 694 |
| | D | 69 / 1753 | 53 / 1346 | 95 / 2413 | 80 / 2032 | 1041 / 473 | 2861 / 1300 |
| | T | 97 / 2464 | 57 / 1448 | 95 / 2413 | 80 / 2032 | 1468 / 667 | 4197 / 1908 |
| 30x60 | S | 44 / 1118 | 57 / 1448 | 108 / 2743 | 93 / 2362 | 780 / 355 | 2550 / 1160 |
| | D | 88 / 2235 | 64 / 1626 | 112 / 2845 | 97 / 2464 | 1557 / 708 | 5096 / 2317 |
| | T | 128 / 3251 | 68 / 1727 | 112 / 2845 | 97 / 2464 | 2224 / 1011 | 7532 / 3424 |
| 36x60 | S | 51 / 1295 | 69 / 1753 | 110 / 2794 | 95 / 2413 | 1113 / 506 | 3659 / 1663 |
| | D | 91 / 2311 | 74 / 1880 | 115 / 2921 | 100 / 2540 | 2050 / 932 | 7141 / 3246 |
| | T | 131 / 3327 | 77 / 1956 | 115 / 2921 | 100 / 2540 | 2977 / 1353 | 10614 / 4824 |
| 42x60 | S | 59 / 1499 | 76 / 1930 | 117 / 2972 | 102 / 2591 | 1352 / 615 | 4807 / 2186 |
| | D | 110 / 2794 | 82 / 2083 | 121 / 3073 | 106 / 2692 | 2577 / 1171 | 9487 / 4312 |
| | T | 162 / 4115 | 82 / 2083 | 121 / 3073 | 106 / 2692 | 3668 / 1667 | 14033 / 6379 |
| 48x72 | S | 63 / 1600 | 87 / 2210 | 133 / 3378 | 118 / 2997 | 1796 / 816 | 6123 / 2784 |
| | D | 115 / 2921 | 88 / 2235 | 137 / 3480 | 122 / 3099 | 3437 / 1562 | 12096 / 5499 |
| | T | 169 / 4293 | 92 / 2337 | 137 / 3480 | 122 / 3099 | 5121 / 2328 | 18117 / 8235 |
| 54x72 | S | 68 / 1727 | 90 / 2286 | 137 / 3480 | 122 / 3099 | 2019 / 918 | 8879 / 4037 |
| | D | 134 / 3404 | 98 / 2489 | 143 / 3632 | 128 / 3251 | 3995 / 1816 | 17715 / 8053 |
| | T | 198 / 5029 | 98 / 2489 | 143 / 3632 | 128 / 3251 | 5887 / 2676 | 26467 / 12031 |
| 60x72 | S | 74 / 1880 | 96 / 2438 | 140 / 3556 | 125 / 3175 | 2494 / 1134 | 10965 / 4985 |
| | D | 140 / 3556 | 104 / 2642 | 146 / 3708 | 131 / 3327 | 4946 / 2248 | 21888 / 9949 |
| | T | 204 / 5182 | 104 / 2642 | 146 / 3708 | 131 / 3327 | 7310 / 3323 | 32722 / 14874 |

** Dry unit without media

SOFTENER DELUXE & SELECT MODELS

| | Config | LENGTH | WIDTH | HEIGHT | SHIP HT. | SHIPPING WEIGHT** | OPERATING WEIGHT |
|-------|--------|------------|------------|------------|------------|-------------------|------------------|
| | | (in / mm) | (in / mm) | (in / mm) | (in / mm) | (lbs / kg) | (lbs / kg) |
| 24x48 | S | 41 / 1041 | 49 / 1245 | 91 / 2311 | 76 / 1930 | 748 / 340 | 1658 / 754 |
| | D | 70 / 1778 | 49 / 1245 | 95 / 2413 | 80 / 2032 | 1184 / 538 | 4723 / 2147 |
| | T | 98 / 2489 | 49 / 1245 | 95 / 2413 | 80 / 2032 | 1468 / 667 | 5611 / 2551 |
| 30x60 | S | 46 / 1168 | 59 / 1499 | 108 / 2743 | 93 / 2362 | 1071 / 487 | 2841 / 1292 |
| | D | 89 / 2261 | 59 / 1499 | 112 / 2845 | 97 / 2464 | 1964 / 893 | 5503 / 2502 |
| | T | 129 / 3277 | 61 / 1549 | 112 / 2845 | 97 / 2464 | 2620 / 1191 | 7928 / 3604 |
| 36x60 | S | 50 / 1270 | 69 / 1753 | 110 / 2794 | 95 / 2413 | 1247 / 567 | 3793 / 1724 |
| | D | 92 / 2337 | 74 / 1880 | 115 / 2921 | 100 / 2540 | 2358 / 1072 | 7449 / 3386 |
| | T | 132 / 3353 | 77 / 1956 | 115 / 2921 | 100 / 2540 | 3525 / 1602 | 11162 / 5073 |
| 42x60 | S | 56 / 1442 | 76 / 1930 | 117 / 2972 | 102 / 2591 | 1634 / 743 | 5089 / 2314 |
| | D | 110 / 2794 | 82 / 2083 | 121 / 3073 | 106 / 2692 | 3165 / 1439 | 10075 / 4580 |
| | T | 162 / 4115 | 82 / 2083 | 121 / 3073 | 106 / 2692 | 4755 / 2161 | 15120 / 6873 |
| 48x72 | S | 65 / 1651 | 82 / 2083 | 133 / 3378 | 118 / 2997 | 2024 / 920 | 7441 / 3382 |
| | D | 117 / 2972 | 82 / 2083 | 137 / 3480 | 122 / 3099 | 3867 / 1758 | 14700 / 6682 |
| | T | 169 / 4293 | 83 / 2108 | 137 / 3480 | 122 / 3099 | 5766 / 2621 | 22015 / 10007 |
| 54x72 | S | 70 / 1778 | 88 / 2235 | 137 / 3480 | 122 / 3099 | 2254 / 1025 | 9114 / 4144 |
| | D | 137 / 3480 | 90 / 2286 | 143 / 3632 | 128 / 3251 | 4431 / 2014 | 18151 / 8251 |
| | T | 202 / 5131 | 92 / 2337 | 143 / 3632 | 128 / 3251 | 6639 / 3018 | 27219 / 12373 |
| 60x72 | S | 69 / 1753 | 99 / 2515 | 140 / 3556 | 125 / 3175 | 2875 / 1307 | 11346 / 5158 |
| | D | 140 / 3556 | 99 / 2515 | 146 / 3708 | 131 / 3327 | 5691 / 2587 | 22633 / 10288 |
| | T | 207 / 5258 | 100 / 2540 | 146 / 3708 | 131 / 3327 | 8574 / 3897 | 33986 / 15448 |

** Weights are approximated for the heaviest unit with all options without media.

ORDERING INFORMATION MATRIX

Vantage® PreTreatment - Industrial (PTI) Softener

| | | | | | | | |
|---|---|------|---|---|---|-------|---|
| Sample Part Number: | | PTIS | D | S | N | 60X72 | A |
| PTIS | Vantage® PTI Softener | | | | | | |
| TRIM PACKAGE | | | | | | | |
| E | ECONOMY - (PVC piping, Stager) | | | | | | |
| P | PLUS - (PVC piping, PLC/HMI) | | | | | | |
| D | DELUXE - (316L SS piping, PVC Internals, PLC/HMI) | | | | | | |
| S | SELECT - (316L SS piping & internal dist, PLC HMI) | | | | | | |
| SYSTEM CONFIGURATION | | | | | | | |
| S | SIMPLEX | | | | | | |
| D | DUPLEX | | | | | | |
| T | TRIPLEX (Plus, Deluxe, and Select Only) | | | | | | |
| VESSEL CODE | | | | | | | |
| N | NON-CODE | | | | | | |
| A | ASME Section VIII Div 1 (Plus, Deluxe, and Select Only) | | | | | | |
| VESSEL (Diameter x Shell Height) | | | | | | | |
| 24X48 | 24" Dia X 48" Side Sheet | | | | | | |
| 30X60 | 30" Dia X 60" Side Sheet | | | | | | |
| 36X60 | 36" Dia X 60" Side Sheet | | | | | | |
| 42X60 | 42" Dia X 60" Side Sheet | | | | | | |
| 48X72 | 48" Dia X 72" Side Sheet | | | | | | |
| 54X72 | 54" Dia X 72" Side Sheet | | | | | | |
| 60X72 | 60" Dia X 72" Side Sheet | | | | | | |
| Controls | | | | | | | |
| E | Electro-Mechanical Controller (Economy Only) | | | | | | |
| A | Allen-Bradley Controls (Plus, Deluxe and Select Only) | | | | | | |
| S | Siemens Controls (Plus, Deluxe and Select Only) | | | | | | |

Media is not provided with the PTI unit. It must be ordered as separate PO line items. Please reference the Media Ordering Guide on the next page for types and quantities.

MEDIA ORDERING GUIDE (Separate PO line Items)
ECONOMY TRIM

| Config | Media Type | Part Number | Economy Trim Media Quantities (cubic feet) | | | | | | |
|--------|------------------|-------------|---|---------|---------|---------|---------|---------|---------|
| | | | 24 x 48 | 30 x 60 | 36 x 60 | 42 x 60 | 48 x 72 | 54 x 72 | 60 x 72 |
| SIMLEX | Resin (C-211 Na) | W2T853650 | 7 | 15 | 20 | 30 | 40 | 50 | 60 |
| | Quartz #4 | W2T126734 | 1 | 1 | 2 | 2 | 3 | 4 | 5 |
| | ¼" by ⅛" Quartz | W2T126742 | 2 | 3 | 4 | 6 | 9 | 13 | 17 |
| DUPLEX | Resin (C-211 Na) | W2T853650 | 14 | 30 | 40 | 60 | 80 | 100 | 120 |
| | Quartz #4 | W2T126734 | 2 | 2 | 4 | 4 | 6 | 8 | 10 |
| | ¼" by ⅛" Quartz | W2T126742 | 4 | 6 | 8 | 12 | 18 | 26 | 34 |

PLUS, DELUXE, AND SELECT TRIM

| Config | Media Type | Part Number | Plus/Deluxe/Select Trim Media Quantities (cubic feet) | | | | | | |
|---------|------------------|-------------|--|---------|---------|---------|---------|---------|---------|
| | | | 24 x 48 | 30 x 60 | 36 x 60 | 42 x 60 | 48 x 72 | 54 x 72 | 60 x 72 |
| SIMLEX | Resin (C-211 Na) | W2T853650 | 7 | 14 | 20 | 27 | 35 | 45 | 56 |
| | Quartz #4 | W2T126734 | 1 | 1 | 2 | 3 | 3 | 4 | 5 |
| | ¼" by ⅛" Quartz | W2T126742 | 3 | 4 | 6 | 9 | 13 | 17 | 22 |
| DUPLEX | Resin (C-211 Na) | W2T853650 | 14 | 28 | 40 | 54 | 70 | 90 | 112 |
| | Quartz #4 | W2T126734 | 2 | 2 | 4 | 6 | 6 | 8 | 10 |
| | ¼" by ⅛" Quartz | W2T126742 | 6 | 8 | 12 | 18 | 26 | 34 | 44 |
| TRIPLEX | Resin (C-211 Na) | W2T853650 | 21 | 42 | 60 | 81 | 105 | 135 | 168 |
| | Quartz #4 | W2T126734 | 3 | 3 | 6 | 9 | 9 | 12 | 15 |
| | ¼" by ⅛" Quartz | W2T126742 | 9 | 12 | 18 | 27 | 39 | 51 | 66 |

Actual installation quantities and procedure are located in the *Vessel Loading* section of the Operations and Maintenance Manual.

OPTION KITS (Separate PO line Items)
INSTRUMENTATION

| Option | Option Kit # | Description |
|------------------------------|--------------|---|
| Hardness Monitor | W3T81708 | Hach SP-510 Option kit for Plus and Deluxe Trim Packages |
| Pressure Differential Switch | W3T81815 | Ashcroft, Differential Pressure Switch with PVC isolation valves, 316ss process connections and diaphragm, 1/4" NPT |

SEPARATE SOURCE BACKWASH MANIFOLD KIT

| Part Number | Description | Material | Configuration | Tank Size |
|-------------|------------------------------|--------------|---------------|-----------|
| W3T82494 | KIT, PTI SSBW 24" DPLX 316SS | 316 SS | Duplex | 24" |
| W3T82495 | KIT, PTI SSBW 30" DPLX 316SS | 316 SS | Duplex | 30" |
| W3T82496 | KIT, PTI SSBW 36" DPLX 316SS | 316 SS | Duplex | 36" |
| W3T82497 | KIT, PTI SSBW 42" DPLX 316SS | 316 SS | Duplex | 42" |
| W3T82498 | KIT, PTI SSBW 48" DPLX 316SS | 316 SS | Duplex | 48" |
| W3T82499 | KIT, PTI SSBW 54" DPLX 316SS | 316 SS | Duplex | 54" |
| W3T82500 | KIT, PTI SSBW 60" DPLX 316SS | 316 SS | Duplex | 60" |
| W3T82501 | KIT, PTI SSBW 24" TPLX 316SS | 316 SS | Triplex | 24" |
| W3T82502 | KIT, PTI SSBW 30" TPLX 316SS | 316 SS | Triplex | 30" |
| W3T82503 | KIT, PTI SSBW 36" TPLX 316SS | 316 SS | Triplex | 36" |
| W3T82504 | KIT, PTI SSBW 42" TPLX 316SS | 316 SS | Triplex | 42" |
| W3T82505 | KIT, PTI SSBW 48" TPLX 316SS | 316 SS | Triplex | 48" |
| W3T82506 | KIT, PTI SSBW 54" TPLX 316SS | 316 SS | Triplex | 54" |
| W3T82507 | KIT, PTI SSBW 60" TPLX 316SS | 316 SS | Triplex | 60" |
| W3T82451 | KIT, PTI SSBW 24" DPLX PVC | Sch 80 PVC * | Duplex | 24" |
| W3T82452 | KIT, PTI SSBW 30" DPLX PVC | Sch 80 PVC * | Duplex | 30" |
| W3T82453 | KIT, PTI SSBW 36" DPLX PVC | Sch 80 PVC * | Duplex | 36" |
| W3T82454 | KIT, PTI SSBW 42" DPLX PVC | Sch 80 PVC * | Duplex | 42" |
| W3T82455 | KIT, PTI SSBW 48" DPLX PVC | Sch 80 PVC * | Duplex | 48" |
| W3T82456 | KIT, PTI SSBW 54" DPLX PVC | Sch 80 PVC * | Duplex | 54" |
| W3T82457 | KIT, PTI SSBW 60" DPLX PVC | Sch 80 PVC * | Duplex | 60" |
| W3T82458 | KIT, PTI SSBW 24" TPLX PVC | Sch 80 PVC * | Triplex | 24" |
| W3T82459 | KIT, PTI SSBW 30" TPLX PVC | Sch 80 PVC * | Triplex | 30" |
| W3T82460 | KIT, PTI SSBW 36" TPLX PVC | Sch 80 PVC * | Triplex | 36" |
| W3T82461 | KIT, PTI SSBW 42" TPLX PVC | Sch 80 PVC * | Triplex | 42" |
| W3T82462 | KIT, PTI SSBW 48" TPLX PVC | Sch 80 PVC * | Triplex | 48" |
| W3T82463 | KIT, PTI SSBW 54" TPLX PVC | Sch 80 PVC * | Triplex | 54" |
| W3T82464 | KIT, PTI SSBW 60" TPLX PVC | Sch 80 PVC * | Triplex | 60" |

* Available at time of order only.

Equipment Specifications

PTI Series Softener

(72"-120" Diameter- High Flow Series)



GENERAL SYSTEM DESCRIPTION

General Description

The softening units are designed and manufactured for industrial applications in sizes from 72" to 120" diameter tanks. The units are available in three configurations (Simplex, Duplex, and Triplex) and with three packaged options (Plus, Deluxe, and Select). Duplex and triplex configurations have multiple modes of operation to maximize operational flexibility.

These units are rugged, pre-engineered units that minimize expensive installation and start-up costs. They require simple utility connections, media loading, and minor configuration for immediate online service. Duplex and triplex configurations are shipped as individual units in order to minimize installation labor while maximizing orientation flexibility. The softener's simple design maximizes the efficiency and repeatability of the unit during the service and regeneration modes in order to provide a truly reliable water treatment unit.

Media is not provided with the units and must be ordered separately. Details on the media types and order quantities are listed in the *Media Ordering Guide* section below. Installation quantities and procedure are in the *Vessel Loading* section of the Operation and Maintenance Manual.

Mechanical Description

The softener consists of steel pressure vessel(s) that are designed to use C-211 cation resin along with two support bed layers. The pressure vessels are sandblasted, lined with an NSF approved material, and painted with a durable epoxy coating. The piping and tank internals are constructed of schedule 80 PVC or Schedule 10, 316L stainless steel. All automatic valves are actuated pneumatically. Adjustable travels stops are included on the service, backwash, rinse outlet, and brine valves in order to set the flows based on system requirements. A relief valve sized for thermal expansion pressure relief is also supplied on each tank.

Four structural steel legs, designed to meet International Building Code (IBC) to meet the requirements in 98% of North American installations, support each vessel. All interconnect piping on duplex and triplex systems are by others. Duplex and triplex systems do not include the last pieces of manifold on the waste and product piping that contain the flow elements and/or site glass. See P&ID for more details.

A brine pumping and dilution skid is provided. The unit is provided with sch80 PVC piping. A customer supplied brine silo or equivalent supplies a 26% brine solution to the inlet of the brine pumping system. A separate water source (preferably softened water) supplies the dilution side. A CRT series Grundfos vertical pump boosts the 26% brine solution pressure. Two rotameters allow the



flow of each fluid to be accurately set for the dilution of the 26% brine solution to desired concentration (6-10%). The customer must connect the brine skid to the softener with schedule 80 PVC or similar corrosion resistant material.

An overview of the configuration and trim packages available is shown in the table below.

| Overview | | | | |
|-----------------------|------------------|----------------------|---------------|---------------|
| | | Trim Packages | | |
| Item | Detail | Plus | Deluxe | Select |
| Configurations | Simplex | X | X | X |
| | Duplex | X | X | X |
| | Triplex | X | X | X |
| Control | | PLC/HMI | PLC/HMI | PLC/HMI |
| Vessel | Non - Code | X | X | X |
| | ASME | X | X | X |
| Face Piping | Material | PVC | 316L SS | 316L SS |
| Internals | Upper/Lower | PVC | PVC | 316L SS |
| Other | Hardness Monitor | Option Kit | Option Kit | X |
| | DL Sight Glass | PVC | PVC | Borosilicate |
| | PSV (Thermal) | X | X | X |
| | Air Vent | Auto Valve | Auto Valve | Auto Valve |

Electrical Description

For High Flow systems, the Control Panel is mounted on Unit A. For Duplex and Triplex systems, individual Solenoid Panels provide valve control on each additional vessel (Unit B, or, Unit B and Unit C). The Solenoid Panels contain the solenoid valves and terminal blocks for field wiring connections. High Flow vessels are free standing units (not skid mounted) and will require field wiring (by others) between the Control Panel and Solenoid Panel(s) for Duplex and Triplex systems. A single Control Panel will provide control and monitoring for Simplex, Duplex, and Triplex Filter configurations. The Control Panel is provided complete with a programmable logic controller (PLC) and a 7" Color Touch Screen operator interface (HMI). An Ethernet connection is provided for communication with a SCADA or other control system.

A Brine Injection Pump Panel is provided to allow motor control of the Brine Pump. This pump is utilized during the brine intro step of a Regeneration Cycle. Field wiring from the Control Panel to the Brine Injection Pump Panel is required. Control of the Brine Pump is maintained at the Control Panel from the HMI. A green "Pump Running" pilot light is provided on the front of the Brine Injection Pump Panel for run status.

Operational Description

The Softener has the following Modes of Operation and Regeneration Cycle steps based on the flow configuration and vessel arrangement (Simplex, Duplex, or Triplex configuration):

Simplex

- Modes of Operation: 3 (Offline, Service, and Regeneration)
- Regeneration Cycle Steps: 4 (Backwash, Brine Intro, Slow Rinse, and Fast Rinse)

Simplex operation consists of one vessel that will run in Service mode. Upon request of a Regeneration Cycle, the unit will regenerate accordingly. After completion of the Regeneration Cycle, the unit will return to Service mode.

Duplex Parallel

- Modes of Operation: 3 (Offline, Service, and Regeneration)
- Regeneration Cycle Steps: 4 (Backwash, Brine Intro, Slow Rinse, and Fast Rinse)

Duplex Parallel operation consists of two vessels that will both run in Service mode. Upon request of a Regeneration Cycle, both units will regenerate consecutively (Unit A, then, Unit B), leaving one unit online at all times.

Duplex Alternating

- Modes of Operation: 4 (Offline, Standby, Service, and Regeneration)
- Regeneration Cycle Steps: 4 (Backwash, Brine Intro, Slow Rinse, and Fast Rinse)

Duplex Alternating operation consists of two vessels that will run with one in Service mode, and one in Standby mode. Upon request of a Regeneration Cycle, the vessel in Service mode will regenerate, while the vessel in Standby mode will enter Service mode.

Duplex Pro-Flo (Plus, Deluxe, and Select trim packages)

- Modes of Operation: 4 (Offline, Standby, Service, and Wash)
- Wash Cycle Steps: 3 (Backwash, Settle, and Rinse)

Duplex Pro-Flo operation consists of two vessels that will run with one in Service mode (Primary vessel), and one in Standby mode (Secondary vessel). When product flow rises above a pre-defined setpoint, the vessel in Standby mode will enter Service mode. This vessel will return to Standby mode when product flow falls below the pre-defined return to standby setpoint. Upon request of a Wash Cycle, all units will wash consecutively. When a vessel is being washed, the remaining vessel will be in Service mode. After completion of the Wash Cycles, the vessel assignment will return to the state they were in prior to the initiation of the Wash Cycle.

Triplex Parallel

- Modes of Operation: 3 (Offline, Service, and Regeneration)
- Regeneration Cycle Steps: 4 (Backwash, Brine Intro, Slow Rinse, and Fast Rinse)

Triplex Parallel operation consists of three vessels that will all run in Service mode. Upon request of a Regeneration Cycle, all units will regenerate consecutively (Unit A, then, Unit B, then, Unit C), leaving two unit online at all times.

Triplex 2 Online / 1 Standby

- Modes of Operation: 4 (Offline, Standby, Service, and Regeneration)
- Regeneration Cycle Steps: 4 (Backwash, Brine Intro, Slow Rinse, and Fast Rinse)

Triplex 2 Online / 1 Standby operation consists of three vessels that will run with two in Service mode, and one in Standby mode. Upon request of a Regeneration Cycle, the vessels in Service mode will regenerate consecutively. The vessel in Standby will enter Service mode. After completion of the Regeneration Cycles, the last vessel to be regenerated will enter Standby mode.

Triplex Pro-Flo

- Modes of Operation: 4 (Offline, Standby, Service, and Regeneration)
- Regeneration Cycle Steps: 4 (Backwash, Brine Intro, Slow Rinse, and Fast Rinse)

Triplex Pro-Flo operation consists of three vessels that will run with a minimum of one in Service mode, and the others in Standby mode. When product flow rises above a pre-defined setpoint, the vessel in Standby mode will enter Service mode. This vessel will return to Standby mode when product flow falls below the pre-defined return to standby setpoint. Separate setpoints are provided for the 2nd and 3rd vessels. Upon request of a Regeneration Cycle, all units will regenerate consecutively (Primary vessel, Secondary vessel, then, Tertiary vessel). When a vessel is being regenerated, the remaining two vessels will be in Service mode. After completion of the Regeneration Cycles, the vessel assignment will return to the state they were in prior to the initiation of the Regeneration Cycle.

SYSTEM DESIGN SPECIFICATIONS

The design specifications for the PTI series softeners are listed in this section. Values assume the media types and quantities are purchased (See the *Media Ordering Guide* below) and installed per the *Vessel Loading* section of the Operations and Maintenance Manual. Note: exact performance subject to specific feedwater conditions and flowrates and a specific analysis must be performed.

PRODUCT OFFERING OVERVIEW:

| Model Number | Plus, Deluxe, and Select Product Flow Rates (gpm) | | | | | | | | | | | |
|-------------------|---|---------|-----------|------------------------|---------|-----------|-----------------------------|---------|-----------|---------------------------|---------|-----------|
| | Min. Flow (2 gpm/sqft) | | | Best Flow (3 gpm/cuft) | | | Better Flow (5 gpm/cuft)*** | | | Good Flow (7 gpm/cuft)*** | | |
| | Simplex | Duplex* | Triplex** | Simplex | Duplex* | Triplex** | Simplex | Duplex* | Triplex** | Simplex | Duplex* | Triplex** |
| PTIS_72X72 | 57 | 113 | 170 | 297 | 594 | 891 | 495 | 990 | 1485 | 565 | 1131 | 1696 |
| PTIS_84X84 | 77 | 154 | 231 | 471 | 942 | 1413 | 770 | 1539 | 2309 | 770 | 1539 | 2309 |
| PTIS_96X96 | 101 | 201 | 302 | 708 | 1416 | 2124 | 1005 | 2011 | 3016 | 1005 | 2011 | 3016 |
| PTIS_12096 | 157 | 314 | 471 | 1104 | 2208 | 3312 | 1571 | 3142 | 4712 | 1571 | 3142 | 4712 |

* While operating in a duplex alternating mode, the product flow rates are the same as a simplex unit.

** While operating in a 2 to 1 mode, the flow rates match a duplex unit. While operating in a progressive flow mode, the minimum flow rate matches the duplex minimum flow.

*** Flow rates may be limited to 20 gpm/sqft.

DESIGN PARAMETERS:

| | |
|------------------------------|---|
| Configuration | Simplex Duplex Triplex |
| Feed Temperature | 60°F |
| Feed Pressure | 45 psig |
| Maximum Inlet Turbidity* | 5 NTU (Nephelometric Turbidity Units) |
| Maximum Inlet TDS* | 750 ppm as CaCO ₃ (29.2 grains/gallon) |
| Sizing: Service Flow Rate | 3 gpm/ft ³ 5 gpm/ft ³ (Limited by 20 gpm/ft ² for 84" dia and larger) 7 gpm/ft ³ (Limited by 20 gpm/ft ² in all cases) |
| Backwash Flow Rate | Adjustable via valve travel stops |
| Rinse Flow Rate | 1.5 gpm/ft ³ |
| Bed Depth | 42" – 56" |
| Freeboard | 54%-57% of the tank side sheet volume |
| Resin | Resintech CG-8 (NA) |
| Capacities | 30,000 grains/ft ³ * |
| Regeneration | 15 lbs (dry) NaCl per ft ³ (6.05 gallons of saturated NaCl/ ft ³) |
| Support Bed | 3" depth of #4 quartz (1.54mm average size) 2" over laterals - ¼" x ⅛" quartz |

If process is not within the given limit, then contact applications engineering for assistance.

**Theoretical maximum with 100% resin exhaustion. True system capacity to hardness breakthrough will vary depending on conditions and operation so a specific application profile must be run to ensure desired performance.*

OPERATING LIMITS:

| | |
|--|---|
| Feedwater Temperature: Minimum Maximum | 45°F 95°F for PVC piping systems 120°F for stainless steel piping systems |
| Feedwater Pressure: Minimum Maximum | 45 psig 90 psig max to prevent premature discharge of pressure relief valve |

GENERAL SPECIFICATIONS:
Pressure Vessels

| Tank Property | Unit Description | Description |
|---------------------|-------------------|--|
| Materials | All | Carbon steel |
| Rating | All Trim Packages | 100 psig non-code 100 psig ASME code with stamp |
| Support: | All | Four structural steel legs, Seismic IBC* |
| Access Openings: | 72" dia. | One 12" by 16" crab style - top of vessel |
| | 84" dia. | One 14" by 18" crab style - top of vessel |
| | 96"-120" dia. | Two 14" by 18" crab style - top & lower side of vessel |
| Process Connections | Main Process | |
| | 72"-84" dia. | Carbon steel pad flange |
| | 96"-120" dia. | Double drilled 316 SS pad flanges |
| | Sluice/Brine | Carbon steel pad flange |
| | Vent | 316L stainless steel FPT |
| Paint | All | 4 to 6 mils DFT epoxy |
| Lining | All | 8 to 16 mil DFT epoxy nominal (NSF-61 Approved) |

* See Regulations and Standards for detailed seismic information.

Pumps

| Unit | Unit Description | Description |
|------------|------------------|-----------------------|
| Brine Skid | 72"-84" dia | Grundfos CRT4-2, 1 HP |
| | 96"-120" dia | Grundfos CRT8-1, 1 HP |

Distribution Systems

| Distributor | Unit Description | Description |
|--------------------------------|------------------|---|
| Upper | Plus, Deluxe | Schedule 80 PVC Multi-point distributor |
| | Select | Schedule 10 316L stainless steel Multi-point distributor |
| Lower (under drain) & Brine | Plus, Deluxe | Schedule 80 PVC hub and radial |
| | Select | 316L stainless steel hub and radial |

Piping Systems

| Piping | Unit Description | Description |
|-----------------|------------------|--|
| Face Piping | Plus | Schedule 80 PVC socket welded, flanged, threaded, and grooved connections (NSF Approved Fittings and Pipe) |
| | Deluxe, Select | 316L stainless steel flanged, threaded, and grooved connections |
| Brine Pump Skid | All | Schedule 80 PVC socket welded, flanged, threaded, and grooved connections (NSF Approved Fittings and Pipe) |

Process Valves

| Package | Size | Description |
|------------------|---------------|--|
| All | 1" and larger | Bray, cast iron, lug style, butterfly valve with EPDM seats and stainless steel disk. The brine valve as well as service, backwash, and drain outlet valves have adjustable travel stops to set flows. |
| | Actuation | Air to Open / Spring to Close |
| All – Brine Skid | 1" and larger | GF 546 series, PVC ball valve |

Sample Valves

| Valve | Unit Description | Description |
|------------------------|------------------|--------------------------|
| Inlet Sample | Plus | One ¼" PVC ball valve |
| | Deluxe, Select | One ¼" 316 SS plug valve |
| Product & Drain Sample | Plus | One ¼" PVC ball valve |
| | Deluxe, Select | One ¼" 316 SS plug valve |

INSTRUMENTATION SPECIFICATIONS:

| Instrument | Unit Description | Description |
|----------------------------------|------------------|---|
| Pressure Gauges | All | 316 SS, 63mm dial, FDA approved glycerin filled, ¼" NPT |
| Flow Sensors (Product and Drain) | All | Signet 2536 paddlewheel |
| Rotameter | Brine Skid | King Instruments 7200 series rotameter |
| Hardness Monitor | Plus, Deluxe | Optional (See Options Section) Hach SP-510 |
| | Select | Included - Hach SP-510 |
| Pressure Differential Switch | Optional Kit | 316ss process connection and diaphragm, ¼" NPT |

CONTROLS SPECIFICATIONS FOR PLC PACKAGES

| | |
|--|--|
| Main control panel Solenoid panel (Unit B) Solenoid panel (Unit C) Brine injection pump panel | Carbon Steel enclosure, frame mounted, NEMA 4, ANSI 61 gray (Indoor Installation Only) |
| Programmable Logic Controller (PLC) | Siemens S7/1215C, model 6ES7 215-1BG40-0XB0 w/ Ethernet OR No PLC - Includes remote I/O to main panel Allen-Bradley Micrologix 1100, model 1763-L16BWA w/Ethernet |
| PLC input/output | Discrete 24 point (14 input and 10 output) (Expandable) Analog 2 input and 1 output (Expandable) Discrete 8 point output module(s) for larger configurations |
| HMI – 7 Inch Color Touch Screen | Siemens TP700 Comfort Panel, model 6AV2124-0GC01-0AX0 with Ethernet OR Allen-Bradley PV+ 7, model 2711P-T7C22D9P with Ethernet |
| Shutdown alarms | Emergency Stop Pushbutton Activated |
| HMI status indicator/value | All alarms (popup alarm banner) Product flow, drain flow Process inlet, process outlet, backwash outlet, backwash inlet, brine inlet, rinse outlet valve status Softener status |
| HMI Switches / Pushbuttons / Pilot Lights | Manual control of all valves Offline / online select Regeneration cycle method select Manual regeneration cycle initiate Regeneration cycle step advance Regeneration cycle step hold Totalized flow reached – regeneration cycle start delay Totalized product flow reset Alarm silence Alarm reset Pump running pilot light (on Brine Injection Pump Panel) Remote Control Enable/Disable |
| Miscellaneous controls | Alarm horn and alarm pilot light Auxiliary contacts for fault |

INTERFACE COMMUNICATION SPECIFICATIONS:

| | |
|------------------------------|---|
| In regeneration cycle | Activation of this signal confirms that the Softener is in a regeneration cycle. (Dry contacts) |
| Fault | Activation of this signal confirms that the Softener is in a fault condition. (Dry contacts) |
| Brine Pump (included) | Activation of this signal confirms that the Softener is in brine intro step of a regeneration cycle. The contacts are wired to the Brine Injection Pump Panel. (Dry contacts) |
| Backwash Pump (not included) | Activation of this signal confirms that the Softener is in backwash step of a regeneration cycle. (Dry contacts) |

REGULATIONS & STANDARDS:

| | |
|-----------------------|---|
| Pressure Vessel Codes | None <i>Optional:</i> ASME Section VIII |
| Surface Preparation | SSPC SP-10 for vessel interior SSPC SP-6 for external steel surfaces |
| Electrical | NEMA 4 (IP 65) Indoor Installation Only |
| Seismic Rating | IBC (2006) S ₁ = 1.1 S _s = 2.5 Seismic Use = Group I Seismic Design Category = E Site Class = B Response Modification Factor = 3 Concrete = 3000 psi minimum ultimate 28 day strength. |
| Piping | Hydrotested to 100 psig |

DOCUMENTATION PACKAGE:

| | |
|-------------------|--|
| Documents | Storage, installation and operating instructions |
| Drawings | Process & Instrumentation Diagram (P&ID), General Arrangement (GA) and Electrical Schematic (Plus, Deluxe, and Select) |
| Quality Documents | None <i>Optional:</i> U-1A form with ASME Code vessels |

PRESSURE DROP SPECIFICATIONS:

All pressure drops are based on a simplex unit with a clean bed. Pressure drop includes all losses from the inlet flange to the outlet flange on the face piping. Interconnect piping on duplex and triplex systems are not included in these calculations. All values are approximate, based on schedule 80 PVC, 77°F water, and the media types and quantities are purchased (See the *Media Ordering Guide* below) and installed per the *Vessel Loading* section of the Operations and Maintenance Manual

| | Config** | Flow (gpm) / Pressure Drop (psi) | | | |
|---------------------------|----------|----------------------------------|------------|-------------|-------------|
| | | 72 x 72 | 84 x 84 | 96 x 96 | 120 x 96 |
| 3 gpm/ft ³ | S | 297 / 9.0 | 471 / 11.3 | 708 / 14.9 | 1104 / 13.2 |
| 5 gpm/ ft ³ ** | S | 495 / 12.6 | 770 / 17.5 | 1005 / 21.7 | 1571 / 19.3 |
| 7 gpm/ft ³ ** | S | 565 / 14.3 | 770 / 17.5 | 1005 / 21.7 | 1571 / 19.3 |

* S is simplex. For Duplex systems, the flow rate doubles and for Triplex, the flow rate triples, but the pressure drop remains the same.

** Flow at 5 gpm/ft³ is limited by 20 gpm/ft² for 84" dia. and above. The same is true for all sizes at 7 gpm/ft³.

REGENERATION SEQUENCE, TIMES, AND FLOW RATE:

| Step | Series (Dia-Side Sht) | Std. Duration (min) | Flow Rate (gpm) | | | | | |
|-----------------|-----------------------|---------------------|-------------------|--------------|--------------|--------------|--------------|--------------|
| | | | <40°F | 40°F to 50°F | 50°F to 60°F | 60°F to 70°F | 70°F to 80°F | 80°F to 90°F |
| Backwash* | 72X72 | 15 | 119 | 141 | 156 | 170 | 198 | 212 |
| | 84X84 | | 162 | 192 | 212 | 231 | 269 | 289 |
| | 96X96 | | 211 | 251 | 276 | 302 | 352 | 377 |
| | 120X96 | | 330 | 393 | 432 | 471 | 550 | 589 |
| Saturated Brine | 72X72 | 30 | 20.0 | | | | | |
| | 84X84 | | 32.0 | | | | | |
| | 96X96 | | 48.0 | | | | | |
| | 120X96 | | 65.0 | | | | | |
| Dilute Flow | 72X72 | 30 | 35.5 | | | | | |
| | 84X84 | | 56.8 | | | | | |
| | 96X96 | | 85.2 | | | | | |
| | 120X96 | | 115.3 | | | | | |
| Slow Rinse | 72X72 | 10 | 35.5 | | | | | |
| | 84X84 | | 56.8 | | | | | |
| | 96X96 | | 85.2 | | | | | |
| | 120X96 | | 115.3 | | | | | |
| Fast Rinse* | 72X72 | 15 | Service Flow Rate | | | | | |
| | 84X84 | | | | | | | |
| | 96X96 | | | | | | | |
| | 120X96 | | | | | | | |

* Outlet Valve is provided with an adjustable travel stopped valve to be field set based on water temperature.

Per nitrate resin requirements

CUSTOMER CONNECTION SPECIFICATIONS:

PLUS

All connections are Class 150, PVC flanges or equivalent, unless otherwise noted.

| | Config | 72 x 72 | 84 x 84 | 96 x 96 | 120 x 96 |
|------------------------|--------|------------|---------|---------|----------|
| Service Inlet & Outlet | S** | 6" | 6" | 6" | 8" |
| Drain | All | 6" | 6" | 6" | 8" |
| Brine Inlet* | All | 2" | 2" | 3" | 3" |
| PSV Outlet | All | 1-1/4" FPT | | | |
| Vent Outlet | All | 3" | | | |

* One brine connection per vessel.

** S is simplex. For Duplex systems and Triplex systems, the interconnect piping must be sized for the specific application and is provided by others.

DELUXE AND SELECT

All connections are Class 150, 316L SS flanges or equivalent, unless otherwise noted.

| | Config | 72 x 72 | 84 x 84 | 96 x 96 | 120 x 96 |
|------------------------|--------|------------|---------|---------|----------|
| Service Inlet & Outlet | S** | 4" | 6" | 6" | 8" |
| Drain*** | All | 4" | 6" | 6" | 8" |
| Brine Inlet* | All | 2" | 2" | 3" | 3" |
| PSV Outlet | All | 1-1/4" FPT | | | |
| Vent Outlet | All | 3" | | | |

* One brine connection per vessel.

** S is simplex. For Duplex systems and Triplex systems, the interconnect piping must be sized for the specific application and is provided by others.

*** For Duplex and Triplex Select systems, the connections are grooved connections (Victaulic®)

BRINE PUMP SKID

| | 72 x 72 | 84 x 84 | 96 x 96 | 120 x 96 |
|--------------|----------------------|---------|--------------------|----------|
| Brine Inlet | 1.5" 150# PVC Flange | | 2" 150# PVC Flange | |
| Dilute Inlet | 1.5" 150# PVC Flange | | 2" 150# PVC Flange | |
| Outlet | 2" 150# PVC Flange | | 3" 150# PVC Flange | |

UTILITY REQUIREMENTS:

| | 72 x 72 | 84 x 84 | 96 x 96 | 120 x 96 |
|----------------------------|---|---------|---------|----------|
| Ambient air limitation | 100°F maximum for all trim packages | | | |
| Electrical service | 120 VAC/1 Phase/60 Hz/10 Full Load Amps | | | |
| Brine pump skid electrical | 120 VAC/1 Phase/60 Hz/19.4 Full Load Amps | | | |
| Feedwater pressure range | All - 45 psig minimum Plus, Deluxe, and Select - 90 psig maximum recommended to prevent premature discharge of pressure relief valve | | | |
| Air | 2 scfm @ 80 – 100 psig clean, oil-free, dry air | | | |
| Drain requirements | Floor & waste drains for general maintenance purposes | | | |
| Maximum Drainage (gpm)* | 212 | 289 | 377 | 589 |

* Based on worst case backwash flow at elevated temperature.

PHYSICAL DIMENSION SPECIFICATIONS:

NOTE: *Dimensions are for a simplex unit and do not include operating space requirements. All weights are approximate and are based on the heaviest options.*

SOFTENER PLUS MODELS

| | Config | LENGTH | WIDTH | HEIGHT | SHIP HT. | SHIPPING WEIGHT** | OPERATING WEIGHT |
|---------|--------|------------|------------|------------|--------------|-------------------|------------------|
| | | (in / mm) | (in / mm) | (in / mm) | (in / mm) | (lbs / kg) | (lbs / kg) |
| 72x72* | S | 86 / 2184 | 101 / 2565 | 148 / 3759 | 128 / 3251 | 3888 / 1767 | 16273 / 7397 |
| 84x84* | S | 97 / 2464 | 109 / 2769 | 163 / 4140 | 109* / 2769* | 5389 / 2450 | 24976 / 11354 |
| 96x96* | S | 117 / 2972 | 125 / 3175 | 178 / 4521 | 125* / 3175* | 7411 / 3369 | 36278 / 16491 |
| 120x96* | S | 129 / 3277 | 144 / 3658 | 188 / 4775 | 129* / 3277* | 9900 / 4500 | 55007 / 25004 |

* = Dimensions are for a single unit. Overall dimensions are determined by installation.

** Dry unit without media

SOFTENER DELUXE & SELECT MODELS

| | Config | LENGTH | WIDTH | HEIGHT | SHIP HT. | SHIPPING WEIGHT** | OPERATING WEIGHT |
|---------|--------|------------|------------|------------|------------|-------------------|------------------|
| | | (in / mm) | (in / mm) | (in / mm) | (in / mm) | (lbs / kg) | (lbs / kg) |
| 72x72* | HF | 84 / 2134 | 92 / 2337 | 148 / 3759 | 128 / 3251 | 4065 / 1848 | 16450 / 7478 |
| 84x84* | HF | 95 / 2413 | 106 / 2692 | 163 / 4140 | 106 / 2692 | 5896 / 2680 | 25483 / 11584 |
| 96x96* | HF | 115 / 2921 | 113 / 2870 | 178 / 4521 | 113 / 2870 | 7964 / 3620 | 36831 / 16742 |
| 120x96* | HF | 138 / 3505 | 146 / 3708 | 188 / 4775 | 146 / 3708 | 10696 / 4862 | 55803 / 25366 |

* = Dimensions are for a single unit. Overall dimensions are determined by installation.

** Dry unit without media

Brine Pumping Skids

| | LENGTH | WIDTH | HEIGHT | WEIGHT | OPERATING WEIGHT |
|-----------------------------|-------------|---------------|-----------------|------------|------------------|
| | (in / mm) | (in / mm) | (in / mm) | (lbs / kg) | (lbs / kg) |
| 72"-84" Diameter Softeners | 48" / 1,219 | 36-3/8" / 924 | 53-3/16" / 1351 | 428 / 194 | 503 / 228 |
| 96"-120" Diameter Softeners | 48" / 1,219 | 36-3/8" / 924 | 53-1/4" / 1353 | 458 / 208 | 593 / 269 |

ORDERING INFORMATION MATRIX

Vantage® PreTreatment - Industrial (PTI) Softener

| | | | | | | | |
|---|---|------|---|---|---|-------|---|
| Sample Part Number: | | PTIS | D | S | N | 96X96 | A |
| PTIS | Vantage® PTI Softener | | | | | | |
| TRIM PACKAGE | | | | | | | |
| P | PLUS - (PVC piping, PLC/HMI) | | | | | | |
| D | DELUXE - (316L SS piping, PVC Internals, PLC/HMI) | | | | | | |
| S | SELECT - (316L SS piping & internal dist, PLC HMI) | | | | | | |
| SYSTEM CONFIGURATION | | | | | | | |
| S | SIMPLEX | | | | | | |
| D | DUPLEX | | | | | | |
| T | TRIPLEX (Plus, Deluxe, and Select Only) | | | | | | |
| VESSEL CODE | | | | | | | |
| N | NON-CODE | | | | | | |
| A | ASME Section VIII Div 1 (Plus, Deluxe, and Select Only) | | | | | | |
| VESSEL (Diameter x Shell Height) | | | | | | | |
| 72X72 | 72" Dia X 72" Side Sheet | | | | | | |
| 84X84 | 84" Dia X 84" Side Sheet | | | | | | |
| 96X96 | 96" Dia X 96" Side Sheet | | | | | | |
| 12096 | 120" Dia X 96" Side Sheet | | | | | | |
| Controls | | | | | | | |
| A | Allen-Bradley Controls | | | | | | |
| S | Siemens Controls | | | | | | |

Media is not provided with the PTI unit. It must be ordered as separate PO line items. Please reference the Media Ordering Guide on the next page for types and quantities.

MEDIA ORDERING GUIDE (Separate PO line Items)

| Config | Media Type | Part Number | Plus/Deluxe/Select Trim Media Quantities (cubic feet) | | | |
|---------|------------------|-------------|---|---------|---------|----------|
| | | | 72 x 72 | 84 x 84 | 96 x 96 | 120 x 96 |
| SIMLEX | Resin (C-211 Na) | W2T853650 | 99 | 157 | 236 | 368 |
| | Quartz #4 | W2T126734 | 7 | 9 | 12 | 18 |
| | ¼" by ⅛" Quartz | W2T126742 | 34 | 51 | 72 | 130 |
| DUPLEX | Resin (C-211 Na) | W2T853650 | 198 | 314 | 472 | 736 |
| | Quartz #4 | W2T126734 | 14 | 18 | 24 | 36 |
| | ¼" by ⅛" Quartz | W2T126742 | 68 | 102 | 144 | 260 |
| TRIPLEX | Resin (C-211 Na) | W2T853650 | 297 | 471 | 708 | 1104 |
| | Quartz #4 | W2T126734 | 21 | 27 | 36 | 54 |
| | ¼" by ⅛" Quartz | W2T126742 | 102 | 153 | 216 | 390 |

Actual installation quantities and procedure are located in the *Vessel Loading* section of the Operations and Maintenance Manual.

OPTION KITS (Separate PO line Items)

| Option | Option Kit # | Description |
|------------------------------|--------------|---|
| Hardness Monitor | W3T81708 | Hach SP-510 Option kit for Plus and Deluxe Trim Packages |
| Pressure Differential Switch | W3T81815 | Ashcroft, Differential Pressure Switch with PVC isolation valves, 316ss process connections and diaphragm, ¼" NPT |

Appendix G. Clarifications-Exceptions

Equipment, materials and services by the Purchaser shall consist of, but not be limited to the following:

- All applicable taxes, bonds and special insurance
- All Permits and Permit Documentation
- All installation engineering
- All installation including civil, mechanical, structural and electrical
- Interconnecting piping, valves, fittings and supports outside the treatment system battery limits, except as provided in this proposal
- Interconnecting chemical piping, valves, fittings and supports within the treatment system battery limits
- Interconnecting conduit, wiring, junction boxes and supports
- Installation of heat tracing and insulation
- All manual valves unless otherwise noted above
- All transformers and switchgear
- All motor control centers
- All plant and area lighting
- 480 volt, 60 hertz, 3 phase electric power supply
- 120 volt, 60 hertz, 1 phase electric power supply
- All touch up painting
- Building and equipment covers; design and construction
- Any double containment required
- All cooling, heating and freeze protection
- All poured-in-place concrete
- All anchor bolts – Evoqua to provide anchoring system engineering design (PE Stamped) for their scope of supplied equipment.
- All grouts and sealant
- Chemical spill pallets and secondary containment
- All utilities including (but not limited to): power, compressed air, service water
- All equipment, materials and services not specifically called out above
- Integration of any documentation with customer-supplied equipment and/or existing treatment system
- Field Supervision – During Construction
- All unloading, storage and accounting of all equipment and materials provided by Evoqua Water Technologies
- Monorails and hoists required for maintenance or seller furnished equipment
- Water for hydro-testing and disposal of test water
- All start-up / operating chemicals reagents and lubricants
- Consumables (such as any chemicals or replacement media that may be required)
- Installation and installation related materials
- Installation of media
- Motor starters and/or VFD's
- Peripheral equipment not listed in the Scope of Supply

Commercial Clarifications and Exceptions

This proposal is based on Evoqua Standard Terms of Sales as set forth in Appendix H

Appendix H. Terms & Conditions

EVOQUA WATER TECHNOLOGIES LLC Standard Terms of Sale 2015-05-01

1. Applicable Terms. These terms govern the purchase and sale of equipment, products, related services, leased products, and media goods if any (collectively herein "Work"), referred to in Seller's proposal ("Seller's Documentation"). Whether these terms are included in an offer or an acceptance by Seller, such offer or acceptance is expressly conditioned on Buyer's assent to these terms. Seller rejects all additional or different terms in any of Buyer's forms or documents.
2. Payment. Buyer shall pay Seller the full purchase price as set forth in Seller's Documentation. Unless Seller's Documentation specifically provides otherwise, freight, storage, insurance and all taxes, levies, duties, tariffs, permits or license fees or other governmental charges relating to the Work or any incremental increases thereto shall be paid by Buyer. If Seller is required to pay any such charges, Buyer shall immediately reimburse Seller. If Buyer claims a tax or other exemption or direct payment permit, it shall provide Seller with a valid exemption certificate or permit and indemnify, defend and hold Seller harmless from any taxes, costs and penalties arising out of same. All payments are due within 30 days after receipt of invoice. Buyer shall be charged the lower of 1 ½% interest per month or the maximum legal rate on all amounts not received by the due date and shall pay all of Seller's reasonable costs (including attorneys' fees) of collecting amounts due but unpaid. All orders are subject to credit approval by Seller. Back charges without Seller's prior written approval shall not be accepted.
3. Delivery. Delivery of the Work shall be in material compliance with the schedule in Seller's Documentation. Unless Seller's Documentation provides otherwise, delivery terms are ExWorks Seller's factory (Incoterms 2010). Title to all Work shall pass upon receipt of payment for the Work under the respective invoice. Unless otherwise agreed to in writing by Seller, shipping dates are approximate only and Seller shall not be liable for any loss or expense (consequential or otherwise) incurred by Buyer or Buyer's customer if Seller fails to meet the specified delivery schedule.
4. Ownership of Materials and Licenses. All devices, designs (including drawings, plans and specifications), estimates, prices, notes, electronic data, software and other documents or information prepared or disclosed by Seller, and all related intellectual property rights, shall remain Seller's property. Seller grants Buyer a non-exclusive, non-transferable license to use any such material solely for Buyer's use of the Work. Buyer shall not disclose any such material to third parties without Seller's prior written consent. Buyer grants Seller a non-exclusive, non-transferable license to use Buyer's name and logo for marketing purposes, including but not limited to, press releases, marketing and promotional materials, and web site content.
5. Changes. Neither party shall implement any changes in the scope of Work described in Seller's Documentation without a mutually agreed upon change order. Any change to the scope of the Work, delivery schedule for the Work, any Force Majeure Event, any law, rule, regulation, order, code, standard or requirement which requires any change hereunder shall entitle Seller to an equitable adjustment in the price and time of performance.
6. Force Majeure Event. Neither Buyer nor Seller shall have any liability for any breach or delay (except for breach of payment obligations) caused by a Force Majeure Event. If a Force Majeure Event exceeds six (6) months in duration, the Seller shall have the right to terminate the Agreement without liability, upon fifteen (15) days written notice to Buyer, and shall be entitled to payment for work performed prior to the date of termination. "Force Majeure Event" shall mean events or circumstances that are beyond the affected party's control and could not reasonably have been easily avoided or overcome by the affected party and are not substantially attributable to the other party. Force Majeure Event may include, but is not limited to, the following circumstances or events: war, act of foreign enemies, terrorism, riot, strike, or lockout by persons other than by Seller or its sub-suppliers, natural catastrophes or (with respect to on-site work), unusual weather conditions.
7. Warranty. Subject to the following sentence, Seller warrants to Buyer that the (i) Work shall materially conform to the description in Seller's Documentation and shall be free from defects in material and workmanship and (ii) the Services shall be performed in a timely and workmanlike manner. Determination of suitability of treated water for any use by Buyer shall be the sole and exclusive responsibility of Buyer. The foregoing warranty shall not apply to any Work that is specified or otherwise demanded by Buyer and is not manufactured or selected by Seller, as to which (i) Seller hereby assigns to Buyer, to the extent assignable, any warranties made to Seller and (ii) Seller shall have no other liability to Buyer under warranty, tort or any other legal theory. The Seller warrants the Work, or any components thereof, through the earlier of (i) eighteen (18) months from delivery of the Work or (ii) twelve (12) months from initial

operation of the Work or ninety (90) days from the performance of services (the “Warranty Period”). If Buyer gives Seller prompt written notice of breach of this warranty within the Warranty Period, Seller shall, at its sole option and as Buyer’s sole and exclusive remedy, repair or replace the subject parts, re-perform the Service or refund the purchase price. Unless otherwise agreed to in writing by Seller, (i) Buyer shall be responsible for any labor required to gain access to the Work so that Seller can assess the available remedies and (ii) Buyer shall be responsible for all costs of installation of repaired or replaced Work. If Seller determines that any claimed breach is not, in fact, covered by this warranty, Buyer shall pay Seller its then customary charges for any repair or replacement made by Seller. Seller’s warranty is conditioned on Buyer’s (a) operating and maintaining the Work in accordance with Seller’s instructions, (b) not making any unauthorized repairs or alterations, and (c) not being in default of any payment obligation to Seller. Seller’s warranty does not cover (i) damage caused by chemical action or abrasive material, misuse or improper installation (unless installed by Seller) and (ii) media goods (such as, but not limited to, resin, membranes, or granular activated carbon media) once media goods are installed. THE WARRANTIES SET FORTH IN THIS SECTION 7 ARE THE SELLER’S SOLE AND EXCLUSIVE WARRANTIES AND ARE SUBJECT TO THE LIMITATION OF LIABILITY PROVISION BELOW. SELLER MAKES NO OTHER WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR PURPOSE.

8. **Indemnity.** Seller shall indemnify, defend and hold Buyer harmless from any claim, cause of action or liability incurred by Buyer as a result of third party claims for personal injury, death or damage to tangible property, to the extent caused by Seller’s negligence. Seller shall have the sole authority to direct the defense of and settle any indemnified claim. Seller’s indemnification is conditioned on Buyer (a) promptly, within the Warranty Period, notifying Seller of any claim, and (b) providing reasonable cooperation in the defense of any claim.

9. **Assignment.** Neither party may assign this Agreement, in whole or in part, nor any rights or obligations hereunder without the prior written consent of the other party; provided, however, the Seller may assign its rights and obligations under these terms to its affiliates or in connection with the sale or transfer of the Seller’s business and Seller may grant a security interest in the Agreement and/or assign proceeds of the agreement without Buyer’s consent.

10. **Termination.** Either party may terminate this agreement, upon issuance of a written notice of breach and a thirty (30) day cure period, for a material breach (including but not limited to, filing of bankruptcy, or failure to fulfill the material obligations of this agreement). If Buyer suspends an order without a change order for ninety (90) or more days, Seller may thereafter terminate this Agreement without liability, upon fifteen (15) days written notice to Buyer, and shall be entitled to payment for work performed, whether delivered or undelivered, prior to the date of termination.

11. **Dispute Resolution.** Seller and Buyer shall negotiate in good faith to resolve any dispute relating hereto. If, despite good faith efforts, the parties are unable to resolve a dispute or claim arising out of or relating to this Agreement or its breach, termination, enforcement, interpretation or validity, the parties will first seek to agree on a forum for mediation to be held in a mutually agreeable site. If the parties are unable to resolve the dispute through mediation, then any dispute, claim or controversy arising out of or relating to this Agreement or the breach, termination, enforcement, interpretation or validity thereof, including the determination of the scope or applicability of this agreement to arbitrate, shall be determined by arbitration in Pittsburgh, Pennsylvania before three arbitrators who are lawyers experienced in the discipline that is the subject of the dispute and shall be jointly selected by Seller and Buyer. The arbitration shall be administered by JAMS pursuant to its Comprehensive Arbitration Rules and Procedures. The Arbitrators shall issue a reasoned decision of a majority of the arbitrators, which shall be the decision of the panel. Judgment may be entered upon the arbitrators’ decision in any court of competent jurisdiction. The substantially prevailing party as determined by the arbitrators shall be reimbursed by the other party for all costs, expenses and charges, including without limitation reasonable attorneys’ fees, incurred by the prevailing party in connection with the arbitration. For any order shipped outside of the United States, any dispute shall be referred to and finally determined by the International Center for Dispute Resolution in accordance with the provisions of its International Arbitration Rules, enforceable under the New York Convention (Convention on the Recognition and Enforcement of Foreign Arbitral Awards) and the governing language shall be English.

12. **Export Compliance.** Buyer acknowledges that Seller is required to comply with applicable export laws and regulations relating to the sale, exportation, transfer, assignment, disposal and usage of the Work provided under this Agreement, including any export license requirements. Buyer agrees that such Work shall not at any time directly or indirectly be used, exported, sold, transferred, assigned or otherwise disposed of in a manner which will result in non-compliance with such applicable export laws and regulations. It shall be a condition of the continuing performance by Seller of its obligations hereunder that compliance with such export laws and regulations be maintained at all times. BUYER AGREES TO INDEMNIFY AND HOLD SELLER HARMLESS FROM ANY AND ALL COSTS, LIABILITIES, PENALTIES, SANCTIONS AND FINES RELATED TO NON-COMPLIANCE WITH APPLICABLE EXPORT LAWS AND REGULATIONS.

13. LIMITATION OF LIABILITY. NOTWITHSTANDING ANYTHING ELSE TO THE CONTRARY, SELLER SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, PUNITIVE OR OTHER INDIRECT DAMAGES, AND SELLER'S TOTAL LIABILITY ARISING AT ANY TIME FROM THE SALE OR USE OF THE WORK, INCLUDING WITHOUT LIMITATION ANY LIABILITY FOR ALL WARRANTY CLAIMS OR FOR ANY BREACH OR FAILURE TO PERFORM ANY OBLIGATION UNDER THE CONTRACT, SHALL NOT EXCEED THE PURCHASE PRICE PAID FOR THE WORK. THESE LIMITATIONS APPLY WHETHER THE LIABILITY IS BASED ON CONTRACT, TORT, STRICT LIABILITY OR ANY OTHER THEORY.

14. Rental Equipment / Services. Any leased or rented equipment ("Leased Equipment") provided by Seller shall at all times be the property of Seller with the exception of certain miscellaneous installation materials purchased by the Buyer, and no right or property interest is transferred to the Buyer, except the right to use any such Leased Equipment as provided herein. Buyer agrees that it shall not pledge, lend, or create a security interest in, part with possession of, or relocate the Leased Equipment. Buyer shall be responsible to maintain the Leased Equipment in good and efficient working order. At the end of the initial term specified in the order, the terms shall automatically renew for the identical period unless canceled in writing by Buyer or Seller not sooner than three (3) months nor later than one (1) month from termination of the initial order or any renewal terms. Upon any renewal, Seller shall have the right to issue notice of increased pricing which shall be effective for any renewed terms unless Buyer objects in writing within fifteen (15) days of issuance of said notice. If Buyer timely cancels service in writing prior to the end of the initial or any renewal term this shall not relieve Buyer of its obligations under the order for the monthly rental service charge which shall continue to be due and owing. Upon the expiration or termination of this Agreement, Buyer shall promptly make any Leased Equipment available to Seller for removal. Buyer hereby agrees that it shall grant Seller access to the Leased Equipment location and shall permit Seller to take possession of and remove the Leased Equipment without resort to legal process and hereby releases Seller from any claim or right of action for trespass or damages caused by reason of such entry and removal.

15. Miscellaneous. These terms, together with any Contract Documents issued or signed by the Seller, comprise the complete and exclusive statement of the agreement between the parties (the "Agreement") and supersede any terms contained in Buyer's documents, unless separately signed by Seller. No part of the Agreement may be changed or cancelled except by a written document signed by Seller and Buyer. No course of dealing or performance, usage of trade or failure to enforce any term shall be used to modify the Agreement. To the extent the Agreement is considered a subcontract under Buyer's prime contract with an agency of the United States government, in case of Federal Acquisition Regulations (FARs) flow down terms, Seller will be in compliance with Section 44.403 of the FAR relating to commercial items and those additional clauses as specifically listed in 52.244-6, Subcontracts for Commercial Items (OCT 2014). If any of these terms is unenforceable, such term shall be limited only to the extent necessary to make it enforceable, and all other terms shall remain in full force and effect. The Agreement shall be governed by the laws of the Commonwealth of Pennsylvania without regard to its conflict of laws provisions. Both Buyer and Seller reject the applicability of the United Nations Convention on Contracts for the international sales of goods to the relationship between the parties and to all transactions arising from said relationship.

Appendix I. Evoqua Company Overview

Evoqua is the global leader in helping industrial customers protect and improve the world’s most fundamental natural resource: water. We have a more than 100-year heritage of innovation and industry firsts, market-leading expertise, and unmatched customer service. Our cost-effective and reliable treatment systems and services ensure uninterrupted quantity and quality of water, enable regulatory and environmental compliance, increase efficiency through water reuse, and prepare customers for next-generation demands.

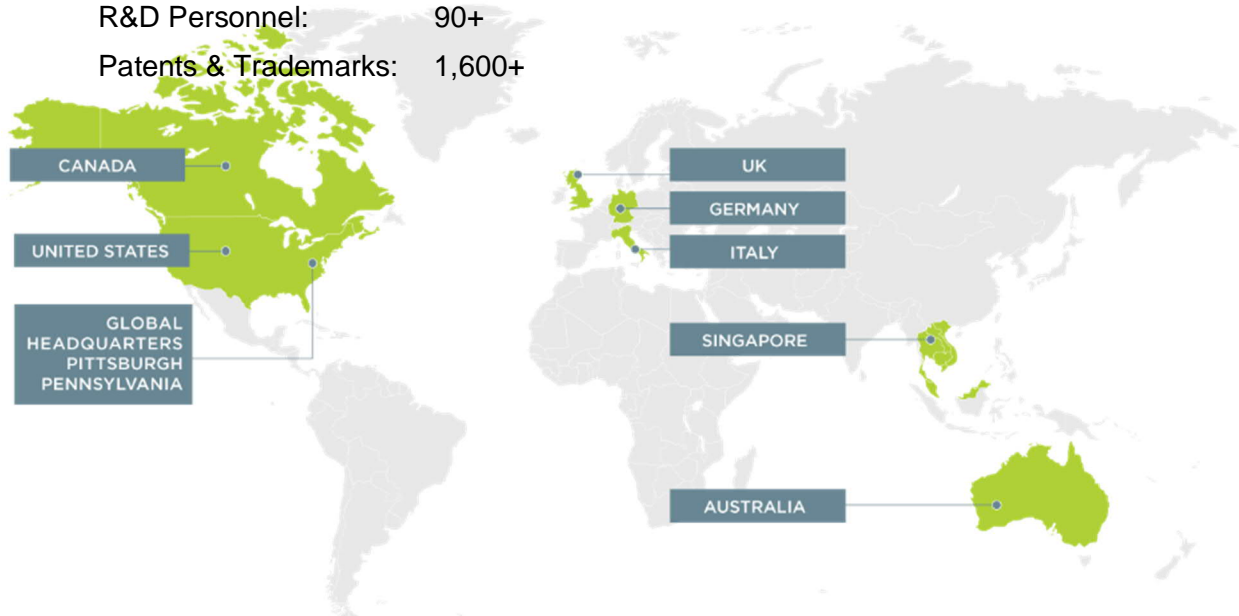
Evoqua’s unparalleled portfolio of proven brands, advanced technologies, mobile and emergency water supply solutions and service helps cities across the world provide and discharge clean water and we enable commercial industry to maximize productivity and profitability.

Every day, millions of people and thousands of companies rely on Evoqua to help them meet their needs for clean water.

For more information on Evoqua please visit our website at evoqua.com

WORLDWIDE: KEY FACTS

| | |
|--------------------------|---|
| Global Locations: | 170+ locations including larger operations in those countries highlighted below |
| Primary Markets: | Power, chemical processing, hydrocarbon processing, food and beverage, mining, oil and gas, life sciences, marine and microelectronics. |
| Municipal: | Water and wastewater treatment. |
| Global Service Network: | 145+ service sites in seven countries |
| Number of Installations: | 200,000+ |
| Service Offerings: | 900+ |
| Worldwide Employees: | 4,000+ |
| R&D Personnel: | 90+ |
| Patents & Trademarks: | 1,600+ |



Product and Service Portfolio

- Broad technological competence
- Extensive U.S. service network operating over 800 long-term, short-term and build-own-operate contracts out of >90 local service branches
- Mobile services including clarification, media and membrane filtration, softening, reverse osmosis and demineralization
- Diversified customer base of industrial customers in both process water and wastewater.

Manufacturing Locations and Capabilities

| Manufacturing Facility | Skid Assembly | Final Assembly Large Systems | Customer Electrical Panel Assembly | Painting, Plating and/or Coating Materials | Fabrication and/or Welding Large Structures | Light Assembly & Membranes | Specialized Stainless Pipe Welding | Warehousing & Logistics Center |
|------------------------|---------------|------------------------------|------------------------------------|--|---|----------------------------|------------------------------------|--------------------------------|
| Colorado Springs, CO | X | X | X | | | X | X | X |
| Union, NJ | | | | X | | X | | |
| Holland, MI | X | X | X | X | X | X | X | X |
| Lowell, MA | | | | | | X | | |
| Thomasville, GA | X | X | | X | X | | X | X |
| Beaver Dam, WI | | | X | | | X | | X |
| Bridgeport, CT | | | | X | X | | | |
| Benicia, CA | | | X | | | X | X | |
| Red Bluff, CA | X | | | X | X | | X | |
| Caldicot, UK | X | X | | X | | X | | X |
| Guenzberg, DE | X | X | X | | | X | | X |
| Schiedam, NL | | | | X | | X | | |
| Suzhou, CN | | | | X | | x | | |

Evoqua Service Branch Locations

Unmatched service and support network...



Service advantages

- ~4x the size of nearest competitor⁽¹⁾
- 2 hours from ~ 90% of industrial customers
- ~670 field technicians⁽²⁾
- 97 U.S. service branches⁽²⁾

(1) Management estimates.
 (2) As of 9/30/2019.



On-demand services
 (As needed)



Preventative maintenance
 (Quarterly to monthly)



Operating services
 (Weekly to daily)



WaterOne® services
 (per usage)

Appendix J. Safety and EH&S

ENVIRONMENT, HEALTH AND SAFETY

OUR BLENDED APPROACH

Evoqua Safety Process (ESP) and EHS Management System

EVOQUA SAFETY PROCESS (ESP)

ESP is a system to prevent or reduce injuries using a mobile platform of behavior-based tools along with proven management techniques. The objective is to eliminate undesirable behaviors which can lead to incidents. The program includes:

- Pre-Job task review (TAKE 2)
- Standard Work Instruction
- Mobile based Safety Tools
- Behavior Observations
- Incident Investigations
- Organizational Engagement

ENVIRONMENT, HEALTH & SAFETY SYSTEM

At Evoqua, the EHS Management System (SMS) outlines our program elements of how we integrate EHS into the business. Our EHS Leadership and engagement networks are embedded in our culture and corporate strategy. Basic elements of this program include:

- Leadership Commitment
- Organizational Roles & Responsibilities
- Planning
- Communication & Participation
- Governance & Oversight



Evoqua empowers all employees to work safely and prevent injuries. The primary tool our employees utilize to ensure safe working conditions is the TAKE 2 process and STOP WORK. All employees are trained to perform a TAKE 2 which mandates that before beginning any activity, task or job each employee shall:

- Assess the Risk
- Analyze How to Reduce the Risk
- Act to Ensure Safe Operations

Every Evoqua employee has the right, authority and responsibility to stop any unsafe work without repercussion

Appendix K. Components and Certifications

The following is a list of the components proposed for La Puente and the certifications associated with each component.

| Component | Trade Name / Manufacturer / Material | Type of Certification |
|--|---|---|
| Triplex Nitrogen Removal System | | |
| Media | Dow PWA-5 Quartz #4 1/4"x1/8" Quartz | NSF-61 ¹ NSF-61 NSF-61 |
| Vessels | Lined with NSF material | Lining is NSF-61 ¹ |
| Manway, Flange Gaskets | EPDM | None ² |
| Resin Strainer | 6" CPVC or 316SS | NSF-61 approved fittings and pipe |
| Process Valves | Bray Series 31 | NSF-61 ¹ |
| Face Piping | SCH80PVC | NSF-61 approved fittings and pipe |
| Internals | 316SS multi-point distributor 316SS hub and radial | NSF-61 approved fittings and pipe |
| Pressure Gauges | 316SS, 63mm dial, FDA Approved glycerin filled 1/4" NPT | NSF-61 |
| Paddle Wheel Sensors | Signet 2536 paddlewheel | NSF-61 (3-2536-PX) |
| Nitrate Analyzers | Hach Nitrax Plus Sc | N/A ³ , slip-stream to drain |
| Differential Pressure Switch | Ashcroft with PVC isolation valves, 316SS process connections and diaphragm | N/A ³ |
| Inlet Sample | PVC Ball Valve | NSF-61 |
| Product & Drain Sample | PVC Ball Valve | NSF-61 |
| Brine Maker System | | |
| Brine Maker | Lined with NSF material | Lining is NSF-61 ¹ |
| Level Control | Pressure transducer | NSF-61 |
| Media | Salt Gravel | NSF-61 NSF-61 |
| Inlet Valve | Bray Series 31 | NSF-61 ¹ |
| Isolation Valves | Bray Series 31 | NSF-61 ¹ |
| Brine Pump Skid | | |
| Brine Pumps | Grundfos CRT4-2, 1 HP All wetted parts are titanium | None ² |
| Valves | PVC Ball Valve | NSF-61 |
| Process Piping | SCH80PVC | NSF-61 approved fittings and pipe |
| Rotameter | King Instruments 7200 series rotameter or equal | NSF-61 ¹ |
| Duplex Softener System | | |

| Component | Trade Name / Manufacturer / Material | Type of Certification |
|---------------------------------------|--|---|
| Media | Dow PWA-5 Quartz #4 1/4"x1/8" Quartz | NSF-61 ¹ NSF-61 NSF-61 |
| Vessels | Lined with NSF material | Lining is NSF-61 |
| Manway, Flange Gaskets | EPDM | None ² |
| Resin Strainer | CPVC or 316SS | NSF-61 approved fittings and pipe |
| Process Valves | Bray Series 31 | NSF-61 ¹ |
| Face Piping | Schedule 80 PVC | NSF-61 approved fittings and pipe |
| Internals | SCH80PVC single point distributor SCH80PVC hub and radial | NSF-61 approved fittings and pipe |
| Pressure Gauges | 316SS, 63mm dial, FDA Approved glycerin filled 1/4" NPT | NSF-61 ¹ |
| Paddle Wheel Sensors | Signet 2536 paddlewheel | NSF-61 (3-2536-PX) |
| Pressure Gauges | 316 SS, FDA approved glycerin filled | N/A ³ |
| Hardness Monitor | Hach SP-510 | N/A ³ , slip-stream to drain |
| Inlet Sample Valve | PVC Ball Valve | NSF-61 ¹ |
| Product and Drain Sample Valve | PVC Ball Valve | NSF-61 ¹ |
| Duplex Softener – Brine System | | |
| Brine Tank | HDPE | NSF-61 |
| Brine Level Switch | | NSF-61 |
| Brine Eductor | SCH80PVC | None ² |
| Media | Salt Gravel | NSF-61 NSF-61 |
| Pressure Regulating Valve | Brass wetted parts | |
| Pressure Gauge | 316 SS, FDA approved glycerin filled | N/A ³ |
| Isolation Valves | PVC Ball Valve | NSF-61 ¹ |
| Brine Inlet Valve | Bray Series 31 | NSF-61 ¹ |

1. Certification can be provided upon request
2. No certification, but typical for drinking water systems.
3. Not a wetted component.

Appendix L. Basis of Design / Performance Guarantee

This section details the basis of design for the two nitrate treatment vessels (the “System”) offered by Evoqua to La Puente Valley County Water District (the “Owner” and/or “Purchaser”) for the System.

L.1. Design Requirements

The System as fully described in this proposal is based upon the design criteria and design assumptions stated in Table 1.1.

| Table 1.1 Design Criteria and Assumptions | |
|--|--|
| Influent Water Source | Well Water |
| Influent Water Pressure: Minimum Maximum | 30 psig 90 psig |
| Influent Water Temperature: Minimum Maximum | 50 degrees F 80 degrees F |
| Treated Water Flow Rate (per vessel): Minimum Maximum / Design | 115 gpm 338 gpm |
| Instrument Air: Pressure Temperature Dew Point | 80-100 psig < 100 degrees F -40 degrees F |
| Chemical Concentrations: Salt | Granulated or evaporated with <0.6% total hardness on dry basis and <2% water insoluble impurities |
| Incoming Power: Controls Pumps | 120-Volt, 1-Phase, 60-Hertz 480-Volt, 3-Phase, 60-Hertz |
| Seismic Zone | Anchor Bolts only |
| Location | Indoors / Outdoors |
| Ambient Air Temperature: Indoors - Minimum / Maximum | 50 degrees F / 110 degrees F |
| Plant Elevation (Above Mean Sea Level) | 350 ft above sea level |
| Wind | Not applicable |
| Area Classification | Unclassified, Non-Hazardous |

L.2. Design Influent Water Characteristics

The Purchaser must ensure that all conditions set forth in this Section, including all the influent water parameters listed in Table 1.2, are met (the “Influent Characteristics”).

| Table 1.2 - Influent Characteristics | | | |
|---|---------------------------------|---------------------|----------------------|
| Parameter | Unit | Design Value | Maximum Value |
| Total Dissolved Solids (TDS) | mg/l | 493 ³ | 516.2 ³ |
| Total Hardness (as CaCO ₃) | mg/l | 218 ¹ | 215 ¹ |
| pH | Standard Units | 7.82 ¹ | 7.6-8.0 ¹ |
| Cations | | | |
| Ammonium | mg/l | ND ¹ | |
| Barium | mg/l | 0.1 ¹ | 0.1 ¹ |
| Calcium | mg/l | 63.3 ¹ | 68.3 ¹ |
| Magnesium | mg/l | 14.5 ¹ | 15.4 ¹ |
| Sodium | mg/l | 22.5 ¹ | 25 ¹ |
| Potassium | mg/l | 2.7 ¹ | 3 ¹ |
| Strontium | µg/l | 12.1 ¹ | |
| Total Cations | mg/L as CaCO₃ | 328.7 | 349.3 |
| Anions | | | |
| Bicarbonate | mg/l as CaCO ₃ | 208 ³ | |
| Carbonate | mg/l as CaCO ₃ | 1.94 ³ | |
| Chloride | mg/l as CaCO ₃ | 27.6 ¹ | 33 ¹ |
| Sulfate | mg/l | 51.8 ¹ | 63 ¹ |
| Nitrate (NO ₃ as N) | mg/l | 10 ² | |
| Fluoride ⁻ | mg/l | 0.43 ¹ | 0.51 ¹ |
| Phosphate | mg/l | ND | |
| Total Anions | mg/L as CaCO₃ | 328.7 | 349.3 |
| Weak Anions | | | |
| Reactive Silica, SiO ₂ | mg/l | ND | |
| Carbon Dioxide, CO ₂ | mg/l | 6.3 ³ | 10.0 ³ |
| Notes: | | | |
| Value from 11-19-20 email from client | | | |
| Design Value | | | |
| Calculated | | | |

L.3. Effluent water quality

The System is capable in meeting the requirements set forth in Table 1.3 below (the “Effluent Water Quality Requirements”).

| Table 1.3 Effluent Water Quality Requirements | | |
|--|-------------|-------------------------|
| Parameter | Unit | Guaranteed Value |
| Nitrate (NO ₃ as N) – Blended Water | mg/l | < 7.8 ¹ |
| Notes: | | |
| 1. On-Line Instrumentation | | |

L.4. Regeneration Guarantee

The System is capable of meeting the regeneration characteristics set forth in Table 1.4 below (the “Regeneration Requirements”).

| Table 1.4 Regeneration Requirements | | |
|--|--|-------------------------|
| Parameter | Unit | Guaranteed Value |
| Average Regeneration Frequency | Number of Regenerations per Vessel per Day | 1 ¹ |
| Average Wastewater Volume | Gallons per day | < 19,250 ^{1,2} |
| Average Salt Usage | Pounds per day | < 3,390 ^{1,2} |
| Notes: | | |
| 1. Daily Average | | |
| 2. Value includes 10% safety factor | | |

The Regeneration Values defined in Table 1.4 will be calculated by logging the number of regeneration events, volume of wastewater produced, and amount of salt used over the 5-day period. The Average Values are defined by Calculations 1, 2, and 3 below:

$$\text{Average Regeneration Frequency} = \frac{\sum(\text{Number of Regenerations per Vessel})}{5 \text{ day test}} \quad (1)$$

$$\text{Average Wastewater Volume} = \frac{\sum(\text{Gallons of Wastewater produced})}{5 \text{ day test}} \quad (2)$$

$$\text{Average Salt Usage} = \frac{\sum(\text{Pounds of Salt Used})}{5 \text{ day test}} \quad (3)$$

L.5. Performance Guarantee

Evoqua guarantees that the System shall meet the Effluent Water Quality Requirements provided in Table 1.3 and the Regeneration Requirements provided in Table 1.4 (collectively, the “Requirements”) above provided that (A) the Influent Characteristics of the feed water to the System are as specified in Table 1.1 above and (B) the performance conditions set forth in Section 1.5 below (the “Performance Conditions”) are met (collectively, the “Performance Guarantee”). Evoqua shall have fulfilled its obligations under the Performance Guarantee at such time as the Performance Testing specified in Section L.7 below is satisfactorily completed and shall have no further obligations or liability of any kind under this Performance Guarantee.

L.6. Performance Conditions

The Performance Guarantee offered by Evoqua is subject to the following conditions. Evoqua shall be deemed to have satisfied all of its obligations under this Performance Guarantee if there are any deviations of the Performance Conditions and such deviations are not remedied by Purchaser in accordance with Section L.7 below.

1. Start-up assistance and testing is purchased from Evoqua and Performance Testing is scheduled when system achieves “steady state” performance, however in no event shall exceed six (6) months after delivery of the System.
2. The System is constructed and installed in accordance with Evoqua provided and LPVCWD approved process flow diagrams and P&IDs.
3. The constituent concentrations in the feed water shall not exceed the Influent Characteristics.
4. The feed water may not contain any substance or extreme physical conditions which may interfere with the treatment processes and/or cause damage to the treatment equipment.
5. The System shall be operated and maintained in accordance with the written procedures provided in the Evoqua-supplied operation and maintenance manual.
6. Evoqua’s personnel may supervise system equipment during the performance test.
7. After mechanical completion, the Purchaser’s and/or Owner’s operators shall begin their training by Evoqua personnel and shall be present starting at the pre-commissioning phase. Analytical test results used to validate the System’s Performance Guarantee and copies of the operator’s log shall be transmitted to Evoqua for review.
8. The influent temperature variation shall not exceed 2°F per hour.
9. The design requirements set forth in Table 1.1 above are accurate and met.

L.7. Performance Testing

After steady state conditions have been achieved for 30 days as defined by Evoqua, or 120 days from start of Service contract, whichever occurs first, five (5) 24-hour days of testing shall begin. The Purchaser shall operate the System during the Performance Testing, but Evoqua may have representatives present at all times during the Performance Testing.

Performance Testing shall consist of sample collection via discrete grab samples of the influent to the System and the treated effluent from the System. On-line instrumentation will also be evaluated and recorded. The analysis interval for collection of the water samples shall be equally spaced periods of time over the course of 24 hours. Samples shall be split in order for the Purchaser and Evoqua to have independent analyses conducted. When comparing influent and effluent test results, consideration of the residence time within the System shall be taken into consideration.

The test results from the third-party certified laboratory, along with the test results obtained by the Evoqua certified laboratory, shall be compiled into the performance test report, which shall be prepared by Evoqua. The performance test report shall list the daily influent / effluent test results, the indicate the average influent / effluent concentrations for the duration of the test, and the regeneration conditions and values.

The average values shall be used to evaluate the Influent Characteristics, Effluent Water Quality Requirements and the Regeneration Requirements.

L.8. Remedies for Breach of Performance Guarantee

If the System fails to comply with the Requirements during the Performance Testing set out above, for reasons other than the non-conformance of the Influent Characteristics or the Performance Conditions as set forth herein, Evoqua shall at its sole option and expense, at no additional cost to the Purchaser, make appropriate adjustments to the System and/or operation of the System prior to completing or restarting the Performance Testing sequence.. Once the System successfully completes the Performance Testing, Evoqua obligations under this Performance Guarantee shall be fully satisfied and Evoqua shall have no further obligations or liability of any kind under this Performance Guarantee.

If the System fails to meet the Requirements because of non-conformance of the Influent Characteristics or the Performance Conditions, the Purchaser shall have the opportunity to correct such non-conformance, at Purchaser's cost and reschedule the testing within one (1) month of the original test. In the event Purchaser is not able to remedy such non-conformance or failure to retest within the timeframe herein, Evoqua shall have no further obligations to Purchaser with respect to the Performance Guarantee, this Performance Guarantee shall be deemed fully satisfied and Purchaser shall release final payment to Evoqua as provided for in the Contract Documents.

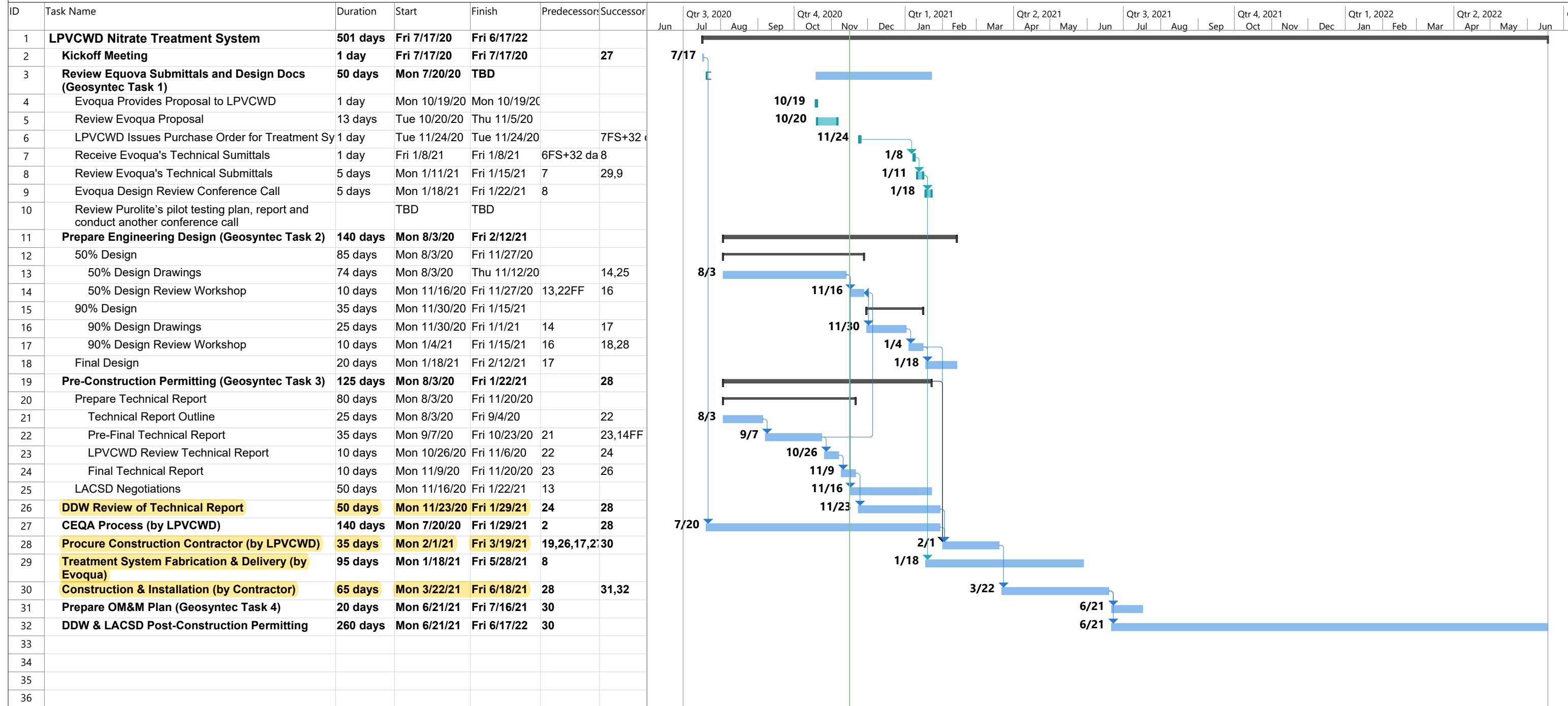
If the System continues to fail to comply with the Requirements, for reasons other than the non-conformance of the Influent Characteristics or the Performance Conditions, Evoqua shall at its sole option and expense, and as Purchaser's sole remedy hereunder, either: (a) repair, replace or modify the System as Evoqua deems appropriate; or (b) pay, in the form of liquidated damages, a lump sum amount equal to 15% of the price paid to Evoqua for the equipment, subject to the limitation on liability set forth below.

L.9. Limitations of Warranty and Liability

THE REMEDY PROVIDED TO PURCHASER ABOVE SHALL BE THE PURCHASER'S SOLE AND EXCLUSIVE REMEDY FOR ANY FAILURE BY EVOQUA TO SATISFY THE PERFORMANCE GUARANTEE. IN NO EVENT SHALL EVOQUA BE LIABLE FOR ANY INDIRECT, CONSEQUENTIAL, INCIDENTAL, SPECIAL, OR PUNITIVE DAMAGES. EVOQUA LIABILITY UNDER THIS PERFORMANCE GUARANTEE SHALL BE LIMITED TO DIRECT DAMAGES ONLY AND SHALL NOT EXCEED 15% OF THE CONTRACT VALUE. THIS LIMITATION ON WARRANTY LIABILITY IS A SUBSET OF THE TOTAL LIMITATION OF LIABILITY SET FORTH IN THE EQUIPMENT CONTRACT. THEREFORE, EVOQUA TOTAL CUMULATIVE LIABILITY UNDER THIS PERFORMANCE GUARANTEE AND THE EQUIPMENT CONTRACT, INCLUDING WITHOUT LIMITATION ANY LIABILITY FOR MECHANICAL WARRANTY CLAIMS OR FOR ANY BREACH OR FAILURE TO PERFORM ANY OBLIGATION UNDER THE EQUIPMENT CONTRACT, SHALL NOT EXCEED THE LIABILITY LIMITATION SET FORTH IN THE EQUIPMENT CONTRACT. THE FOREGOING LIMITATIONS APPLY REGARDLESS OF WHETHER THE LIABILITIES OR DAMAGES ARISE, OR ARE ALLEGED TO ARISE, UNDER CONTRACT, TORT, STRICT LIABILITY OR ANY OTHER THEORY.

OTHER THAN THE EXPRESS GUARANTEE PROVIDED IN THIS PERFORMANCE GUARANTEE DOCUMENT, AND THE MECHANICAL WARRANTY CONTAINED IN ARTICLE 7 OF EVOQUA'S STANDARD TERMS OF SALE, EVOQUA MAKES NO OTHER WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR PURPOSE.

LPVCWD Nitrate Treatment System
Draft Project Schedule



Project: LPVCWD Nitrate Treatment System
Date: Mon 11/16/20

| | | | | | | | | | |
|-----------|--|--------------------|--|-----------------------|--|--------------------|--|-----------------|--|
| Task | | Project Summary | | Manual Task | | Start-only | | Deadline | |
| Split | | Inactive Task | | Duration-only | | Finish-only | | Progress | |
| Milestone | | Inactive Milestone | | Manual Summary Rollup | | External Tasks | | Manual Progress | |
| Summary | | Inactive Summary | | Manual Summary | | External Milestone | | | |