# LAS VIRGENES MUNICIPAL WATER DISTRICT
**4232 Las Virgenes Road**
**Calabasas, CA 91302**

## AGENDA
## LVMWD BOARD OF DIRECTORS - REGULAR MEETING
## TUESDAY, JUNE 4, 2024 – 9:00 AM

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**PUBLIC PARTICIPATION:** The public may join this meeting virtually or attend in person in the Board Room. Teleconference participants will be muted until recognized at the appropriate time by the Board President. To join via teleconference, please use the following Webinar ID:

Webinar ID: https://us06web.zoom.us/j/83860939822

To join by telephone, please dial (669) 900-6833 or (346) 248-7799 and enter Webinar ID:

838 6093 9822

For members of the public wishing to address the Board during Public Comment or during a specific agenda item, please press "Raise Hand" if you are joining via computer; or press *9 if you are joining via phone; or inform the Executive Assistant/Clerk of the Board if attending in person.

Members of the public can also access and request to speak at meetings live on-line, with audio and limited video, at www.lvmwd.com/livestream. To ensure distribution of the agenda, please submit comments 24 hours prior to the day of the meeting. Those comments, as well as any comments received during the meeting, will be distributed to the members of the Board of Directors and will be made part of the official public record of the meeting. Contact Josie Guzman, Executive Assistance/Clerk of the Board, at (818) 251-2123 or jguzman@lvmwd.com with any questions.

**ACCESSIBILITY:** If requested, the agenda and backup materials will be made available in appropriate alternative formats to persons with a disability, as required by Section 202 of the Americans with Disabilities Act of 1990 (42 U.S.C. Sec. 12132), and the federal rules and regulations adopted in the implementation thereof. Any person who requires a disability-related modification or accommodation, to attend or participate in this meeting, including auxiliary aids or services, may request such reasonable modification or accommodation by contacting the Executive Assistant/Clerk of the Board by telephone at (818) 251-2123 or via email to jguzman@lvmwd.com at least 48 hours prior to the meeting.

**Members of the public wishing to address the Board of Directors are advised that a statement of Public Comment Protocols is available from the Clerk of the Board. Prior to speaking, each speaker is asked to review these protocols, complete a speakers' card, and hand it to the Clerk of the Board. Speakers will be recognized in the order the cards are received. A live webcast of the meeting will be available at LVMWD.com. Also, a web-based version of the speaker card is available for those who would like to submit written comments electronically or request to make public comment by telephone during the meeting.**

**The Public Comments agenda item is presented to allow the public to address the Board on matters not on the agenda. The public may also present comments on matters on the agenda; speakers for agendized items will be recognized at the time the item is called up for discussion.**

**Materials prepared by the District in connection with the subject matter on the agenda are available for public inspection at 4232 Las Virgenes Road, Calabasas, CA 91302. Materials prepared by the District and distributed to the Board during this meeting are available for public inspection at the meeting or as soon thereafter as possible. Materials presented to the Board by the public will be maintained as part of the records of these proceedings and are available upon request to the Clerk of the Board.**

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**PLEDGE OF ALLEGIANCE**

1. **CALL TO ORDER AND ROLL CALL**

2. **APPROVAL OF AGENDA**

3. **PUBLIC COMMENTS**

   *Members of the public may now address the Board of Directors* ***ON MATTERS NOT APPEARING ON THE AGENDA****, but within the jurisdiction of the Board. No action shall be taken on any matter not appearing on the agenda unless authorized by Subdivision (b) of Government Code Section 54954.2*

4. **CONSENT CALENDAR**

   *Matters listed under the Consent Calendar are considered to be routine, non-controversial and normally approved with one motion. If discussion is requested by a*

*member of the Board on any Consent Calendar item, or if a member of the public wishes to comment on an item, that item will be removed from the Consent Calendar for separate action.*

4.A **List of Demands: June 04, 2024** **(Pg. 6)**
Receive and file.

4.B **Minutes: Regular Meeting of May 21, 2024** **(Pg. 60)**
Approve.

4.C **Water Infrastructure Networking Summit: Board Member Attendance** **(Pg. 71)**
Authorize Board Member attendance, per diem compensation and travel expenses for the Water Infrastructure Networking Summit held on May 31, 2024.

4.D **Monthly Cash and Investment Report: April 2024** **(Pg. 74)**
Receive and file the Monthly Cash and Investment Report for April 2024.

4.E **CalPERS Pension and Other Post-Employment Benefit Liabilities: Update** **(Pg. 92)**
Receive and file an update on CalPERS pension and Other Post-Employment Benefit (OPEB) liabilities, and authorize the General Manager to approve an additional contribution, in the amount of $1,121,833, for Fiscal Year 2024-25 to reduce the District's long-term net OPEB liability.

4.F **End of Emergency Declaration for Valley Circle Water Main Break and Continuation of Emergency Declaration for Parkmor Road Water Main Break** **(Pg. 174)**
Ratify the summary of emergency repair costs, in the amount of $186,077.21, for the 30-inch water main break along Valley Circle Boulevard; and pass, approve, and adopt proposed Resolution No. 2640, continuing a declaration of emergency for a 12-inch water main break located at 5745 Parkmor Drive in the City of Calabasas and ending the emergency for the water main break along Valley Circle Boulevard.

**RESOLUTION NO. 2640**

**A RESOLUTION OF THE BOARD OF DIRECTORS OF LAS VIRGENES MUNICIPAL WATER DISTRICT FINDING THAT AN EMERGENCY WILL NOT PERMIT A DELAY RESULTING FROM A COMPETITIVE SOLICITATION FOR REPAIR OF A 12-INCH WATER MAIN LOCATED AT 5745 PARKMOR DRIVE IN THE CITY OF CALABASAS AND END THE EMERGENCY DECLARATION FOR A 30-INCH WATER MAIN LOCATED ON VALLEY CIRCLE BOULEVARD**

(Reference is hereby made to Resolution 2640 on file in the District's Resolution book and by this reference the same is incorporated herein.)

5. **ILLUSTRATIVE AND/OR VERBAL PRESENTATION OF AGENDA ITEMS**

5.A **Water Supply Conditions Update** **(Pg. 180)**

6. **TREASURER**

7. **BOARD OF DIRECTORS**

7.A **Appointment of District's MWD Representative** **(Pg. 183)**
Close nominations and select the individual to serve as the District's MWD Representative on the Board of the Metropolitan Water District of Southern California; and pass, approve, and adopt proposed Resolution No. 2641, appointing the District's Representative to serve on the Board of Directors of the Metropolitan Water District of Southern California.

**RESOLUTION NO. 2641**

**A RESOLUTION OF THE BOARD OF DIRECTORS APPOINTING THE DISTRICT'S REPRESENTATIVE TO SERVE ON THE BOARD OF DIRECTORS OF THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA**

(Reference is hereby made to Resolution No. 2641 on file in the District's Resolution Book, and by this reference the same is incorporated herein.)

8. **FACILITIES AND OPERATIONS**

8.A **Purchase of Chemical Dosing Trailer and Two Water Quality Analyzers: Authorization** **(Pg. 187)**
Waive the competitive bidding requirements and authorize the General Manager to issue a purchase order to PSI Water Technologies, Inc., in the total amount of $188,300, consisting of $155,300 for one Monoclor Residual Control Station Trailer and $33,000 for two water quality station analyzers.

8.B **2024 Painting and Coatings Program: Contract Authorization** **(Pg. 487**
Authorize the General Manager to execute a one-year agreement with Vital Coatings, in the amount of $100,000, with four one-year renewal options to provide painting and coating services.

8.C **On-Call Pipeline Repair and Paving/Concrete Services: Contract Amendment** **(Pg. 502)**
Authorize the General Manager to execute a contract amendment, in the amount of $396,000, with Toro Enterprises, Inc., to increase the not-to-exceed amount to $1,878,154.26 for the current two-year term; re-appropriate funding, in the amount of $264,000, from CIP No. 10785, and in the amount of $132,000, from CIP No. 10728 to cover the additional cost; and authorize an increase, in the amount of $1,200,000, for the second two-year renewal for a total not-to-exceed amount of $2,000,000 for on-call pipeline repair and paving/concrete services.

9. **FINANCE AND ADMINISTRATION**

9.A **Internal Audit Program: Results of Contract Management and Purchasing Audit, and Approval of Audit Work Plan for Fiscal Year 2024-25** **(Pg. 505)**
Receive and file the Contract Management and Purchasing Audit Report, and authorize an amendment to the professional services agreement with Eide Bailly LLP, in the amount of $100,000, to complete the Fiscal Year 2024-25 Internal Audit Work Plan.

10. **ENGINEERING AND EXTERNAL AFFAIRS**

10.A **City of Calabasas Bark Park Butterfly Garden and Micro-Forest Planting:**

**Memorandum of Understanding (Pg. 520)**
Authorize the General Manager to execute a Memorandum of Understanding with the City of Calabasas and the Malibu Foundation for the planting of a butterfly garden and micro-forest at the Calabasas Bark Park.

11. **NON-ACTION ITEMS**

*A. Organization Reports*

*B. Director's Reports on Outside Meetings*

*C. General Manager's Reports*

*(a) General Business*

*(b) Follow-up Items*

*D. Director's Comments*

12. **FUTURE AGENDA ITEMS**

13. **PUBLIC COMMENTS**

*Members of the public may now address the Board of Directors* ***ON MATTERS NOT APPEARING ON THE AGENDA****, but within the jurisdiction of the Board. No action shall be taken on any matter not appearing on the agenda unless authorized by Subdivision (b) of Government Code Section 54954.2*

14. **ADJOURNMENT**

*Pursuant to Section 202 of the Americans with Disabilities Act of 1990 (42 U.S.C. Sec. 12132), and applicable federal rules and regulations, requests for a disability-related modification or accommodation, including auxiliary aids or services, in order to attend or participate in a meeting, should be made to the Executive Assistant/Clerk of the Board in advance of the meeting to ensure availability of the requested service or accommodation. Notices, agendas, and public documents related to the Board meetings can be made available in appropriate alternative format upon request.*

# LAS VIRGENES MUNICIPAL WATER DISTRICT

To: ANDY CORADESCHI, TREASURER

Payments for Board Meeting of : June 4, 2024

Deputy Treasurer has verified that all checks and wire transfers were issued in conformance with LVMWD Administrative Code Section 2-6.203.

Wells Fargo Bank A/C No. 4806-994448

| | | |
|---|---|---|
| Checks Nos. 109799-109892; ACH/ACI Nos. 110-126 were issued in the total amount of: | **$** | **1,988,532.59** |
| **Payments through direct disbursements as follows:** | | |
| 5/14/2024 Direct Disbursement payment number 24236-24244: | **$** | **3,605.57** |
| **Payments through wire transfers as follows:** | | |
| | **$** | **-** |
| **Total Payments** | **$** | **1,992,138.16** |

(Reference is hereby to these demands on file in the District's Check Register and by this reference the same is incorporated herein and made a part hereof.)

# CHECK/ACH/ACI LISTING FOR BOARD MEETING
## 6/4/2024

| Company Name | Company No. | Check No. 109799-109845; 110-112 05/07/24 | Check No. 109849-109892; 113-126 05/14/24 | Total |
|---|---|---|---|---|
| Potable Water Operations | 101 | 122,144.34 | 168,743.46 | 290,887.80 |
| Recycled Water Operations | 102 | 483.54 | | 483.54 |
| Sanitation Operations | 130 | 39,532.36 | 871.50 | 40,403.86 |
| Potable Water Construction | 201 | 1,666.50 | | 1,666.50 |
| Water Conservation Construction | 203 | | | - |
| Sanitation Construction | 230 | | | - |
| Potable Water Replacement | 301 | 1,924.68 | | 1,924.68 |
| Recycled Water Replacement | 302 | | | - |
| Sanitation Replacement | 330 | | | - |
| Internal Service | 701 | 65,203.56 | 52,748.89 | 117,952.45 |
| JPA Operations | 751 | 252,866.13 | 239,932.63 | 492,798.76 |
| JPA Construction | 752 | | | - |
| JPA Replacement | 754 | 1,067,270.62 | | 1,067,270.62 |
| | **Total Printed** | **1,551,091.73** | **462,296.48** | **2,013,388.21** |
| **Voided Checks/payment stopped:** | | | | |
| 109102 | 130 | (23,655.62) | | (23,655.62) |
| 109515 | 101 | (1,200.00) | | (1,200.00) |
| | | | | - |
| | | | | - |
| | **Total Voids** | **(24,855.62)** | **-** | **(24,855.62)** |
| | **Net Total** | **1,526,236.11** | **462,296.48** | **1,988,532.59** |

# DIRECT DISBURSEMENTS LISTING FOR BOARD MEETING
## 6/4/2024

| Company Name | Company No. | Direct Disb. No. 24236 05/14/24 Amount | Direct Disb. No. 24237-24244 05/14/24 Amount | Total |
|---|---|---|---|---|
| Potable Water Operations | 101 | 2,196.84 | 444.55 | 2,641.39 |
| Recycled Water Operations | 102 | | | - |
| Sanitation Operations | 130 | | | - |
| Potable Water Construction | 201 | | | - |
| Water Conservation Construction | 203 | | | - |
| Sanitation Construction | 230 | | | - |
| Potable Water Replacement | 301 | | | - |
| Recycled Water Replacement | 302 | | | - |
| Sanitation Replacement | 330 | | | - |
| Internal Service | 701 | | 891.62 | 891.62 |
| JPA Operations | 751 | | 72.56 | 72.56 |
| JPA Construction | 752 | | | - |
| JPA Replacement | 754 | | | - |
| | **Total Printed** | **2,196.84** | **1,408.73** | **3,605.57** |
| **Voided Direct Disbursements:** | | | | |
| | | | | - |
| | | - | - | - |
| | **Total Voids** | **-** | **-** | **-** |
| | **Totals** | **2,196.84** | **1,408.73** | **3,605.57** |

# A/P CASH DISBURSEMENTS JOURNAL

CASH ACCOUNT: 999 100100 Cash-General

| CHECK NO | CHK DATE | TYPE | VENDOR | NAME | INVOICE | INV DATE | PO | CHECK RUN | NET |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | INVOICE DTL DESC | | | | |
| 110 | 05/07/2024 | EFT | 30388 | WATERWISE CONSULTING, INC | 7971 | 02/29/2024 | | 050724 | 7,170.25 |
| Invoice: 7971 | | | | | | CUSTOMER EVALS FEBRUARY 2024 | | | |
| | | | | 7,170.25 101800 541500 | | Outside Services | | | |
| | | | | WATERWISE CONSULTING, INC | 8030 | 03/31/2024 | | 050724 | 12,964.70 |
| Invoice: 8030 | | | | | | CUSTOMER EVALS MARCH 2024 | | | |
| | | | | 12,964.70 101800 541500 | | Outside Services | | | |
| | | | | | | CHECK | 110 TOTAL: | | 20,134.95 |
| 111 | 05/07/2024 | PRTD | 2526 | APPLIED INDUSTRIAL TECHNOLOGIES | 7029426157 | 04/16/2024 | 2240108 | 050724 | 9,757.55 |
| Invoice: 7029426157 | | | | | | MOYNO POLYMER PUMP | | | |
| | | | | 9,757.55 751820 551000 | | Supplies/Material | | | |
| | | | | | | CHECK | 111 TOTAL: | | 9,757.55 |
| 112 | 05/07/2024 | PRTD | 18914 | WECK LABORATORIES, INC. | W4D1759 | 04/19/2024 | | 050724 | 62.00 |
| Invoice: W4D1759 | | | | | | RANCHO COMPOST INPUT MIX | | | |
| | | | | 62.00 751820 571520 | | Other Laboratory Serv | | | |
| | | | | WECK LABORATORIES, INC. | W4D1490 | 04/17/2024 | | 050724 | 713.14 |
| Invoice: W4D1490 | | | | | | FAST WATER CT. (ANNUAL) | | | |
| | | | | 713.14 101300 571520 | | Other Laboratory Serv | | | |
| | | | | WECK LABORATORIES, INC. | W4D1491 | 04/17/2024 | | 050724 | 159.16 |
| Invoice: W4D1491 | | | | | | DIONIZED WATER | | | |
| | | | | 159.16 701341 551500 | | Outside Services | | | |
| | | | | WECK LABORATORIES, INC. | W4D1395 | 04/16/2024 | | 050724 | 5,648.24 |
| Invoice: W4D1395 | | | | | | MALIBU CREEK (MONTHLY) | | | |
| | | | | 5,648.24 751810 571520 | | Other Laboratory Serv | | | |
| | | | | WECK LABORATORIES, INC. | W4A1422 | 01/19/2024 | | 050724 | 8,738.46 |
| Invoice: W4A1422 | | | | | | MALIBU CREEK SEMI-ANNUAL | | | |
| | | | | 8,738.46 751810 571520 | | Other Laboratory Serv | | | |
| | | | | WECK LABORATORIES, INC. | W4A0261 | 01/04/2024 | | 050724 | 9,788.91 |
| Invoice: W4A0261 | | | | | | PURE WATER CEC 2023 | | | |
| | | | | 9,788.91 751750 571520 | | Other Laboratory Serv | | | |
| | | | | WECK LABORATORIES, INC. | W4C0581 | 03/07/2024 | | 050724 | 2,715.67 |
| Invoice: W4C0581 | | | | | | PW SAMPLING MONTHLY | | | |
| | | | | 2,715.67 751750 571520 | | Other Laboratory Serv | | | |
| | | | | WECK LABORATORIES, INC. | W3K0964 | 11/13/2023 | | 050724 | 182.31 |
| Invoice: W3K0964 | | | | | | LA RIVER OIL & GREASE | | | |
| | | | | 182.31 751810 571520 | | Other Laboratory Serv | | | |
| | | | | WECK LABORATORIES, INC. | W4C0580 | 03/07/2024 | | 050724 | 2,455.79 |
| Invoice: W4C0580 | | | | | | TAPIA GROUNDWATER (PERMIT RENEWAL) | | | |

# A/P CASH DISBURSEMENTS JOURNAL

CASH ACCOUNT: 999 100100 Cash-General

| CHECK NO | CHK DATE | TYPE | VENDOR | NAME | INVOICE | INV DATE | PO | CHECK RUN | NET |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | INVOICE DTL DESC | | | | |
| | | | | 2,455.79 751810 571520 Other Laboratory Serv | | | | | |
| | | | | WECK LABORATORIES, INC. | W4D1394 | 04/16/2024 | | 050724 | 527.70 |
| Invoice: W4D1394 | | | | | | TAPIA EFFLUENT (MONTHLY) | | | |
| | | | | 527.70 751810 571520 Other Laboratory Serv | | | | | |
| | | | | | | CHECK 112 TOTAL: | | | 30,991.38 |
| 109799 | 05/07/2024 | PRTD | 17361 | ACCURATE FIRST AID SERVICES | B-44134 | 04/02/2024 | | 050724 | 406.87 |
| Invoice: B-44134 | | | | | | FIRST AID STE SRV - RANCHO | | | |
| | | | | 406.87 701430 680000 Safety | | | | | |
| | | | | ACCURATE FIRST AID SERVICES | B-44133 | 04/02/2024 | | 050724 | 396.31 |
| Invoice: B-44133 | | | | | | FIRST AID STE SRV - TAPIA | | | |
| | | | | 396.31 701430 680000 Safety | | | | | |
| | | | | | | CHECK 109799 TOTAL: | | | 803.18 |
| 109800 | 05/07/2024 | PRTD | 30485 | ADS CORP | 22085-0324 | 03/23/2024 | | 050724 | 3,486.00 |
| Invoice: 22085-0324 | | | | | | SEWER FLOW MONITORING MARCH 2024 | | | |
| | | | | 871.50 130100 551500 Outside Services | | | | | |
| | | | | 2,614.50 751800 551500 Outside Services | | | | | |
| | | | | | | CHECK 109800 TOTAL: | | | 3,486.00 |
| 109801 | 05/07/2024 | PRTD | 30729 | AMAZON CAPITAL SERVICES, INC. | 1X4F-Y4GM-PJLC | 04/17/2024 | | 050724 | 108.15 |
| Invoice: 1X4F-Y4GM-PJLC | | | | | | CABLE TESTER | | | |
| | | | | 108.15 701420 543000 Capital Outlay | | | | | |
| | | | | AMAZON CAPITAL SERVICES, INC. | 1YKP-DMF4-MF9J | 04/17/2024 | | 050724 | 18.06 |
| Invoice: 1YKP-DMF4-MF9J | | | | | | LABELS | | | |
| | | | | 18.06 701321 572500 Genl Supplies/Small Tools | | | | | |
| | | | | AMAZON CAPITAL SERVICES, INC. | 1W6F-4NJT-HPXP | 04/16/2024 | | 050724 | 63.48 |
| Invoice: 1W6F-4NJT-HPXP | | | | | | PRESENTATION REMOTE | | | |
| | | | | 63.48 701420 620000 Forms, Supplies And Postage | | | | | |
| | | | | AMAZON CAPITAL SERVICES, INC. | 17VQ-TYJN-TN9N | 04/18/2024 | | 050724 | 21.88 |
| Invoice: 17VQ-TYJN-TN9N | | | | | | USB AND BINDER | | | |
| | | | | 21.88 701410 620000 Forms, Supplies And Postage | | | | | |
| | | | | AMAZON CAPITAL SERVICES, INC. | 1Y9N-XXHK-NJXC | 04/17/2024 | | 050724 | 120.44 |
| Invoice: 1Y9N-XXHK-NJXC | | | | | | TV MOUNT | | | |
| | | | | 120.44 701420 543000 Capital Outlay | | | | | |
| | | | | AMAZON CAPITAL SERVICES, INC. | 1MRV-RPX7-YGDW | 04/14/2024 | | 050724 | 186.10 |
| Invoice: 1MRV-RPX7-YGDW | | | | | | BATTERY BACKUP | | | |
| | | | | 186.10 751820 551000 Supplies/Material | | | | | |

## A/P CASH DISBURSEMENTS JOURNAL

CASH ACCOUNT: 999 100100 Cash-General

| CHECK NO | CHK DATE | TYPE | VENDOR | NAME | INVOICE | INV DATE | PO | CHECK RUN | NET |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | INVOICE DTL DESC | | | | |
| | | | | AMAZON CAPITAL SERVICES, INC. | 1KYK-LXNX-D3Y9 | 04/16/2024 | | 050724 | 11.60 |
| Invoice: 1KYK-LXNX-D3Y9 | | | | | | BUNGEE CORD | | | |
| | | | | | 11.60 701322 572500 | Genl Supplies/Small Tools | | | |
| | | | | | | CHECK | 109801 TOTAL: | | 529.71 |
| 109802 | 05/07/2024 | PRTD | 30041 | ARCHIVE SOCIAL, INC. | 285380 | 01/03/2024 | | 050724 | 7,188.00 |
| Invoice: 285380 | | | | | | SOC MEDIA ARCHIVE RENEWAL 1/3/24-1/2/25 | | | |
| | | | | | 7,188.00 701230 660400 | Public Education Programs | | | |
| | | | | | | CHECK | 109802 TOTAL: | | 7,188.00 |
| 109803 | 05/07/2024 | PRTD | 30285 | ARION GLOBAL INC | 23644 | 01/29/2024 | | 050724 | 710.00 |
| Invoice: 23644 | | | | | | TAPIA LAB DISPOSAL SERVICES | | | |
| | | | | | 710.00 701341 551500 | Outside Services | | | |
| | | | | | | CHECK | 109803 TOTAL: | | 710.00 |
| 109804 | 05/07/2024 | PRTD | 2869 | AT&T | 46399044/041424 | 04/14/2024 | | 050724 | 53.25 |
| Invoice: 46399044/041424 | | | | | | SVCS 4/14-5/13/24 | | | |
| | | | | | 53.25 701001 540520 | Telephone | | | |
| | | | | | | CHECK | 109804 TOTAL: | | 53.25 |
| 109805 | 05/07/2024 | PRTD | 16253 | AT&T MOBILITY | 992789332X04112024 | 04/03/2024 | | 050724 | 2,682.08 |
| Invoice: 992789332X04112024 | | | | | | WIRELESS SRV 03/04-04/03/24 | | | |
| | | | | | 43.23 101300 540520 | Telephone | | | |
| | | | | | 103.45 701221 540520 | Telephone | | | |
| | | | | | 95.49 701222 540520 | Telephone | | | |
| | | | | | 518.76 701224 540520 | Telephone | | | |
| | | | | | 43.23 701230 540520 | Telephone | | | |
| | | | | | 97.10 701320 540520 | Telephone | | | |
| | | | | | 380.09 701321 540520 | Telephone | | | |
| | | | | | 43.23 701322 540520 | Telephone | | | |
| | | | | | 86.46 701326 540520 | Telephone | | | |
| | | | | | 63.24 701330 540520 | Telephone | | | |
| | | | | | 852.03 701331 540520 | Telephone | | | |
| | | | | | 170.73 701420 540520 | Telephone | | | |
| | | | | | 141.81 751810 540520 | Telephone | | | |
| | | | | | 43.23 751820 540520 | Telephone | | | |
| | | | | | | CHECK | 109805 TOTAL: | | 2,682.08 |
| 109806 | 05/07/2024 | PRTD | 8091 | BROWN AND CALDWELL | 45517390 | 04/15/2024 | | 050724 | 16,412.87 |
| Invoice: 45517390 | | | | | | RLV FLARE WASTE GAS FLARE 1/26-2/22/24 | | | |
| | | | | | 16,412.87 754440 900000 | Capital Asset Expenses | | | |

# A/P CASH DISBURSEMENTS JOURNAL

CASH ACCOUNT: 999 100100 Cash-General

| CHECK NO | CHK DATE | TYPE | VENDOR | NAME | INVOICE | INV DATE | PO | CHECK RUN | NET |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | INVOICE DTL DESC | | | | |
| | | | | | | CHECK | 109806 TOTAL: | | 16,412.87 |
| 109807 | 05/07/2024 | PRTD | 5405 | CALOLYMPIC SAFETY | 406709-1 | 04/02/2024 | 2240148 | 050724 | 1,314.62 |
| | Invoice: 406709-1 | | | | | RAINGEAR & PPE | | | |
| | | | | | 1,314.62 701 132000 | Storeroom & Truck Inventory | | | |
| | | | | | | CHECK | 109807 TOTAL: | | 1,314.62 |
| 109808 | 05/07/2024 | PRTD | 18992 | CDW GOVERNMENT | QT65308 | 04/18/2024 | | 050724 | 7,013.65 |
| | Invoice: QT65308 | | | | | CDW ANNUAL SUBSCRIPTION 3/31/24-4/14/25 | | | |
| | | | | | 7,013.65 701420 621500 | System Support and Maintenance | | | |
| | | | | | | CHECK | 109808 TOTAL: | | 7,013.65 |
| 109809 | 05/07/2024 | PRTD | 30824 | CENTER FOR INTERNET SECURITY, INC | INV-240418-0058445 | 04/18/2024 | 2240157 | 050724 | 13,200.00 |
| | Invoice: INV-240418-0058445 | | | | | CROWDSTRIKE SUBSCRIPTION 4/18/24-4/17/25 | | | |
| | | | | | 13,200.00 701420 543000 | Capital Outlay | | | |
| | | | | | | CHECK | 109809 TOTAL: | | 13,200.00 |
| 109810 | 05/07/2024 | PRTD | 2536 | CITY OF LOS ANGELES | WP240000069 | 01/23/2024 | | 050724 | 23,655.62 |
| | Invoice: WP240000069 | | | | | ASSFC EL CANON FY 2022-23 | | | |
| | | | | | 23,655.62 130100 574000 | Purch Svc-City Of LA | | | |
| | | | | | | CHECK | 109810 TOTAL: | | 23,655.62 |
| 109811 | 05/07/2024 | PRTD | 19270 | COMMUNICATIONS RELAY, LLC | 60850 | 05/01/2024 | | 050724 | 1,118.39 |
| | Invoice: 60850 | | | | | CASTRO PEAK RENT MAY 2024 | | | |
| | | | | | 1,118.39 701420 540520 | Telephone | | | |
| | | | | | | CHECK | 109811 TOTAL: | | 1,118.39 |
| 109812 | 05/07/2024 | PRTD | 2601 | DELL COMPUTER CORP. | 10741985292 | 04/09/2024 | 2240158 | 050724 | 101.63 |
| | Invoice: 10741985292 | | | | | BATTERY FOR LAPTOP | | | |
| | | | | | 101.63 701420 543000 | Capital Outlay | | | |
| | | | | | | CHECK | 109812 TOTAL: | | 101.63 |
| 109813 | 05/07/2024 | PRTD | 11330 | DIAL SECURITY | 470476 | 05/01/2024 | | 050724 | 15.90 |
| | Invoice: 470476 | | | | | MAY 2024 CELL PLAN - RLV | | | |
| | | | | | 15.90 751820 551800 | Building Maintenance | | | |
| | | | | DIAL SECURITY | 470471 | 05/01/2024 | | 050724 | 37.10 |
| | Invoice: 470471 | | | | | MAY 2024 SEC SRV - RLV | | | |
| | | | | | 37.10 751820 551800 | Building Maintenance | | | |

# A/P CASH DISBURSEMENTS JOURNAL

CASH ACCOUNT: 999 100100 Cash-General

| CHECK NO | CHK DATE | TYPE | VENDOR | NAME | INVOICE | INV DATE | PO | CHECK RUN | NET |
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| | | | | | INVOICE DTL DESC | | | | |
| | | | | DIAL SECURITY | 470472 | 05/01/2024 | | 050724 | 37.10 |
| Invoice: 470472 | | | | | | MAY 2024 SEC SRV - RLV FARM | | | |
| | | | | | 37.10 751830 551500 | Outside Services | | | |
| | | | | DIAL SECURITY | 470473 | 05/01/2024 | | 050724 | 132.50 |
| Invoice: 470473 | | | | | | MAY 2024 SEC SRV - WLK | | | |
| | | | | | 132.50 101600 551800 | Building Maintenance | | | |
| | | | | DIAL SECURITY | 470474 | 05/01/2024 | | 050724 | 37.10 |
| Invoice: 470474 | | | | | | MAY 2024 SEC SRV - WLK P/S | | | |
| | | | | | 37.10 101600 551800 | Building Maintenance | | | |
| | | | | DIAL SECURITY | 470478 | 05/01/2024 | | 050724 | 120.84 |
| Invoice: 470478 | | | | | | MAY 2024 SEC SRV - BLD 7 | | | |
| | | | | | 120.84 701002 551500 | Outside Services | | | |
| | | | | DIAL SECURITY | 470479 | 05/01/2024 | | 050724 | 58.30 |
| Invoice: 470479 | | | | | | MAY 2024 FIRE MONITORING - BLD 1 | | | |
| | | | | | 58.30 751750 551500 | Outside Services | | | |
| | | | | DIAL SECURITY | 465812 | 01/25/2024 | | 050724 | 200.00 |
| Invoice: 465812 | | | | | | SERVICE CALL 1/22/24 | | | |
| | | | | | 200.00 751820 551500 | Outside Services | | | |
| | | | | | | CHECK | 109813 TOTAL: | | 638.84 |
| 109814 | 05/07/2024 | PRTD | 7257 | DIRECTV, INC. | 012036139X240423 | 04/23/2024 | | 050724 | 16.00 |
| Invoice: 012036139X240423 | | | | | | TV ACCESS FEE 4/22-5/21/24 | | | |
| | | | | | 16.00 701002 551500 | Outside Services | | | |
| | | | | DIRECTV, INC. | 017819005X240416 | 04/16/2024 | | 050724 | 16.00 |
| Invoice: 017819005X240416 | | | | | | TV ACCESS FEE 4/15-5/14/24 | | | |
| | | | | | 16.00 751810 551500 | Outside Services | | | |
| | | | | | | CHECK | 109814 TOTAL: | | 32.00 |
| 109815 | 05/07/2024 | PRTD | 14591 | EMISSION COMPLIANT CONTROLS CORP. | PS05930 | 03/27/2024 | | 050724 | 8,164.77 |
| Invoice: PS05930 | | | | | | EMISSION TEST 2/28/24 | | | |
| | | | | | 8,164.77 101100 551500 | Outside Services | | | |
| | | | | | | CHECK | 109815 TOTAL: | | 8,164.77 |
| 109816 | 05/07/2024 | PRTD | 2655 | FERGUSON ENTERPRISES | 0024704 | 04/15/2024 | 2240142 | 050724 | 21.90 |
| Invoice: 0024704 | | | | | | NEPTUNE METERS AND REGISTERS | | | |
| | | | | | 21.90 701224 551000 | Supplies/Material | | | |

# A/P CASH DISBURSEMENTS JOURNAL

CASH ACCOUNT: 999 100100 Cash-General

| CHECK NO | CHK DATE | TYPE | VENDOR | NAME | INVOICE | INV DATE | PO | CHECK RUN | NET |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | INVOICE DTL DESC | | | | |
| | | | | | | CHECK | 109816 TOTAL: | | 21.90 |
| 109817 | 05/07/2024 | PRTD | 19397 | FIRST CHOICE SERVICES (DAIOHS USA | 493077 | 04/24/2024 | | 050724 | 5.91 |
| | Invoice: 493077 | | | | | APRIL 2024 COFFEE SRVCS - WLK | | | |
| | | | | | 5.91 701410 620000 | Forms, Supplies And Postage | | | |
| | | | | FIRST CHOICE SERVICES (DAIOHS USA | 493124 | 04/24/2024 | | 050724 | 137.17 |
| | Invoice: 493124 | | | | | APRIL 2024 COFFEE SRVCS - HQ | | | |
| | | | | | 137.17 701410 620000 | Forms, Supplies And Postage | | | |
| | | | | | | CHECK | 109817 TOTAL: | | 143.08 |
| 109818 | 05/07/2024 | PRTD | 6770 | G.I. INDUSTRIES | 2555224-0283-3 | 05/01/2024 | | 050724 | 217.38 |
| | Invoice: 2555224-0283-3 | | | | | DISP WLK 5/1-5/31/24 | | | |
| | | | | | 217.38 101600 551800 | Building Maintenance | | | |
| | | | | G.I. INDUSTRIES | 3113393-0283-9 | 05/01/2024 | | 050724 | 920.89 |
| | Invoice: 3113393-0283-9 | | | | | DISP HQ & SHOP 5/1-5/31/24 | | | |
| | | | | | 303.89 701001 551500 | Outside Services | | | |
| | | | | | 617.00 701002 551500 | Outside Services | | | |
| | | | | | | CHECK | 109818 TOTAL: | | 1,138.27 |
| 109819 | 05/07/2024 | PRTD | 2705 | HACH COMPANY | 14001777 | 04/16/2024 | | 050724 | 4,082.16 |
| | Invoice: 14001777 | | | | | AMMONIA REAGENT VIALS | | | |
| | | | | | 4,082.16 701341 551000 | Supplies/Material | | | |
| | | | | | | CHECK | 109819 TOTAL: | | 4,082.16 |
| 109820 | 05/07/2024 | PRTD | 21197 | JACOBS ENGINEERING GROUP INC. | W9Y31200-36 | 03/18/2024 | | 050724 | 79,401.34 |
| | Invoice: W9Y31200-36 | | | | | PWP ADVISOR SRV 1/27-2/23/24 | | | |
| | | | | | 79,401.34 754440 900000 | Capital Asset Expenses | | | |
| | | | | | | CHECK | 109820 TOTAL: | | 79,401.34 |
| 109821 | 05/07/2024 | PRTD | 5230 | KENNEDY/JENKS CONSULTANTS | 171238 | 04/23/2024 | | 050724 | 1,666.50 |
| | Invoice: 171238 | | | | | TWIN LAKES P/S DESIGN 12/30/23-03/29/24 | | | |
| | | | | | 1,666.50 201440 900000 | Capital Asset Expenses | | | |
| | | | | | | CHECK | 109821 TOTAL: | | 1,666.50 |
| 109822 | 05/07/2024 | PRTD | 2611 | LA DWP | 8512601000/042524 | 04/25/2024 | | 050724 | 44.92 |
| | Invoice: 8512601000/042524 | | | | | RECTIFIER 3/27-4/25/24 | | | |
| | | | | | 44.92 101700 540510 | Energy | | | |

# A/P CASH DISBURSEMENTS JOURNAL

CASH ACCOUNT: 999 100100 Cash-General

| CHECK NO | CHK DATE | TYPE | VENDOR | NAME | INVOICE | INV DATE | PO | CHECK RUN | NET |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | INVOICE DTL DESC | | | | |
| | | | | | | CHECK | 109822 TOTAL: | | 44.92 |
| 109823 | 05/07/2024 | PRTD | 15749 | LAWRENCE ROLL-UP DOORS, INC. | 2451242 | 04/23/2024 | | 050724 | 5,283.08 |
| | Invoice: 2451242 | | | | | REPLACE ROLL-UP DOOR CONTROLS 4/22/24 | | | |
| | | | | | 5,283.08 751820 551500 | Outside Services | | | |
| | | | | | | CHECK | 109823 TOTAL: | | 5,283.08 |
| 109824 | 05/07/2024 | PRTD | 30556 | MALLORY SAFETY & SUPPLY LLC | 5864406 | 04/03/2024 | 2240141 | 050724 | 6,631.69 |
| | Invoice: 5864406 | | | | | GAS VENTIS PRO | | | |
| | | | | | 6,631.69 751810 541000 | Supplies/Material | | | |
| | | | | | | CHECK | 109824 TOTAL: | | 6,631.69 |
| 109825 | 05/07/2024 | PRTD | 30743 | MLADEN BUNTICH CONSTRUCTION CO., | 10803/PMT#2 | 04/25/2024 | | 050724 | 805,125.00 |
| | Invoice: 10803/PMT#2 | | | | | MALIBOU LAKE SPHN RPLCMNT 3/28-4/25/24 | | | |
| | | | | | 805,125.00 754440 900000 | Capital Asset Expenses | | | |
| | | | | | | CHECK | 109825 TOTAL: | | 805,125.00 |
| 109826 | 05/07/2024 | PRTD | 30829 | MORRIS INDUSTRIES, INC. | 40014382-00 | 04/19/2024 | 2240161 | 050724 | 2,105.06 |
| | Invoice: 40014382-00 | | | | | GROUNDWATER PUMP, CONTROLLER | | | |
| | | | | | 2,105.06 701341 551000 | Supplies/Material | | | |
| | | | | | | CHECK | 109826 TOTAL: | | 2,105.06 |
| 109827 | 05/07/2024 | PRTD | 2302 | ODP BUSINESS SOLUTIONS LLC | 362044917001 | 04/12/2024 | | 050724 | 220.97 |
| | Invoice: 362044917001 | | | | | SIGNS | | | |
| | | | | | 220.97 701410 620000 | Forms, Supplies And Postage | | | |
| | | | | | | CHECK | 109827 TOTAL: | | 220.97 |
| 109828 | 05/07/2024 | PRTD | 18874 | PACIFIC HYDROTECH CORPORATION | RLSRTN/10619 | 04/08/2024 | | 050724 | 150,970.91 |
| | Invoice: RLSRTN/10619 | | | | | RELEASE RETENTION TAPIA WRF COMP/MTR | | | |
| | | | | | 11,322.50 754 201000 | Contract Retainage | | | |
| | | | | | 16,956.10 754 201000 | Contract Retainage | | | |
| | | | | | 29,731.29 754 201000 | Contract Retainage | | | |
| | | | | | 8,091.40 754 201000 | Contract Retainage | | | |
| | | | | | 20,012.50 754 201000 | Contract Retainage | | | |
| | | | | | 8,223.83 754 201000 | Contract Retainage | | | |
| | | | | | 5,433.00 754 201000 | Contract Retainage | | | |
| | | | | | 7,035.50 754 201000 | Contract Retainage | | | |
| | | | | | 9,278.50 754 201000 | Contract Retainage | | | |
| | | | | | 4,573.50 754 201000 | Contract Retainage | | | |
| | | | | | 3,658.88 754 201000 | Contract Retainage | | | |
| | | | | | 6,983.00 754 201000 | Contract Retainage | | | |

# A/P CASH DISBURSEMENTS JOURNAL

CASH ACCOUNT: 999 100100 Cash-General

| CHECK NO | CHK DATE | TYPE | VENDOR | NAME | INVOICE | INV DATE | PO | CHECK RUN | NET |
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| | | | | INVOICE DTL DESC | | | | | |
| | | | | 7,877.50 754 201000 Contract Retainage | | | | | |
| | | | | 6,566.86 754 201000 Contract Retainage | | | | | |
| | | | | 4,306.55 754 201000 Contract Retainage | | | | | |
| | | | | 920.00 754 201000 Contract Retainage | | | | | |
| | | | | CHECK 109828 TOTAL: | | | | | 150,970.91 |
| 109829 | 05/07/2024 | PRTD | 30838 | R W SHATTUCK INC | 068164/041924 | 04/19/2024 | | 050724 | 2,215.24 |
| Invoice: 068164/041924 | | | | RFND ON CLOSED ACCT 0010000286-068164 | | | | | |
| | | | | 2,215.24 101 230500 Deposit Refd Clearing-Billing | | | | | |
| | | | | CHECK 109829 TOTAL: | | | | | 2,215.24 |
| 109830 | 05/07/2024 | PRTD | 4586 | ROYAL INDUSTRIAL SOLUTIONS | 9009-1045742 | 04/15/2024 | | 050724 | 150.23 |
| Invoice: 9009-1045742 | | | | INDICATOR LIGHT LENSES | | | | | |
| | | | | 150.23 751810 551000 Supplies/Material | | | | | |
| | | | | CHECK 109830 TOTAL: | | | | | 150.23 |
| 109831 | 05/07/2024 | PRTD | 20583 | RT LAWRENCE CORPORATION | 48904 | 04/16/2024 | | 050724 | 574.63 |
| Invoice: 48904 | | | | LOCKBOX FEE MARCH 2024 | | | | | |
| | | | | 574.63 701221 622000 Outside Services | | | | | |
| | | | | CHECK 109831 TOTAL: | | | | | 574.63 |
| 109832 | 05/07/2024 | PRTD | 6243 | CONEJO VALLEY SENIOR CONCERNS | SPNSRSHP/060224 | 05/01/2024 | | 050724 | 2,500.00 |
| Invoice: SPNSRSHP/060224 | | | | LOVE RUN SILVER SPONSORHIP 6/2/24 | | | | | |
| | | | | 2,500.00 701230 660400 Public Education Programs | | | | | |
| | | | | CHECK 109832 TOTAL: | | | | | 2,500.00 |
| 109833 | 05/07/2024 | PRTD | 2956 | SOUTH COAST AIR QUALITY MGMT DIST | 4294957 | 04/30/2024 | | 050724 | 14,368.45 |
| Invoice: 4294957 | | | | ID#94009 ANNL OP FEES & RNSMNT FEE 3/16/24-3/15/25 | | | | | |
| | | | | 4,190.80 751820 542000 Permits and Fees | | | | | |
| | | | | 10,177.65 751 135500 Prepaid Services | | | | | |
| | | | | SOUTH COAST AIR QUALITY MGMT DIST | 4347593 | 04/23/2024 | | 050724 | 161.81 |
| Invoice: 4347593 | | | | ID#94009 AQMD FEE FY23-24 | | | | | |
| | | | | 161.81 751820 542000 Permits and Fees | | | | | |
| | | | | CHECK 109833 TOTAL: | | | | | 14,530.26 |
| 109834 | 05/07/2024 | PRTD | 30020 | SOUTHERN CA EDISON | 11884/042224 | 04/22/2024 | | 050724 | 187,647.29 |
| Invoice: 11884/042224 | | | | BILNG CREDITS, FEBRUARY - MARCH 2024 | | | | | |
| | | | | 55.28 101100 540510 Energy | | | | | |
| | | | | 12,887.39 101101 540510 Energy | | | | | |

## A/P CASH DISBURSEMENTS JOURNAL

CASH ACCOUNT: 999 100100 Cash-General

| CHECK NO | CHK DATE | TYPE | VENDOR | NAME | INVOICE | INV DATE | PO | CHECK RUN | NET |
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| | | | | | | | | | |

| INVOICE DTL | DESC |
|---|---|
| 4,112.25 101102 | 540510 Energy |
| 20,288.28 101103 | 540510 Energy |
| 4,105.25 101104 | 540510 Energy |
| 265.51 101105 | 540510 Energy |
| 934.85 101107 | 540510 Energy |
| 2,176.11 101108 | 540510 Energy |
| 169.98 101109 | 540510 Energy |
| 2,196.12 101110 | 540510 Energy |
| 375.28 101112 | 540510 Energy |
| 4,455.05 101113 | 540510 Energy |
| 578.25 101114 | 540510 Energy |
| 593.37 101115 | 540510 Energy |
| 464.21 101116 | 540510 Energy |
| 92.28 101117 | 540510 Energy |
| 2,365.12 101118 | 540510 Energy |
| 400.32 101119 | 540510 Energy |
| 1,778.29 101120 | 540510 Energy |
| 452.27 101121 | 540510 Energy |
| 599.50 101122 | 540510 Energy |
| 1,014.74 101123 | 540510 Energy |
| 507.37 101124 | 540510 Energy |
| 136.06 101202 | 540510 Energy |
| 29.46 101204 | 540510 Energy |
| 20.91 101209 | 540510 Energy |
| 18.95 101211 | 540510 Energy |
| 23.78 101212 | 540510 Energy |
| 30.14 101220 | 540510 Energy |
| -20.79 101221 | 540510 Energy |
| 1.19 101222 | 540510 Energy |
| 12,026.06 101600 | 540510 Energy |
| 29.96 101700 | 540510 Energy |
| 483.54 102100 | 540510 Energy |
| 15,005.24 130100 | 540510 Energy |
| 8,756.66 701001 | 540510 Energy |
| 437.64 701002 | 540510 Energy |
| 39.01 701326 | 540510 Energy |
| 914.84 751125 | 540510 Energy |
| 15,031.55 751126 | 540510 Energy |
| 140.21 751224 | 540510 Energy |
| -67.91 751800 | 540510 Energy |
| 61,956.85 751810 | 540510 Energy |
| 15.96 751820 | 540510 Energy |
| 94.55 751810 | 678800 District Sprayfield |
| 11,654.15 751830 | 540510 Energy |
| 22.21 751810 | 678900 005 Discharge |

CHECK 109834 TOTAL: 187,647.29

109835 05/07/2024 PRTD 2957 SOUTHERN CALIFORNIA EDISON (M-BIL 75690/042524 04/25/2024 050724 1,682.51

Invoice: 75690/042524 BLDG 1 HM-PWP 3/22-4/22/24 7,774 KH

1,682.51 751750 540510 Energy

# A/P CASH DISBURSEMENTS JOURNAL

CASH ACCOUNT: 999 100100 Cash-General

| CHECK NO | CHK DATE | TYPE | VENDOR | NAME | INVOICE | INV DATE | PO | CHECK RUN | NET |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | INVOICE DTL DESC | | | | |
| | | | | SOUTHERN CALIFORNIA EDISON (M-BIL | 77683/042524 | 04/25/2024 | | 050724 | 505.49 |
| | Invoice: 77683/042524 | | | | | BLDG 1 EV-PWP 3/22-4/22/24 2,558 KH | | | |
| | | | | | 505.49 751750 540510 | Energy | | | |
| | | | | SOUTHERN CALIFORNIA EDISON (M-BIL | 57161/042324 | 04/23/2024 | | 050724 | 54,269.27 |
| | Invoice: 57161/042324 | | | | | RLV COMPOST PLNT 3/22-4/22/24 301,156 KH | | | |
| | | | | | 54,269.27 751820 540510 | Energy | | | |
| | | | | | | CHECK | 109835 TOTAL: | | 56,457.27 |
| 109836 | 05/07/2024 | PRTD | 30666 | STRADLING YOCCA CARLSON & RAUTH | 405288 | 03/15/2024 | | 050724 | 15,360.50 |
| | Invoice: 405288 | | | | | BOND COUNSEL 11/1/23-2/28/24 (WIFIA LOAN) | | | |
| | | | | | 15,360.50 754440 900000 | Capital Asset Expenses | | | |
| | | | | | | CHECK | 109836 TOTAL: | | 15,360.50 |
| 109837 | 05/07/2024 | PRTD | 18641 | TECHNICAL SAFETY SERVICES INC. | TSSIN00008627 | 04/15/2024 | | 050724 | 350.00 |
| | Invoice: TSSIN00008627 | | | | | CALIBRATION SRV | | | |
| | | | | | 350.00 701341 551500 | Outside Services | | | |
| | | | | | | CHECK | 109837 TOTAL: | | 350.00 |
| 109838 | 05/07/2024 | PRTD | 21599 | THE ROVISYS COMPANY | 92804 | 04/07/2024 | | 050724 | 1,924.68 |
| | Invoice: 92804 | | | | | COMMUNICATION SYST UPGRD MARCH 2024 | | | |
| | | | | | 1,924.68 301440 900000 | Capital Asset Expenses | | | |
| | | | | THE ROVISYS COMPANY | 92670 | 04/05/2024 | | 050724 | 2,574.00 |
| | Invoice: 92670 | | | | | SCADA SYST SUPRT MARCH 2024 | | | |
| | | | | | 2,574.00 701420 651600 | Other Professional Serv | | | |
| | | | | THE ROVISYS COMPANY | 92671 | 04/05/2024 | | 050724 | 3,431.00 |
| | Invoice: 92671 | | | | | SCADA SYST SPRT MARCH 2024 | | | |
| | | | | | 3,431.00 701420 651600 | Other Professional Serv | | | |
| | | | | | | CHECK | 109838 TOTAL: | | 7,929.68 |
| 109839 | 05/07/2024 | PRTD | 9505 | TIRE MAN AGOURA | 2126124 | 03/05/2024 | | 050724 | 1,297.71 |
| | Invoice: 2126124 | | | | | INSTALL TIRES #203 | | | |
| | | | | | 1,297.71 701325 551500 | Outside Services | | | |
| | | | | TIRE MAN AGOURA | 2127393 | 04/16/2024 | | 050724 | 432.50 |
| | Invoice: 2127393 | | | | | SPARE GOLF CART TIRES | | | |
| | | | | | 432.50 701325 551500 | Outside Services | | | |
| | | | | | | CHECK | 109839 TOTAL: | | 1,730.21 |

# A/P CASH DISBURSEMENTS JOURNAL

CASH ACCOUNT: 999 100100 Cash-General

| CHECK NO | CHK DATE | TYPE | VENDOR | NAME | INVOICE | INV DATE | PO | CHECK RUN | NET |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | INVOICE DTL DESC | | | | |
| 109840 | 05/07/2024 | PRTD | 30159 | TRILLIUM HOLDCO LLC | 218115 | 04/19/2024 | | 050724 | 25,777.75 |
| | Invoice: 218115 | | | | | ELEC CHARGES SOLAR MARCH 2024 | | | |
| | | | | 25,777.75 | 751101 540510 | Energy | | | |
| | | | | | | CHECK | 109840 | TOTAL: | 25,777.75 |
| 109841 | 05/07/2024 | PRTD | 8764 | UNITED IMAGING | 5537074 | 04/12/2024 | 2240160 | 050724 | 180.62 |
| | Invoice: 5537074 | | | | | TONER CARTRIDGES | | | |
| | | | | 180.62 | 701410 620000 | Forms, Supplies And Postage | | | |
| | | | | | | CHECK | 109841 | TOTAL: | 180.62 |
| 109842 | 05/07/2024 | PRTD | 30536 | UNIVAR SOLUTIONS INC. | 52023948 | 04/19/2024 | | 050724 | 11,046.77 |
| | Invoice: 52023948 | | | | | 52,280 LBS SODIUM BISULFITE | | | |
| | | | | 11,046.77 | 751810 541011 | Sodium Bisulfite | | | |
| | | | | | | CHECK | 109842 | TOTAL: | 11,046.77 |
| 109843 | 05/07/2024 | PRTD | 3035 | VWR SCIENTIFIC | 8815822777 | 04/16/2024 | | 050724 | 959.28 |
| | Invoice: 8815822777 | | | | | GLOVES, FILTERS | | | |
| | | | | 959.28 | 701341 551000 | Supplies/Material | | | |
| | | | | VWR SCIENTIFIC | 8815819494 | 04/16/2024 | | 050724 | 636.83 |
| | Invoice: 8815819494 | | | | | GRADUATED CYLINDERS | | | |
| | | | | 636.83 | 701341 551000 | Supplies/Material | | | |
| | | | | VWR SCIENTIFIC | 8815819493 | 04/16/2024 | | 050724 | 914.70 |
| | Invoice: 8815819493 | | | | | SODIUM NITRATE, FILTERS | | | |
| | | | | 914.70 | 701341 551000 | Supplies/Material | | | |
| | | | | | | CHECK | 109843 | TOTAL: | 2,510.81 |
| 109844 | 05/07/2024 | PRTD | 3025 | WATER & SANITATION SRV./VENTURA C | 2769698 | 04/24/2024 | | 050724 | 17,278.32 |
| | Invoice: 2769698 | | | | | PCH WATER 3/19-4/16/24 | | | |
| | | | | 17,278.32 | 101001 510500 | Purch Water-Ventura County | | | |
| | | | | | | CHECK | 109844 | TOTAL: | 17,278.32 |
| 109845 | 05/07/2024 | PRTD | 30527 | WORLDWIDE EXPRESS | 2404090000 | 04/17/2024 | | 050724 | 28.78 |
| | Invoice: 2404090000 | | | | | OUTGOING UPS FREIGHT | | | |
| | | | | 28.78 | 701410 620000 | Forms, Supplies And Postage | | | |
| | | | | | | CHECK | 109845 | TOTAL: | 28.78 |

## A/P CASH DISBURSEMENTS JOURNAL

NUMBER OF CHECKS 50 *** CASH ACCOUNT TOTAL *** 1,551,091.73

| | COUNT | AMOUNT |
|---|---|---|
| TOTAL PRINTED CHECKS | 49 | 1,530,956.78 |
| TOTAL EFT'S | 1 | 20,134.95 |

*** GRAND TOTAL *** 1,551,091.73

# A/P CASH DISBURSEMENTS JOURNAL

**JOURNAL ENTRIES TO BE CREATED**

CLERK: 3296tchau

| YEAR PER JNL SRC ACCOUNT / EFF DATE | JNL DESC | REF 1 | REF 2 | REF 3 | ACCOUNT DESC / LINE DESC | T | OB | DEBIT | CREDIT |
|---|---|---|---|---|---|---|---|---|---|
| 2024 11 72 | | | | | | | | | |
| APP 101-200000 | | | | | Accounts Payable | | | 122,144.34 | |
| 05/07/2024 | 050724 | 050724 | | | AP CASH DISBURSEMENTS JOURNAL | | | | |
| APP 999-100100 | | | | | Cash-General | | | | 1,551,091.73 |
| 05/07/2024 | 050724 | 050724 | | | AP CASH DISBURSEMENTS JOURNAL | | | | |
| APP 751-200000 | | | | | Accounts Payable | | | 252,866.13 | |
| 05/07/2024 | 050724 | 050724 | | | AP CASH DISBURSEMENTS JOURNAL | | | | |
| APP 701-200000 | | | | | Accounts Payable | | | 65,203.56 | |
| 05/07/2024 | 050724 | 050724 | | | AP CASH DISBURSEMENTS JOURNAL | | | | |
| APP 130-200000 | | | | | Accounts Payable | | | 39,532.36 | |
| 05/07/2024 | 050724 | 050724 | | | AP CASH DISBURSEMENTS JOURNAL | | | | |
| APP 754-200000 | | | | | Accounts Payable | | | 1,067,270.62 | |
| 05/07/2024 | 050724 | 050724 | | | AP CASH DISBURSEMENTS JOURNAL | | | | |
| APP 201-200000 | | | | | Accounts Payable | | | 1,666.50 | |
| 05/07/2024 | 050724 | 050724 | | | AP CASH DISBURSEMENTS JOURNAL | | | | |
| APP 102-200000 | | | | | Accounts Payable | | | 483.54 | |
| 05/07/2024 | 050724 | 050724 | | | AP CASH DISBURSEMENTS JOURNAL | | | | |
| APP 301-200000 | | | | | Accounts Payable | | | 1,924.68 | |
| 05/07/2024 | 050724 | 050724 | | | AP CASH DISBURSEMENTS JOURNAL | | | | |
| | | | | | GENERAL LEDGER TOTAL | | | 1,551,091.73 | 1,551,091.73 |
| APP 999-201010 | | | | | Due to/Due Frm Potable Wtr Ops | | | 122,144.34 | |
| 05/07/2024 | 050724 | 050724 | | | | | | | |
| APP 101-100100 | | | | | Cash-General | | | | 122,144.34 |
| 05/07/2024 | 050724 | 050724 | | | | | | | |
| APP 999-207510 | | | | | Due to/Due FromJPA Operations | | | 252,866.13 | |
| 05/07/2024 | 050724 | 050724 | | | | | | | |
| APP 751-100100 | | | | | Cash-General | | | | 252,866.13 |
| 05/07/2024 | 050724 | 050724 | | | | | | | |
| APP 999-207010 | | | | | Due to/Due FromInternal Svs | | | 65,203.56 | |
| 05/07/2024 | 050724 | 050724 | | | | | | | |
| APP 701-100100 | | | | | Cash-General | | | | 65,203.56 |
| 05/07/2024 | 050724 | 050724 | | | | | | | |
| APP 999-201300 | | | | | Due to/Due FrmSanitation Ops | | | 39,532.36 | |
| 05/07/2024 | 050724 | 050724 | | | | | | | |
| APP 130-100100 | | | | | Cash-General | | | | 39,532.36 |
| 05/07/2024 | 050724 | 050724 | | | | | | | |
| APP 999-207540 | | | | | Due to/Due FromJPA Replacement | | | 1,067,270.62 | |
| 05/07/2024 | 050724 | 050724 | | | | | | | |
| APP 754-100100 | | | | | Cash-General | | | | 1,067,270.62 |
| 05/07/2024 | 050724 | 050724 | | | | | | | |
| APP 999-202010 | | | | | Due to/Due FrmPotable Wtr Cnst | | | 1,666.50 | |
| 05/07/2024 | 050724 | 050724 | | | | | | | |
| APP 201-100100 | | | | | Cash-General | | | | 1,666.50 |
| 05/07/2024 | 050724 | 050724 | | | | | | | |
| APP 999-201020 | | | | | Due to/Due Frm Recl Wtr Ops | | | 483.54 | |

# A/P CASH DISBURSEMENTS JOURNAL

**JOURNAL ENTRIES TO BE CREATED**

| YEAR PER JNL SRC ACCOUNT | EFF DATE | JNL DESC | REF 1 | REF 2 | REF 3 | ACCOUNT DESC / LINE DESC | T | OB | DEBIT | CREDIT |
|---|---|---|---|---|---|---|---|---|---|---|
| | 05/07/2024 | 050724 | 050724 | | | | | | | |
| APP 102-100100 | | | | | | Cash-General | | | | 483.54 |
| | 05/07/2024 | 050724 | 050724 | | | | | | | |
| APP 999-203010 | | | | | | Due to/Due FrmPotable Wtr Repl | | | 1,924.68 | |
| | 05/07/2024 | 050724 | 050724 | | | | | | | |
| APP 301-100100 | | | | | | Cash-General | | | | 1,924.68 |
| | 05/07/2024 | 050724 | 050724 | | | | | | | |
| | | | | | | SYSTEM GENERATED ENTRIES TOTAL | | | 1,551,091.73 | 1,551,091.73 |
| | | | | | | JOURNAL 2024/11/72 TOTAL | | | 3,102,183.46 | 3,102,183.46 |

# A/P CASH DISBURSEMENTS JOURNAL

**JOURNAL ENTRIES TO BE CREATED**

| FUND / ACCOUNT | YEAR | PER | JNL | EFF DATE / ACCOUNT DESCRIPTION | | DEBIT | CREDIT |
|---|---|---|---|---|---|---|---|
| 101 Potable Water Operations | 2024 | 11 | 72 | 05/07/2024 | | | |
| 101-100100 | | | | Cash-General | | | 122,144.34 |
| 101-200000 | | | | Accounts Payable | | 122,144.34 | |
| | | | | | FUND TOTAL | 122,144.34 | 122,144.34 |
| 102 Recycled Water Operations | 2024 | 11 | 72 | 05/07/2024 | | | |
| 102-100100 | | | | Cash-General | | | 483.54 |
| 102-200000 | | | | Accounts Payable | | 483.54 | |
| | | | | | FUND TOTAL | 483.54 | 483.54 |
| 130 Sanitation Operations | 2024 | 11 | 72 | 05/07/2024 | | | |
| 130-100100 | | | | Cash-General | | | 39,532.36 |
| 130-200000 | | | | Accounts Payable | | 39,532.36 | |
| | | | | | FUND TOTAL | 39,532.36 | 39,532.36 |
| 201 Potable Water Construction | 2024 | 11 | 72 | 05/07/2024 | | | |
| 201-100100 | | | | Cash-General | | | 1,666.50 |
| 201-200000 | | | | Accounts Payable | | 1,666.50 | |
| | | | | | FUND TOTAL | 1,666.50 | 1,666.50 |
| 301 Potable Wtr Replacement Fund | 2024 | 11 | 72 | 05/07/2024 | | | |
| 301-100100 | | | | Cash-General | | | 1,924.68 |
| 301-200000 | | | | Accounts Payable | | 1,924.68 | |
| | | | | | FUND TOTAL | 1,924.68 | 1,924.68 |
| 701 Internal Service Fund | 2024 | 11 | 72 | 05/07/2024 | | | |
| 701-100100 | | | | Cash-General | | | 65,203.56 |
| 701-200000 | | | | Accounts Payable | | 65,203.56 | |
| | | | | | FUND TOTAL | 65,203.56 | 65,203.56 |
| 751 JPA Operations | 2024 | 11 | 72 | 05/07/2024 | | | |
| 751-100100 | | | | Cash-General | | | 252,866.13 |
| 751-200000 | | | | Accounts Payable | | 252,866.13 | |
| | | | | | FUND TOTAL | 252,866.13 | 252,866.13 |
| 754 JPA Replacement | 2024 | 11 | 72 | 05/07/2024 | | | |
| 754-100100 | | | | Cash-General | | | 1,067,270.62 |
| 754-200000 | | | | Accounts Payable | | 1,067,270.62 | |
| | | | | | FUND TOTAL | 1,067,270.62 | 1,067,270.62 |
| 999 Pooled Cash | 2024 | 11 | 72 | 05/07/2024 | | | |

# A/P CASH DISBURSEMENTS JOURNAL

**JOURNAL ENTRIES TO BE CREATED**

| FUND / ACCOUNT | YEAR PER | JNL | EFF DATE | ACCOUNT DESCRIPTION | DEBIT | CREDIT |
|---|---|---|---|---|---|---|
| 999-100100 | | | | Cash-General | | 1,551,091.73 |
| 999-201010 | | | | Due to/Due Frm Potable Wtr Ops | 122,144.34 | |
| 999-201020 | | | | Due to/Due Frm Recl Wtr Ops | 483.54 | |
| 999-201300 | | | | Due to/Due FrmSanitation Ops | 39,532.36 | |
| 999-202010 | | | | Due to/Due FrmPotable Wtr Cnst | 1,666.50 | |
| 999-203010 | | | | Due to/Due FrmPotable Wtr Repl | 1,924.68 | |
| 999-207010 | | | | Due to/Due FromInternal Svs | 65,203.56 | |
| 999-207510 | | | | Due to/Due FromJPA Operations | 252,866.13 | |
| 999-207540 | | | | Due to/Due FromJPA Replacement | 1,067,270.62 | |
| | | | | FUND TOTAL | 1,551,091.73 | 1,551,091.73 |

# A/P CASH DISBURSEMENTS JOURNAL

**JOURNAL ENTRIES TO BE CREATED**

| FUND | | DUE TO | DUE FR |
|---|---|---|---|
| 101 | Potable Water Operations | | 122,144.34 |
| 102 | Recycled Water Operations | | 483.54 |
| 130 | Sanitation Operations | | 39,532.36 |
| 201 | Potable Water Construction | | 1,666.50 |
| 301 | Potable Wtr Replacement Fund | | 1,924.68 |
| 701 | Internal Service Fund | | 65,203.56 |
| 751 | JPA Operations | | 252,866.13 |
| 754 | JPA Replacement | | 1,067,270.62 |
| 999 | Pooled Cash | 1,551,091.73 | |
| | TOTAL | 1,551,091.73 | 1,551,091.73 |

** END OF REPORT - Generated by Thieu Chau **

## A/P CASH DISBURSEMENTS JOURNAL

CASH ACCOUNT: 999 100100 Cash-General

| CHECK NO | CHK DATE | TYPE | VENDOR | NAME | INVOICE | INV DATE | PO | CHECK RUN | NET |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | INVOICE DTL DESC | | | | |
| 109102 | 02/06/2024 | VOID | 2536 | CITY OF LOS ANGELES | WP240000069 | 01/23/2024 | | | -23,655.62 |
| Invoice: WP240000069 | | | | | ASSFC EL CANON FY 2022-23 | | | | |
| | | | | -23,655.62 | 130100 574000 | Purch Svc-City Of LA | | | |
| | | | | | | | CHECK 109102 TOTAL: | | -23,655.62 |
| | | | | | | NUMBER OF CHECKS 1 | *** CASH ACCOUNT TOTAL *** | | -23,655.62 |

| | COUNT | AMOUNT |
|---|---|---|
| TOTAL VOIDED CHECKS | 1 | 23,655.62 |

*** GRAND TOTAL *** -23,655.62

# A/P CASH DISBURSEMENTS JOURNAL

**JOURNAL ENTRIES TO BE CREATED**

CLERK: 3296jcortez

| YEAR PER JNL<br>SRC ACCOUNT<br>EFF DATE | JNL DESC | REF 1 | REF 2 | REF 3 | ACCOUNT DESC<br>LINE DESC | T OB | DEBIT | CREDIT |
|---|---|---|---|---|---|---|---|---|
| 2024 11 36 | | | | | | | | |
| APP 130-200000 | | | | | Accounts Payable | | | 23,655.62 |
| 05/06/2024 | 109102 | 050624 | | | AP CASH DISBURSEMENTS JOURNAL | | | |
| APP 999-100100 | | | | | Cash-General | | 23,655.62 | |
| 05/06/2024 | 109102 | 050624 | | | AP CASH DISBURSEMENTS JOURNAL | | | |
| | | | | | GENERAL LEDGER TOTAL | | 23,655.62 | 23,655.62 |
| APP 999-201300 | | | | | Due to/Due FrmSanitation Ops | | | 23,655.62 |
| 05/06/2024 | 020624 | 050624 | | | | | | |
| APP 130-100100 | | | | | Cash-General | | 23,655.62 | |
| 05/06/2024 | 020624 | 050624 | | | | | | |
| | | | | | SYSTEM GENERATED ENTRIES TOTAL | | 23,655.62 | 23,655.62 |
| | | | | | JOURNAL 2024/11/36 | TOTAL | 47,311.24 | 47,311.24 |

# A/P CASH DISBURSEMENTS JOURNAL

**JOURNAL ENTRIES TO BE CREATED**

| FUND / ACCOUNT | YEAR | PER | JNL | EFF DATE / ACCOUNT DESCRIPTION | DEBIT | CREDIT |
|---|---|---|---|---|---|---|
| 130 Sanitation Operations | 2024 | 11 | 36 | 05/06/2024 | | |
| 130-100100 | | | | Cash-General | 23,655.62 | |
| 130-200000 | | | | Accounts Payable | | 23,655.62 |
| | | | | FUND TOTAL | 23,655.62 | 23,655.62 |
| 999 Pooled Cash | 2024 | 11 | 36 | 05/06/2024 | | |
| 999-100100 | | | | Cash-General | 23,655.62 | |
| 999-201300 | | | | Due to/Due FrmSanitation Ops | | 23,655.62 |
| | | | | FUND TOTAL | 23,655.62 | 23,655.62 |

# A/P CASH DISBURSEMENTS JOURNAL

**JOURNAL ENTRIES TO BE CREATED**

| FUND | | DUE TO | DUE FR |
|---|---|---|---|
| 130 | Sanitation Operations | | 23,655.62 |
| 999 | Pooled Cash | 23,655.62 | |
| | TOTAL | 23,655.62 | 23,655.62 |

** END OF REPORT - Generated by Jessica Cortez **

# A/P CASH DISBURSEMENTS JOURNAL

CASH ACCOUNT: 999 100100 Cash-General

| CHECK NO | CHK DATE | TYPE | VENDOR | NAME | INVOICE | INV DATE | PO | CHECK RUN | NET |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | INVOICE DTL DESC | | | | |
| 109515 | 03/26/2024 | VOID | 19779 | CALABASAS STYLE, LLC | 2024-40516 | 02/21/2024 | | | -1,200.00 |
| Invoice: 2024-40516 | | | | | | MAR/APR 2024 FULL PAGE EDITORIAL | | | |
| | | | | -1,200.00 | 101900 660400 | Public Education Programs | | | |
| | | | | | | | CHECK | 109515 TOTAL: | -1,200.00 |
| | | | | | NUMBER OF CHECKS 1 | | *** CASH ACCOUNT TOTAL *** | | -1,200.00 |

| | COUNT | AMOUNT |
|---|---|---|
| TOTAL VOIDED CHECKS | 1 | 1,200.00 |

*** GRAND TOTAL *** -1,200.00

# A/P CASH DISBURSEMENTS JOURNAL

**JOURNAL ENTRIES TO BE CREATED**

CLERK: 3296jcortez

| YEAR PER JNL<br>SRC ACCOUNT<br>EFF DATE | JNL DESC | REF 1 | REF 2 | REF 3 | ACCOUNT DESC<br>LINE DESC | T | OB | DEBIT | CREDIT |
|---|---|---|---|---|---|---|---|---|---|
| 2024 11 127 | | | | | | | | | |
| APP 101-200000 | | | | | Accounts Payable | | | | 1,200.00 |
| 05/09/2024 | 109515 | 050924 | | | AP CASH DISBURSEMENTS JOURNAL | | | | |
| APP 999-100100 | | | | | Cash-General | | | 1,200.00 | |
| 05/09/2024 | 109515 | 050924 | | | AP CASH DISBURSEMENTS JOURNAL | | | | |
| | | | | | GENERAL LEDGER TOTAL | | | 1,200.00 | 1,200.00 |
| APP 999-201010 | | | | | Due to/Due Frm Potable Wtr Ops | | | | 1,200.00 |
| 05/09/2024 | 032624 | 050924 | | | | | | | |
| APP 101-100100 | | | | | Cash-General | | | 1,200.00 | |
| 05/09/2024 | 032624 | 050924 | | | | | | | |
| | | | | | SYSTEM GENERATED ENTRIES TOTAL | | | 1,200.00 | 1,200.00 |
| | | | | | JOURNAL 2024/11/127 TOTAL | | | 2,400.00 | 2,400.00 |

# A/P CASH DISBURSEMENTS JOURNAL

**JOURNAL ENTRIES TO BE CREATED**

| FUND / ACCOUNT | YEAR | PER | JNL | EFF DATE / ACCOUNT DESCRIPTION | DEBIT | CREDIT |
|---|---|---|---|---|---|---|
| 101 Potable Water Operations | 2024 | 11 | 127 | 05/09/2024 | | |
| 101-100100 | | | | Cash-General | 1,200.00 | |
| 101-200000 | | | | Accounts Payable | | 1,200.00 |
| | | | | FUND TOTAL | 1,200.00 | 1,200.00 |
| 999 Pooled Cash | 2024 | 11 | 127 | 05/09/2024 | | |
| 999-100100 | | | | Cash-General | 1,200.00 | |
| 999-201010 | | | | Due to/Due Frm Potable Wtr Ops | | 1,200.00 |
| | | | | FUND TOTAL | 1,200.00 | 1,200.00 |

# A/P CASH DISBURSEMENTS JOURNAL

**JOURNAL ENTRIES TO BE CREATED**

| FUND | | DUE TO | DUE FR |
|---|---|---|---|
| 101 | Potable Water Operations | | 1,200.00 |
| 999 | Pooled Cash | 1,200.00 | |
| | TOTAL | 1,200.00 | 1,200.00 |

** END OF REPORT - Generated by Jessica Cortez **

# A/P CASH DISBURSEMENTS JOURNAL

CASH ACCOUNT: 999 100100 Cash-General

| CHECK NO | CHK DATE | TYPE | VENDOR | NAME | INVOICE | INV DATE | PO | CHECK RUN | NET |
|---|---|---|---|---|---|---|---|---|---|
| | | | | INVOICE DTL DESC | | | | | |
| 113 | 05/14/2024 | EFT | 2654 | FAMCON PIPE | S100120228.001 | 04/18/2024 | 2240120 | 051424 | 18,980.73 |
| Invoice: S100120228.001 | | | | | | CLA-VAL BODY & COVER | | | |
| | | | | 18,980.73 701 132000 | | Storeroom & Truck Inventory | | | |
| | | | | | | CHECK | 113 TOTAL: | | 18,980.73 |
| 114 | 05/14/2024 | EFT | 20856 | INTERNATIONAL PRINTING & TYPESETT | 23293 | 04/19/2024 | | 051424 | 1,456.35 |
| Invoice: 23293 | | | | | | COLORING BOOK | | | |
| | | | | 1,456.35 101900 660400 | | Public Education Programs | | | |
| | | | | | | CHECK | 114 TOTAL: | | 1,456.35 |
| 115 | 05/14/2024 | EFT | 21659 | ONTARIO REFRIGERATION SERVICE, IN | GW29930 | 04/19/2024 | | 051424 | 3,711.00 |
| Invoice: GW29930 | | | | | | REPAIR HVAC AT LV 2 4/10-4/11/24 | | | |
| | | | | 3,711.00 101100 551500 | | Outside Services | | | |
| | | | | ONTARIO REFRIGERATION SERVICE, IN | GW29817 | 03/29/2024 | | 051424 | 763.43 |
| Invoice: GW29817 | | | | | | TROUBLESHOOT HVAC AT LV2 3/21/24 | | | |
| | | | | 763.43 101100 551500 | | Outside Services | | | |
| | | | | ONTARIO REFRIGERATION SERVICE, IN | GW29996 | 04/26/2024 | | 051424 | 2,174.00 |
| Invoice: GW29996 | | | | | | RTU SVC ELECTRIC ROOM 4/17/24 | | | |
| | | | | 2,174.00 101100 551500 | | Outside Services | | | |
| | | | | | | CHECK | 115 TOTAL: | | 6,648.43 |
| 116 | 05/14/2024 | EFT | 2902 | QUINN POWER SYSTEM | Z8218401 | 04/17/2024 | 2240153 | 051424 | 90,020.38 |
| Invoice: Z8218401 | | | | | | FERGUSON TRACTOR SERIAL NO. AGCMC190KNC0 | | | |
| | | | | 90,020.38 751810 553000 | | Capital Outlay | | | |
| | | | | QUINN POWER SYSTEM | WON10022279 | 04/24/2024 | | 051424 | 1,036.23 |
| Invoice: WON10022279 | | | | | | PM PORTABLE GENERATOR | | | |
| | | | | 1,036.23 701325 551500 | | Outside Services | | | |
| | | | | QUINN POWER SYSTEM | WON10022280 | 04/24/2024 | | 051424 | 1,063.62 |
| Invoice: WON10022280 | | | | | | PM PORTABLE GENERATOR | | | |
| | | | | 1,063.62 701325 551500 | | Outside Services | | | |
| | | | | | | CHECK | 116 TOTAL: | | 92,120.23 |
| 117 | 05/14/2024 | EFT | 14479 | STEPHEN'S VIDEO PRODUCTIONS | 4-24-24 | 04/24/2024 | | 051424 | 700.00 |
| Invoice: 4-24-24 | | | | | | VIDEO SRV - JPA MTGS APRIL 2024 | | | |
| | | | | 700.00 701112 651600 | | Other Professional Serv | | | |
| | | | | STEPHEN'S VIDEO PRODUCTIONS | 4-25-24 | 04/25/2024 | | 051424 | 1,400.00 |
| Invoice: 4-25-24 | | | | | | VIDEO SRV - LV MTGS APRIL 2024 | | | |
| | | | | 1,400.00 701112 651600 | | Other Professional Serv | | | |

# A/P CASH DISBURSEMENTS JOURNAL

CASH ACCOUNT: 999 100100 Cash-General

| CHECK NO | CHK DATE | TYPE | VENDOR | NAME | INVOICE | INV DATE | PO | CHECK RUN | NET |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | INVOICE DTL DESC | | | | |
| | | | | STEPHEN'S VIDEO PRODUCTIONS | 4-23-24 | 04/23/2024 | | 051424 | 700.00 |
| Invoice: 4-23-24 | | | | | | VIDEO SRV - OCEAN WELLS MTG 4/8/24 | | | |
| | | | | | 700.00 701112 651600 | Other Professional Serv | | | |
| | | | | | | CHECK | | 117 TOTAL: | 2,800.00 |
| 118 | 05/14/2024 | EFT | 30670 | SYRUS DEVERS ADVOCACY LLC | 1045 | 05/01/2024 | | 051424 | 6,500.00 |
| Invoice: 1045 | | | | | | CLIENT SVCS APRIL 2024 | | | |
| | | | | | 6,500.00 751840 651600 | Other Professional Serv | | | |
| | | | | | | CHECK | | 118 TOTAL: | 6,500.00 |
| 119 | 05/14/2024 | EFT | 17645 | TORO ENTERPRISES INC. | 17577 | 02/29/2024 | | 051424 | 6,353.26 |
| Invoice: 17577 | | | | | | EROSION PREVENTION, 12" PW MAIN BREAK | | | |
| | | | | | 6,353.26 101700 551500 | Outside Services | | | |
| | | | | TORO ENTERPRISES INC. | 17693 | 03/31/2024 | | 051424 | 77,726.42 |
| Invoice: 17693 | | | | | | POTABLE MAIN LINE REPAIR | | | |
| | | | | | 77,726.42 101700 551500 | Outside Services | | | |
| | | | | TORO ENTERPRISES INC. | 17645 | 03/31/2024 | | 051424 | 8,800.32 |
| Invoice: 17645 | | | | | | PARKMOR ROAD EMERGENCY MAIN REPAIR | | | |
| | | | | | 8,800.32 101700 551500 | Outside Services | | | |
| | | | | TORO ENTERPRISES INC. | 17547 | 01/31/2024 | | 051424 | 38,608.27 |
| Invoice: 17547 | | | | | | PARKMOR ROAD EMERGENCY MAIN REPAIR | | | |
| | | | | | 38,608.27 101700 551500 | Outside Services | | | |
| | | | | | | CHECK | | 119 TOTAL: | 131,488.27 |
| 120 | 05/14/2024 | PRTD | 2317 | STRICKBINE PUBLISHING, INC | 2024-83740 | 04/19/2024 | | 051424 | 555.00 |
| Invoice: 2024-83740 | | | | | | 1/4 DISPLAY AD - SPRING 2024 LNDSCP PRGRM 4/19/24 | | | |
| | | | | | 555.00 101900 660400 | Public Education Programs | | | |
| | | | | | | CHECK | | 120 TOTAL: | 555.00 |
| 121 | 05/14/2024 | PRTD | 4525 | HARRINGTON INDUSTRIAL PLASTICS IN | 005E3049 | 04/25/2024 | | 051424 | 71.96 |
| Invoice: 005E3049 | | | | | | SCREENS FOR Y-STRAINERS | | | |
| | | | | | 71.96 751810 551000 | Supplies/Material | | | |
| | | | | | | CHECK | | 121 TOTAL: | 71.96 |
| 122 | 05/14/2024 | PRTD | 18914 | WECK LABORATORIES, INC. | W4D2350 | 04/26/2024 | | 051424 | 111.96 |
| Invoice: W4D2350 | | | | | | PW SAMPLING WEEKLY | | | |
| | | | | | 111.96 751750 571520 | Other Laboratory Serv | | | |
| | | | | WECK LABORATORIES, INC. | W4D0582 | 04/05/2024 | | 051424 | 3,040.00 |

## A/P CASH DISBURSEMENTS JOURNAL

CASH ACCOUNT: 999 100100 Cash-General

| CHECK NO | CHK DATE | TYPE | VENDOR | NAME | INVOICE | INV DATE | PO | CHECK RUN | NET |
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| | | | | | INVOICE DTL DESC | | | | |
| Invoice: W4D0582 | | | | | | UCMR5 | | | |
| | | | | | 3,040.00 101300 571520 | Other Laboratory Serv | | | |
| | | | | WECK LABORATORIES, INC. | W4D2309 | 04/26/2024 | | 051424 | 111.96 |
| Invoice: W4D2309 | | | | | | PW SAMPLING WEEKLY | | | |
| | | | | | 111.96 751750 571520 | Other Laboratory Serv | | | |
| | | | | WECK LABORATORIES, INC. | W4D2041 | 04/23/2024 | | 051424 | 169.13 |
| Invoice: W4D2041 | | | | | | TAPIA EFFLUENT (MONTHLY) | | | |
| | | | | | 169.13 751810 571520 | Other Laboratory Serv | | | |
| | | | | | | CHECK | 122 TOTAL: | | 3,433.05 |
| 123 | 05/14/2024 | PRTD | 21594 | RECYCLED WOOD PRODUCTS | 255586 | 04/16/2024 | | 051424 | 1,982.50 |
| Invoice: 255586 | | | | | | 130 YD WOODCHIPS | | | |
| | | | | | 1,982.50 751820 541080 | Amendment | | | |
| | | | | RECYCLED WOOD PRODUCTS | 255763 | 04/19/2024 | | 051424 | 3,965.00 |
| Invoice: 255763 | | | | | | 260 YD WOODCHIPS | | | |
| | | | | | 3,965.00 751820 541080 | Amendment | | | |
| | | | | RECYCLED WOOD PRODUCTS | 255973 | 04/24/2024 | | 051424 | 1,982.50 |
| Invoice: 255973 | | | | | | 130 YD WOODCHIPS | | | |
| | | | | | 1,982.50 751820 541080 | Amendment | | | |
| | | | | | | CHECK | 123 TOTAL: | | 7,930.00 |
| 124 | 05/14/2024 | PRTD | 21594 | RECYCLED WOOD PRODUCTS | FC 23975 | 05/31/2023 | | 051424 | 739.97 |
| Invoice: FC 23975 | | | | | | FINANCE CHARGES FOR MARCH & APRIL 2023 | | | |
| | | | | | 739.97 751820 541080 | Amendment | | | |
| | | | | | | CHECK | 124 TOTAL: | | 739.97 |
| 125 | 05/14/2024 | PRTD | 30387 | CINTAS CORPORATION NO. 3 | 4189772847 | 04/17/2024 | | 051424 | 170.37 |
| Invoice: 4189772847 | | | | | | APRIL 2024 UNIFORMS/MATS/TOWELS | | | |
| | | | | | 83.66 751820 551000 | Supplies/Material | | | |
| | | | | | 86.71 701999 731600 | Uniforms | | | |
| | | | | CINTAS CORPORATION NO. 3 | 4190327771 | 04/23/2024 | | 051424 | 79.81 |
| Invoice: 4190327771 | | | | | | APRIL 2024 UNIFORMS/MATS/TOWELS | | | |
| | | | | | 15.72 101600 551000 | Supplies/Material | | | |
| | | | | | 64.09 701999 731600 | Uniforms | | | |
| | | | | CINTAS CORPORATION NO. 3 | 4184726914 | 02/28/2024 | | 051424 | 170.37 |
| Invoice: 4184726914 | | | | | | FEBRUARY 2024 UNIFORMS/MATS/TOWELS | | | |
| | | | | | 83.66 751820 551000 | Supplies/Material | | | |
| | | | | | 86.71 701999 731600 | Uniforms | | | |
| | | | | CINTAS CORPORATION NO. 3 | 4189772835 | 04/17/2024 | | 051424 | 271.31 |

## A/P CASH DISBURSEMENTS JOURNAL

CASH ACCOUNT: 999 100100 Cash-General

| CHECK NO | CHK DATE | TYPE | VENDOR | NAME | INVOICE | INV DATE | PO | CHECK RUN | NET |
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| | | | | | INVOICE DTL DESC | | | | |
| | | | | Invoice: 4189772835 | | | | | |
| | | | | | 109.32 751810 551000 | APRIL 2024 UNIFORMS/MATS/TOWELS Supplies/Material | | | |
| | | | | | 161.99 701999 731600 | Uniforms | | | |
| | | | | CINTAS CORPORATION NO. 3 | 4190488534 | 04/24/2024 | | 051424 | 271.31 |
| | | | | Invoice: 4190488534 | | | | | |
| | | | | | 109.32 751810 551000 | APRIL 2024 UNIFORMS/MATS/TOWELS Supplies/Material | | | |
| | | | | | 161.99 701999 731600 | Uniforms | | | |
| | | | | CINTAS CORPORATION NO. 3 | 4190488604 | 04/24/2024 | | 051424 | 170.37 |
| | | | | Invoice: 4190488604 | | | | | |
| | | | | | 83.66 751820 551000 | APRIL 2024 UNIFORMS/MATS/TOWELS Supplies/Material | | | |
| | | | | | 86.71 701999 731600 | Uniforms | | | |
| | | | | CINTAS CORPORATION NO. 3 | 4190489134 | 04/24/2024 | | 051424 | 632.30 |
| | | | | Invoice: 4190489134 | | | | | |
| | | | | | 129.14 701002 551000 | APRIL 2024 UNIFORMS/MATS/TOWELS Supplies/Material | | | |
| | | | | | 503.16 701999 731600 | Uniforms | | | |
| | | | | | | CHECK | 125 TOTAL: | | 1,765.84 |
| 126 | 05/14/2024 | PRTD | 30645 | VITAL COATINGS INC | 262 | 04/24/2024 | | 051424 | 11,520.00 |
| | | | | Invoice: 262 | | | | | |
| | | | | | 11,520.00 101600 541500 | LVR INLET OUTLET PROJECT 4/23/24 Outside Services | | | |
| | | | | | | CHECK | 126 TOTAL: | | 11,520.00 |
| 109846 | 05/14/2024 | PRTD | 19269 | ACC BUSINESS | 241056150 | 04/27/2024 | | 051424 | 1,019.17 |
| | | | | Invoice: 241056150 | | | | | |
| | | | | | 101.92 101600 540520 | INTERNET SRV 3/11-4/10/24 Telephone | | | |
| | | | | | 101.92 751820 540520 | Telephone | | | |
| | | | | | 305.75 751810 540520 | Telephone | | | |
| | | | | | 254.79 701001 540520 | Telephone | | | |
| | | | | | 254.79 701002 540520 | Telephone | | | |
| | | | | | | CHECK | 109846 TOTAL: | | 1,019.17 |
| 109847 | 05/14/2024 | PRTD | 30485 | ADS CORP | 22085-0424 | 04/20/2024 | | 051424 | 3,486.00 |
| | | | | Invoice: 22085-0424 | | | | | |
| | | | | | 871.50 130100 551500 | SEWER FLOW MONITORING APRIL 2024 Outside Services | | | |
| | | | | | 2,614.50 751800 551500 | Outside Services | | | |
| | | | | | | CHECK | 109847 TOTAL: | | 3,486.00 |
| 109848 | 05/14/2024 | PRTD | 30729 | AMAZON CAPITAL SERVICES, INC. | 1MDK-WKLT-QX6K | 03/11/2024 | | 051424 | 81.47 |
| | | | | Invoice: 1MDK-WKLT-QX6K | | | | | |
| | | | | | 81.47 701326 572500 | CONDUIT CARRIER KIT Genl Supplies/Small Tools | | | |

# A/P CASH DISBURSEMENTS JOURNAL

CASH ACCOUNT: 999 100100 Cash-General

| CHECK NO | CHK DATE | TYPE | VENDOR | NAME | INVOICE | INV DATE | PO | CHECK RUN | NET |
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| | | | | | INVOICE DTL DESC | | | | |
| | | | | AMAZON CAPITAL SERVICES, INC. | 17WD-HGJX-C9CK | 04/05/2024 | | 051424 | 119.07 |
| | Invoice: 17WD-HGJX-C9CK | | | | | BATTERIES | | | |
| | | | | | 119.07 101600 551000 | Supplies/Material | | | |
| | | | | AMAZON CAPITAL SERVICES, INC. | 1RQ7-P947-DF7J | 04/16/2024 | | 051424 | 25.17 |
| | Invoice: 1RQ7-P947-DF7J | | | | | SCREW CAPS | | | |
| | | | | | 25.17 751750 541000 | Supplies | | | |
| | | | | AMAZON CAPITAL SERVICES, INC. | 1RX4-1F69-6913 | 04/23/2024 | | 051424 | 27.36 |
| | Invoice: 1RX4-1F69-6913 | | | | | IPHONE CASE | | | |
| | | | | | 27.36 701420 620000 | Forms, Supplies And Postage | | | |
| | | | | AMAZON CAPITAL SERVICES, INC. | 1C7F-L3F3-66LQ | 04/23/2024 | | 051424 | 5.23 |
| | Invoice: 1C7F-L3F3-66LQ | | | | | MEASURING SPOONS | | | |
| | | | | | 5.23 751750 541000 | Supplies | | | |
| | | | | AMAZON CAPITAL SERVICES, INC. | 1DNT-MNPF-9HHH | 04/19/2024 | | 051424 | 21.88 |
| | Invoice: 1DNT-MNPF-9HHH | | | | | ICE MACHINE FILTER | | | |
| | | | | | 21.88 751810 551000 | Supplies/Material | | | |
| | | | | | | CHECK | 109848 TOTAL: | | 280.18 |
| 109849 | 05/14/2024 | PRTD | 2397 | AQUATIC BIOASSAY & CONSULTING | LVS0424.0336 | 04/18/2024 | | 051424 | 7,365.00 |
| | Invoice: LVS0424.0336 | | | | | CHRONIC TOXICITY TESTING | | | |
| | | | | | 7,365.00 751810 571520 | Other Laboratory Serv | | | |
| | | | | | | CHECK | 109849 TOTAL: | | 7,365.00 |
| 109850 | 05/14/2024 | PRTD | 19264 | ARNOLD LAROCHELLE MATHEWS VANCONA | 10252 | 05/03/2024 | | 051424 | 800.00 |
| | Invoice: 10252 | | | | | JPA COUNSEL SRV APRIL 2024 | | | |
| | | | | | 800.00 751840 687200 | Outside Services | | | |
| | | | | | | CHECK | 109850 TOTAL: | | 800.00 |
| 109851 | 05/14/2024 | PRTD | 20698 | BATTERIES PLUS | P71273400 | 03/19/2024 | | 051424 | 727.15 |
| | Invoice: P71273400 | | | | | BATTERIES | | | |
| | | | | | 727.15 101100 541000 | Supplies/Material | | | |
| | | | | | | CHECK | 109851 TOTAL: | | 727.15 |
| 109852 | 05/14/2024 | PRTD | 18071 | BLUE DIAMOND MATERIALS | 3559257 | 04/23/2024 | | 051424 | 261.84 |
| | Invoice: 3559257 | | | | | 2.56 TONS AC 3/8 FINE | | | |
| | | | | | 261.84 101700 551000 | Supplies/Material | | | |
| | | | | | | CHECK | 109852 TOTAL: | | 261.84 |

## A/P CASH DISBURSEMENTS JOURNAL

CASH ACCOUNT: 999 100100 Cash-General

| CHECK NO | CHK DATE | TYPE | VENDOR | NAME | INVOICE | INV DATE | PO | CHECK RUN | NET |
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| | | | | | INVOICE DTL DESC | | | | |
| 109853 | 05/14/2024 | PRTD | 19779 | CALABASAS STYLE, LLC | 2024-40516A | 02/21/2024 | | 051424 | 1,200.00 |
| | Invoice: 2024-40516A | | | | | MAR/APR 2024 FULL PAGE EDITORIAL - RE-ISSUE | | | |
| | | | | | 1,200.00 101900 660400 | Public Education Programs | | | |
| | | | | | | CHECK | 109853 TOTAL: | | 1,200.00 |
| 109854 | 05/14/2024 | PRTD | 19779 | CALABASAS STYLE, LLC | 2024-42644 | 04/01/2024 | | 051424 | 1,200.00 |
| | Invoice: 2024-42644 | | | | | MAY/JUN 2024 FULL PAGE EDITORIAL | | | |
| | | | | | 1,200.00 101900 660400 | Public Education Programs | | | |
| | | | | | | CHECK | 109854 TOTAL: | | 1,200.00 |
| 109855 | 05/14/2024 | PRTD | 2516 | CALIFORNIA ASSOC. OF SANI AGENCIE | 8172 | 04/25/2024 | | 051424 | 695.00 |
| | Invoice: 8172 | | | | | D.PEDERSEN REG CONF 7/31-8/2/24 | | | |
| | | | | | 695.00 701121 683000 | Training & Professional Devel | | | |
| | | | | | | CHECK | 109855 TOTAL: | | 695.00 |
| 109856 | 05/14/2024 | PRTD | 2964 | CA ST TREAS. BOE | 97-817885/043024 | 04/30/2024 | | 051424 | 22,781.00 |
| | Invoice: 97-817885/043024 | | | | | 97-817885 USE-TAX 04/01/24-04/30/24 PRE-PAYMENT#1 | | | |
| | | | | | 22,781.23 751 206000 | Use Tax Liability | | | |
| | | | | | -.23 701999 862500 | Other Non-Operating Expense | | | |
| | | | | | | CHECK | 109856 TOTAL: | | 22,781.00 |
| 109857 | 05/14/2024 | PRTD | 2510 | CALTROL, INC | CD99200784 | 04/19/2024 | | 051424 | 1,986.12 |
| | Invoice: CD99200784 | | | | | CERTIFY AMMONIA PRVS | | | |
| | | | | | 1,986.12 751810 551500 | Outside Services | | | |
| | | | | CALTROL, INC | CD99200786 | 04/19/2024 | | 051424 | 630.00 |
| | Invoice: CD99200786 | | | | | PICK-UP & DELIVER PRVS | | | |
| | | | | | 630.00 751810 551500 | Outside Services | | | |
| | | | | | | CHECK | 109857 TOTAL: | | 2,616.12 |
| 109858 | 05/14/2024 | PRTD | 18992 | CDW GOVERNMENT | QP24444 | 04/05/2024 | | 051424 | 241.85 |
| | Invoice: QP24444 | | | | | CDW ANNUAL SUBSCRIPTION 3/31/24-04/14/24 | | | |
| | | | | | 241.85 701420 621500 | System Support and Maintenance | | | |
| | | | | | | CHECK | 109858 TOTAL: | | 241.85 |
| 109859 | 05/14/2024 | PRTD | 2786 | CEDAR VALLEY PLUMBING SUPPLY | 231677 | 04/29/2024 | | 051424 | 83.83 |
| | Invoice: 231677 | | | | | FLUSHMATE CART | | | |
| | | | | | 83.83 701001 551000 | Supplies/Material | | | |

# A/P CASH DISBURSEMENTS JOURNAL

CASH ACCOUNT: 999 100100 Cash-General

| CHECK NO | CHK DATE | TYPE | VENDOR | NAME | INVOICE | INV DATE | PO | CHECK RUN | NET |
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| | | | | | INVOICE DTL DESC | | | | |
| | | | | | | CHECK | 109859 TOTAL: | | 83.83 |
| 109860 | 05/14/2024 | PRTD | 2539 | CITY OF SIMI VALLEY | 70771913 | 04/24/2024 | | 051424 | 6,649.59 |
| | Invoice: 70771913 | | | | | PURCH WATER 2/20-4/22/24 | | | |
| | | | | | 6,649.59 101001 511000 | Purch Water-Simi Dist#8 | | | |
| | | | | | | CHECK | 109860 TOTAL: | | 6,649.59 |
| 109861 | 05/14/2024 | PRTD | 2554 | COASTLINE EQUIPMENT | 1124446 | 04/25/2024 | | 051424 | 927.71 |
| | Invoice: 1124446 | | | | | REPAIR HYDRAULIC LINE | | | |
| | | | | | 927.71 701325 551500 | Outside Services | | | |
| | | | | | | CHECK | 109861 TOTAL: | | 927.71 |
| 109862 | 05/14/2024 | PRTD | 6966 | CS-AMSCO | 19490 | 04/24/2024 | 2240092 | 051424 | 8,143.78 |
| | Invoice: 19490 | | | | | 20 INCH DESURIK VALVE | | | |
| | | | | | 8,143.78 751820 551000 | Supplies/Material | | | |
| | | | | | | CHECK | 109862 TOTAL: | | 8,143.78 |
| 109863 | 05/14/2024 | PRTD | 11330 | DIAL SECURITY | 469735 | 04/19/2024 | | 051424 | 615.02 |
| | Invoice: 469735 | | | | | SERVICE CALL 4/18/24 | | | |
| | | | | | 615.02 751810 551800 | Building Maintenance | | | |
| | | | | DIAL SECURITY | 470477 | 05/01/2024 | | 051424 | 81.41 |
| | Invoice: 470477 | | | | | MAY 2024 SEC SRV - BLD 8 | | | |
| | | | | | 81.41 701001 551500 | Outside Services | | | |
| | | | | DIAL SECURITY | 470469 | 05/01/2024 | | 051424 | 376.30 |
| | Invoice: 470469 | | | | | MAY 2024 SEC SRV - LV CAMPUS | | | |
| | | | | | 376.30 701001 551500 | Outside Services | | | |
| | | | | DIAL SECURITY | 470475 | 05/01/2024 | | 051424 | 74.41 |
| | Invoice: 470475 | | | | | MAY 2024 SEC SRV - IT ROOM | | | |
| | | | | | 74.41 701001 551500 | Outside Services | | | |
| | | | | | | CHECK | 109863 TOTAL: | | 1,147.14 |
| 109864 | 05/14/2024 | PRTD | 30593 | DION & SONS, INC | V207520 | 04/19/2024 | | 051424 | 1,127.03 |
| | Invoice: V207520 | | | | | 300 GAL RED DYE DIESEL - RANCHO | | | |
| | | | | | 1,127.03 751830 541010 | Fuel | | | |
| | | | | DION & SONS, INC | V207522 | 04/19/2024 | | 051424 | 888.65 |
| | Invoice: V207522 | | | | | 235 GAL RED DYE DIESEL - RANCHO | | | |
| | | | | | 888.65 751820 541010 | Fuel | | | |
| | | | | DION & SONS, INC | V207373 | 04/16/2024 | | 051424 | 3,262.86 |

# A/P CASH DISBURSEMENTS JOURNAL

CASH ACCOUNT: 999 100100 Cash-General

| CHECK NO | CHK DATE | TYPE | VENDOR | NAME | INVOICE | INV DATE | PO | CHECK RUN | NET |
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| | | | | | INVOICE DTL DESC | | | | |
| | Invoice: V207373 | | | | 55 GAL OIL - RANCHO | | | | |
| | | | | | 3,262.86 751820 551000 Supplies/Material | | | | |
| | | | | | | CHECK | 109864 TOTAL: | | 5,278.54 |
| 109865 | 05/14/2024 | PRTD | 18441 | EMPLOYEE RELATIONS NETWORK | 97045 | 04/30/2024 | | 051424 | 279.91 |
| | Invoice: 97045 | | | | EE BACKGROUND CHECKS | | | | |
| | | | | | 279.91 701430 681000 Recruitment Expense | | | | |
| | | | | | | CHECK | 109865 TOTAL: | | 279.91 |
| 109866 | 05/14/2024 | PRTD | 2658 | FEDERAL EXPRESS CORP | 8-481-46894 | 04/25/2024 | | 051424 | 83.82 |
| | Invoice: 8-481-46894 | | | | MAIL SOIL CONTROL LAB | | | | |
| | | | | | 83.82 751820 571520 Other Laboratory Serv | | | | |
| | | | | | | CHECK | 109866 TOTAL: | | 83.82 |
| 109867 | 05/14/2024 | PRTD | 6770 | G.I. INDUSTRIES | 3113391-0283-3 | 05/01/2024 | | 051424 | 111.12 |
| | Invoice: 3113391-0283-3 | | | | DISP RLV FARM 5/1-5/31/24 | | | | |
| | | | | | 111.12 751820 551800 Building Maintenance | | | | |
| | | | | G.I. INDUSTRIES | 3113392-0283-1 | 05/01/2024 | | 051424 | 111.12 |
| | Invoice: 3113392-0283-1 | | | | DISP RLV FARM 5/1-5/31/24 | | | | |
| | | | | | 111.12 751830 551500 Outside Services | | | | |
| | | | | G.I. INDUSTRIES | 3113562-0283-9 | 05/01/2024 | | 051424 | 803.57 |
| | Invoice: 3113562-0283-9 | | | | 25 YD ROLLOFF DISP 4/16-4/30/24 | | | | |
| | | | | | 803.57 701002 551500 Outside Services | | | | |
| | | | | | | CHECK | 109867 TOTAL: | | 1,025.81 |
| 109868 | 05/14/2024 | PRTD | 2701 | GRAINGER | 9071188172 | 04/01/2024 | | 051424 | 101.04 |
| | Invoice: 9071188172 | | | | CURRENT MONITOR RELAY | | | | |
| | | | | | 101.04 751810 551000 Supplies/Material | | | | |
| | | | | GRAINGER | 9083727207 | 04/11/2024 | | 051424 | 53.22 |
| | Invoice: 9083727207 | | | | SPRAY PAINT | | | | |
| | | | | | 53.22 101900 572500 Genl Supplies/Small Tools | | | | |
| | | | | GRAINGER | 9083705823 | 04/11/2024 | | 051424 | 629.09 |
| | Invoice: 9083705823 | | | | BATTERIES, DUCT TAPE, PIPE SEALANT & SANITIZER | | | | |
| | | | | | 629.09 101900 572500 Genl Supplies/Small Tools | | | | |
| | | | | GRAINGER | 9075858655 | 04/04/2024 | | 051424 | 120.71 |
| | Invoice: 9075858655 | | | | KNOCKOUT PUNCH SET | | | | |
| | | | | | 120.71 701326 572500 Genl Supplies/Small Tools | | | | |
| | | | | GRAINGER | 9079472958 | 04/08/2024 | | 051424 | 97.00 |

## A/P CASH DISBURSEMENTS JOURNAL

CASH ACCOUNT: 999 100100 Cash-General

| CHECK NO | CHK DATE | TYPE | VENDOR | NAME | INVOICE | INV DATE | PO | CHECK RUN | NET |
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| | | | | | INVOICE DTL DESC | | | | |
| | Invoice: 9079472958 | | | | LOCKS | | | | |
| | | | | | 97.00 701326 572500 | Genl Supplies/Small Tools | | | |
| | | | | GRAINGER | 9080742530 | 04/09/2024 | | 051424 | 165.05 |
| | Invoice: 9080742530 | | | | FACILITIES TOOLS | | | | |
| | | | | | 165.05 701321 572500 | Genl Supplies/Small Tools | | | |
| | | | | GRAINGER | 9086531515 | 04/15/2024 | | 051424 | 44.91 |
| | Invoice: 9086531515 | | | | EQUIPMENT TAGS | | | | |
| | | | | | 44.91 701321 572500 | Genl Supplies/Small Tools | | | |
| | | | | GRAINGER | 9084581561 | 04/12/2024 | | 051424 | 11.09 |
| | Invoice: 9084581561 | | | | MOTOR RUN CAPACITOR | | | | |
| | | | | | 11.09 751810 551000 | Supplies/Material | | | |
| | | | | GRAINGER | 9084581553 | 04/12/2024 | | 051424 | 65.63 |
| | Invoice: 9084581553 | | | | LABELS, FILE | | | | |
| | | | | | 65.63 751820 551000 | Supplies/Material | | | |
| | | | | GRAINGER | 9075858663 | 04/04/2024 | | 051424 | 205.67 |
| | Invoice: 9075858663 | | | | WEB SLING | | | | |
| | | | | | 205.67 701321 572500 | Genl Supplies/Small Tools | | | |
| | | | | GRAINGER | 9075858671 | 04/04/2024 | | 051424 | 585.98 |
| | Invoice: 9075858671 | | | | FACILITIES SUPPLIES | | | | |
| | | | | | 585.98 701321 572500 | Genl Supplies/Small Tools | | | |
| | | | | | | CHECK | 109868 TOTAL: | | 2,079.39 |
| 109869 | 05/14/2024 | PRTD | 19548 | GRM INFORMATION MANAGEMENT SERVIC | 0500864 | 03/31/2024 | | 051424 | 526.74 |
| | Invoice: 0500864 | | | | APRIL 2024 RECORDS STORAGE | | | | |
| | | | | | 526.74 701121 623500 | Records Management | | | |
| | | | | GRM INFORMATION MANAGEMENT SERVIC | 0500865 | 03/31/2024 | | 051424 | 28.97 |
| | Invoice: 0500865 | | | | TRANSFERRED BOX SHREDDING | | | | |
| | | | | | 28.97 701121 623500 | Records Management | | | |
| | | | | | | CHECK | 109869 TOTAL: | | 555.71 |
| 109870 | 05/14/2024 | PRTD | 21133 | H2O INNOVATION USA, INC. | CD139925 | 04/30/2024 | 2240000 | 051424 | 1,100.00 |
| | Invoice: CD139925 | | | | INTELOGX SPRT APRIL 2024 | | | | |
| | | | | | 1,100.00 701420 621500 | System Support and Maintenance | | | |
| | | | | | | CHECK | 109870 TOTAL: | | 1,100.00 |
| 109871 | 05/14/2024 | PRTD | 30809 | K.C. RESTORATION CO., INC. | 660-1 | 04/18/2024 | | 051424 | 1,447.74 |
| | Invoice: 660-1 | | | | LACATION ROOM PAINTING | | | | |
| | | | | | 1,447.74 701001 551500 | Outside Services | | | |

## A/P CASH DISBURSEMENTS JOURNAL

CASH ACCOUNT: 999 100100 Cash-General

| CHECK NO | CHK DATE | TYPE | VENDOR | NAME | INVOICE | INV DATE | PO | CHECK RUN | NET |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | INVOICE DTL DESC | | | | |
| | | | | | | CHECK | 109871 TOTAL: | | 1,447.74 |
| 109872 | 05/14/2024 | PRTD | 15749 | LAWRENCE ROLL-UP DOORS, INC. | 2451303 | 04/24/2024 | | 051424 | 5,283.08 |
| | Invoice: 2451303 | | | | | REPLACE ROLL-UP DOOR CONTROLS | | | |
| | | | | 5,283.08 | 751820 551500 | Outside Services | | | |
| | | | | | | CHECK | 109872 TOTAL: | | 5,283.08 |
| 109873 | 05/14/2024 | PRTD | 30225 | MONSIDO, INC | 289824 | 12/31/2023 | | 051424 | 6,834.00 |
| | Invoice: 289824 | | | | | WEB GOVERNANCE SUITE 11/23/23 TO 11/22/2024 | | | |
| | | | | 6,834.00 | 701230 660400 | Public Education Programs | | | |
| | | | | | | CHECK | 109873 TOTAL: | | 6,834.00 |
| 109874 | 05/14/2024 | PRTD | 2839 | MOTION INDUSTRIES, INC. | CA22-00758233 | 04/26/2024 | | 051424 | 3,723.61 |
| | Invoice: CA22-00758233 | | | | | SHEAVE FOR FORCE MAIN #2 | | | |
| | | | | 3,723.61 | 751810 551000 | Supplies/Material | | | |
| | | | | | | CHECK | 109874 TOTAL: | | 3,723.61 |
| 109875 | 05/14/2024 | PRTD | 2302 | ODP BUSINESS SOLUTIONS LLC | 362045271001 | 04/10/2024 | | 051424 | 4.92 |
| | Invoice: 362045271001 | | | | | LETTER OPENER | | | |
| | | | | 4.92 | 701410 620000 | Forms, Supplies And Postage | | | |
| | | | | | | CHECK | 109875 TOTAL: | | 4.92 |
| 109876 | 05/14/2024 | PRTD | 30841 | PAUL BLAIR | 050224 | 05/02/2024 | | 051424 | 1,000.00 |
| | Invoice: 050224 | | | | | CLAIM FILED - VEHICLE DAMAGE | | | |
| | | | | 1,000.00 | 101900 714500 | Claims Paid | | | |
| | | | | | | CHECK | 109876 TOTAL: | | 1,000.00 |
| 109877 | 05/14/2024 | PRTD | 30458 | PIONEER AMERICAS, LLC 10728 | 900403962 | 04/16/2024 | | 051424 | 10,628.57 |
| | Invoice: 900403962 | | | | | 4,948 GAL SODIUM HYPOCHLORITE | | | |
| | | | | 10,628.57 | 751810 541014 | Sodium Hypochlorite | | | |
| | | | | PIONEER AMERICAS, LLC 10728 | 900405078 | 04/18/2024 | | 051424 | 10,585.60 |
| | Invoice: 900405078 | | | | | 4,928 GAL SODIUM HYPOCHLORITE | | | |
| | | | | 10,585.60 | 751810 541014 | Sodium Hypochlorite | | | |
| | | | | PIONEER AMERICAS, LLC 10728 | 900407886 | 04/25/2024 | | 051424 | 10,525.46 |
| | Invoice: 900407886 | | | | | 4,900 GAL SODIUM HYPOCHLORITE | | | |
| | | | | 10,525.46 | 751810 541014 | Sodium Hypochlorite | | | |

## A/P CASH DISBURSEMENTS JOURNAL

CASH ACCOUNT: 999 100100 Cash-General

| CHECK NO | CHK DATE | TYPE | VENDOR | NAME | INVOICE | INV DATE | PO | CHECK RUN | NET |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | INVOICE DTL DESC | | | | |
| | | | | | | CHECK | 109877 TOTAL: | | 31,739.63 |
| 109878 | 05/14/2024 | PRTD | 17295 | QUADIENT | 11466433/041724 | 04/17/2024 | | 051424 | 2,200.00 |
| | Invoice: 11466433/041724 | | | | | PREPAID POSTAGE 3/28/24 | | | |
| | | | | | 2,200.00 701410 620000 | Forms, Supplies And Postage | | | |
| | | | | | | CHECK | 109878 TOTAL: | | 2,200.00 |
| 109879 | 05/14/2024 | PRTD | 30621 | RINGCENTRAL, INC. | CD_000798552 | 04/18/2024 | | 051424 | 3,965.42 |
| | Invoice: CD_000798552 | | | | | MONTHLY SUBSCRIPTION 4/17-5/16/24 | | | |
| | | | | | 3,965.42 701420 621500 | System Support and Maintenance | | | |
| | | | | | | CHECK | 109879 TOTAL: | | 3,965.42 |
| 109880 | 05/14/2024 | PRTD | 4586 | ROYAL INDUSTRIAL SOLUTIONS | 9009-1046128 | 04/18/2024 | | 051424 | 817.13 |
| | Invoice: 9009-1046128 | | | | | AB HIM PANEL REPLCMNT | | | |
| | | | | | 817.13 751820 551000 | Supplies/Material | | | |
| | | | | ROYAL INDUSTRIAL SOLUTIONS | 9009-1046146 | 04/18/2024 | | 051424 | 367.89 |
| | Invoice: 9009-1046146 | | | | | UNISTRUT, ANGLE BRACKETS | | | |
| | | | | | 367.89 751810 551000 | Supplies/Material | | | |
| | | | | ROYAL INDUSTRIAL SOLUTIONS | 9009-1046167 | 04/18/2024 | | 051424 | 1,640.70 |
| | Invoice: 9009-1046167 | | | | | SEAL-TITE, FITTINGS, CONN. 3" | | | |
| | | | | | 1,640.70 751810 551000 | Supplies/Material | | | |
| | | | | ROYAL INDUSTRIAL SOLUTIONS | 9009-1046177 | 04/18/2024 | | 051424 | 780.58 |
| | Invoice: 9009-1046177 | | | | | 1/0 DLO WIRE 2KV | | | |
| | | | | | 780.58 751810 551000 | Supplies/Material | | | |
| | | | | | | CHECK | 109880 TOTAL: | | 3,606.30 |
| 109881 | 05/14/2024 | PRTD | 2948 | SMITH PIPE & SUPPLY | 4131993 | 04/17/2024 | | 051424 | 1,677.45 |
| | Invoice: 4131993 | | | | | ROUNDUP PRO MAX 30 GAL | | | |
| | | | | | 1,677.45 101200 541000 | Supplies/Material | | | |
| | | | | | | CHECK | 109881 TOTAL: | | 1,677.45 |
| 109882 | 05/14/2024 | PRTD | 16120 | SOIL CONTROL LAB | 4040267 | 04/24/2024 | | 051424 | 379.00 |
| | Invoice: 4040267 | | | | | FINISHED COMPOST -PACKAGE (SOLIDS) | | | |
| | | | | | 379.00 751820 571520 | Other Laboratory Serv | | | |
| | | | | | | CHECK | 109882 TOTAL: | | 379.00 |

## A/P CASH DISBURSEMENTS JOURNAL

CASH ACCOUNT: 999 100100 Cash-General

| CHECK NO | CHK DATE | TYPE | VENDOR | NAME | INVOICE | INV DATE | PO | CHECK RUN | NET |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | INVOICE DTL DESC | | | | |
| 109883 | 05/14/2024 | PRTD | 2957 | SOUTHERN CALIFORNIA EDISON (M-BIL | 90504/043024 | 04/30/2024 | | 051424 | 1,330.10 |
| Invoice: 90504/043024 | | | | | | N.CYN P/S 2/29-3/31/24 2,028 KH | | | |
| | | | | | 1,330.10 751810 678800 | District Sprayfield | | | |
| | | | | SOUTHERN CALIFORNIA EDISON (M-BIL | 45743/043024 | 04/30/2024 | | 051424 | 31,419.23 |
| Invoice: 45743/043024 | | | | | | RW P/S 4/1-4/29/24 152,171 KH | | | |
| | | | | | 15,709.62 751127 540510 | Energy | | | |
| | | | | | 15,709.61 751128 540510 | Energy | | | |
| | | | | | | CHECK 109883 TOTAL: | | | 32,749.33 |
| 109884 | 05/14/2024 | PRTD | 2958 | SOUTHERN CALIFORNIA GAS CO (M-bil | 06551212001/050224 | 05/02/2024 | | 051424 | 15.84 |
| Invoice: 06551212001/050224 | | | | | | JBR P/S 4/1-4/30/24 1 THERMS | | | |
| | | | | | 15.84 101109 540530 | Gas | | | |
| | | | | SOUTHERN CALIFORNIA GAS CO (M-bil | 03001136005/050624 | 05/06/2024 | | 051424 | 3,636.73 |
| Invoice: 03001136005/050624 | | | | | | HQ & OPS 4/3-5/2/24 3,277 THERMS | | | |
| | | | | | 2,727.55 701001 540530 | Gas | | | |
| | | | | | 909.18 701002 540530 | Gas | | | |
| | | | | SOUTHERN CALIFORNIA GAS CO (M-bil | 01951140001/050624 | 05/06/2024 | | 051424 | 1,150.26 |
| Invoice: 01951140001/050624 | | | | | | TAPIA 4/3-5/2/24 953 THERMS | | | |
| | | | | | 1,150.26 751810 540530 | Gas | | | |
| | | | | SOUTHERN CALIFORNIA GAS CO (M-bil | 18121142006/050624 | 05/06/2024 | | 051424 | 310.01 |
| Invoice: 18121142006/050624 | | | | | | RANCHO 4/3-5/2/24 183 THERMS | | | |
| | | | | | 310.01 751820 540530 | Gas | | | |
| | | | | SOUTHERN CALIFORNIA GAS CO (M-bil | 05721104007/050624 | 05/06/2024 | | 051424 | 23.52 |
| Invoice: 05721104007/050624 | | | | | | CORNELL 4/3-5/2/24 6 THERMS | | | |
| | | | | | 23.52 101110 540530 | Gas | | | |
| | | | | | | CHECK 109884 TOTAL: | | | 5,136.36 |
| 109885 | 05/14/2024 | PRTD | 21557 | THE HOME DEPOT PRO | 798183315 | 04/05/2024 | | 051424 | 296.81 |
| Invoice: 798183315 | | | | | | PROPANE TANK | | | |
| | | | | | 296.81 751810 551000 | Supplies/Material | | | |
| | | | | THE HOME DEPOT PRO | 798211132 | 04/05/2024 | | 051424 | 27.66 |
| Invoice: 798211132 | | | | | | DRAIN SCREEN | | | |
| | | | | | 27.66 751820 551000 | Supplies/Material | | | |
| | | | | | | CHECK 109885 TOTAL: | | | 324.47 |
| 109886 | 05/14/2024 | PRTD | 17065 | VANTAGE AIR, INC. | 63885 | 04/25/2024 | | 051424 | 350.00 |
| Invoice: 63885 | | | | | | MAINT ON RLV ICE MACHINE 4/25/24 | | | |
| | | | | | 350.00 751810 551500 | Outside Services | | | |

# A/P CASH DISBURSEMENTS JOURNAL

CASH ACCOUNT: 999 100100 Cash-General

| CHECK NO | CHK DATE | TYPE | VENDOR | NAME | INVOICE | INV DATE | PO | CHECK RUN | NET |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | INVOICE DTL DESC | | | | |
| | | | | | | CHECK | 109886 TOTAL: | | 350.00 |
| 109887 | 05/14/2024 | PRTD | 30056 | VERIZON WIRELESS | 9962663683 | 04/26/2024 | | 051424 | 576.15 |
| | Invoice: 9962663683 | | | | | WIRELESS SVC 4/27-5/26/24 | | | |
| | | | | | 576.15 701224 540520 | Telephone | | | |
| | | | | | | CHECK | 109887 TOTAL: | | 576.15 |
| 109888 | 05/14/2024 | PRTD | 3034 | VORTEX INDUSTRIES, LLC | 01-1747149 | 04/23/2024 | | 051424 | 1,805.00 |
| | Invoice: 01-1747149 | | | | | PM ALL ROLL UP DOORS | | | |
| | | | | | 361.00 701002 551500 | Outside Services | | | |
| | | | | | 361.00 751810 551500 | Outside Services | | | |
| | | | | | 361.00 751820 551500 | Outside Services | | | |
| | | | | | 361.00 101600 551500 | Outside Services | | | |
| | | | | | 361.00 701001 551500 | Outside Services | | | |
| | | | | | | CHECK | 109888 TOTAL: | | 1,805.00 |
| 109889 | 05/14/2024 | PRTD | 3034 | VORTEX INDUSTRIES, LLC | 01-1747151 | 04/25/2024 | | 051424 | 1,350.00 |
| | Invoice: 01-1747151 | | | | | REPAIR RLV ROLLUP DOOR | | | |
| | | | | | 1,350.00 751820 551500 | Outside Services | | | |
| | | | | VORTEX INDUSTRIES, LLC | 01-1747152 | 04/25/2024 | | 051424 | 962.00 |
| | Invoice: 01-1747152 | | | | | REPAIR TAPIA ROLL UP DOOR | | | |
| | | | | | 962.00 751810 551500 | Outside Services | | | |
| | | | | | | CHECK | 109889 TOTAL: | | 2,312.00 |
| 109890 | 05/14/2024 | PRTD | 3035 | VWR SCIENTIFIC | 8815902962 | 04/24/2024 | | 051424 | 693.00 |
| | Invoice: 8815902962 | | | | | FILTERS | | | |
| | | | | | 693.00 701341 551000 | Supplies/Material | | | |
| | | | | | | CHECK | 109890 TOTAL: | | 693.00 |
| 109891 | 05/14/2024 | PRTD | 8510 | WORK BOOT WAREHOUSE | 2-2-1028827 | 05/01/2024 | | 051424 | 265.59 |
| | Invoice: 2-2-1028827 | | | | | SAFETY FOOTWARE M. REESE | | | |
| | | | | | 265.59 701342 623000 | Safety Equip | | | |
| | | | | | | CHECK | 109891 TOTAL: | | 265.59 |
| 109892 | 05/14/2024 | PRTD | 8510 | WORK BOOT WAREHOUSE | 1-1-1018998 | 04/25/2024 | | 051424 | 185.06 |
| | Invoice: 1-1-1018998 | | | | | SAFETY FOOTWARE M.GOMEZ | | | |
| | | | | | 185.06 701326 623000 | Safety Equip | | | |

## A/P CASH DISBURSEMENTS JOURNAL

| | | | |
|---|---|---|---|
| | | CHECK 109892 TOTAL: | 185.06 |
| NUMBER OF CHECKS | 61 | *** CASH ACCOUNT TOTAL *** | 462,296.48 |

| | COUNT | AMOUNT |
|---|---|---|
| TOTAL PRINTED CHECKS | 54 | 202,302.47 |
| TOTAL EFT'S | 7 | 259,994.01 |

*** GRAND TOTAL *** 462,296.48

# A/P CASH DISBURSEMENTS JOURNAL

**JOURNAL ENTRIES TO BE CREATED**

CLERK: 3296tchau

| YEAR PER JNL / SRC ACCOUNT / EFF DATE | JNL DESC | REF 1 | REF 2 | REF 3 | ACCOUNT DESC / LINE DESC | T | OB | DEBIT | CREDIT |
|---|---|---|---|---|---|---|---|---|---|
| 2024 11 197 | | | | | | | | | |
| APP 701-200000 | | | | | Accounts Payable | | | 52,748.89 | |
| 05/14/2024 | 051424 | 051424 | | | AP CASH DISBURSEMENTS JOURNAL | | | | |
| APP 999-100100 | | | | | Cash-General | | | | 462,296.48 |
| 05/14/2024 | 051424 | 051424 | | | AP CASH DISBURSEMENTS JOURNAL | | | | |
| APP 101-200000 | | | | | Accounts Payable | | | 168,743.46 | |
| 05/14/2024 | 051424 | 051424 | | | AP CASH DISBURSEMENTS JOURNAL | | | | |
| APP 751-200000 | | | | | Accounts Payable | | | 239,932.63 | |
| 05/14/2024 | 051424 | 051424 | | | AP CASH DISBURSEMENTS JOURNAL | | | | |
| APP 130-200000 | | | | | Accounts Payable | | | 871.50 | |
| 05/14/2024 | 051424 | 051424 | | | AP CASH DISBURSEMENTS JOURNAL | | | | |
| | | | | | GENERAL LEDGER TOTAL | | | 462,296.48 | 462,296.48 |
| APP 999-207010 | | | | | Due to/Due FromInternal Svs | | | 52,748.89 | |
| 05/14/2024 | 051424 | 051424 | | | | | | | |
| APP 701-100100 | | | | | Cash-General | | | | 52,748.89 |
| 05/14/2024 | 051424 | 051424 | | | | | | | |
| APP 999-201010 | | | | | Due to/Due Frm Potable Wtr Ops | | | 168,743.46 | |
| 05/14/2024 | 051424 | 051424 | | | | | | | |
| APP 101-100100 | | | | | Cash-General | | | | 168,743.46 |
| 05/14/2024 | 051424 | 051424 | | | | | | | |
| APP 999-207510 | | | | | Due to/Due FromJPA Operations | | | 239,932.63 | |
| 05/14/2024 | 051424 | 051424 | | | | | | | |
| APP 751-100100 | | | | | Cash-General | | | | 239,932.63 |
| 05/14/2024 | 051424 | 051424 | | | | | | | |
| APP 999-201300 | | | | | Due to/Due FrmSanitation Ops | | | 871.50 | |
| 05/14/2024 | 051424 | 051424 | | | | | | | |
| APP 130-100100 | | | | | Cash-General | | | | 871.50 |
| 05/14/2024 | 051424 | 051424 | | | | | | | |
| | | | | | SYSTEM GENERATED ENTRIES TOTAL | | | 462,296.48 | 462,296.48 |
| | | | | | JOURNAL 2024/11/197 TOTAL | | | 924,592.96 | 924,592.96 |

# A/P CASH DISBURSEMENTS JOURNAL

**JOURNAL ENTRIES TO BE CREATED**

| FUND / ACCOUNT | YEAR | PER | JNL | EFF DATE | ACCOUNT DESCRIPTION | | DEBIT | CREDIT |
|---|---|---|---|---|---|---|---|---|
| 101 Potable Water Operations | 2024 | 11 | 197 | 05/14/2024 | | | | |
| 101-100100 | | | | | Cash-General | | | 168,743.46 |
| 101-200000 | | | | | Accounts Payable | | 168,743.46 | |
| | | | | | | FUND TOTAL | 168,743.46 | 168,743.46 |
| 130 Sanitation Operations | 2024 | 11 | 197 | 05/14/2024 | | | | |
| 130-100100 | | | | | Cash-General | | | 871.50 |
| 130-200000 | | | | | Accounts Payable | | 871.50 | |
| | | | | | | FUND TOTAL | 871.50 | 871.50 |
| 701 Internal Service Fund | 2024 | 11 | 197 | 05/14/2024 | | | | |
| 701-100100 | | | | | Cash-General | | | 52,748.89 |
| 701-200000 | | | | | Accounts Payable | | 52,748.89 | |
| | | | | | | FUND TOTAL | 52,748.89 | 52,748.89 |
| 751 JPA Operations | 2024 | 11 | 197 | 05/14/2024 | | | | |
| 751-100100 | | | | | Cash-General | | | 239,932.63 |
| 751-200000 | | | | | Accounts Payable | | 239,932.63 | |
| | | | | | | FUND TOTAL | 239,932.63 | 239,932.63 |
| 999 Pooled Cash | 2024 | 11 | 197 | 05/14/2024 | | | | |
| 999-100100 | | | | | Cash-General | | | 462,296.48 |
| 999-201010 | | | | | Due to/Due Frm Potable Wtr Ops | | 168,743.46 | |
| 999-201300 | | | | | Due to/Due FrmSanitation Ops | | 871.50 | |
| 999-207010 | | | | | Due to/Due FromInternal Svs | | 52,748.89 | |
| 999-207510 | | | | | Due to/Due FromJPA Operations | | 239,932.63 | |
| | | | | | | FUND TOTAL | 462,296.48 | 462,296.48 |

# A/P CASH DISBURSEMENTS JOURNAL

**JOURNAL ENTRIES TO BE CREATED**

| FUND | | DUE TO | DUE FR |
|---|---|---|---|
| 101 | Potable Water Operations | | 168,743.46 |
| 130 | Sanitation Operations | | 871.50 |
| 701 | Internal Service Fund | | 52,748.89 |
| 751 | JPA Operations | | 239,932.63 |
| 999 | Pooled Cash | 462,296.48 | |
| | TOTAL | 462,296.48 | 462,296.48 |

** END OF REPORT - Generated by Thieu Chau **

# A/P CASH DISBURSEMENTS JOURNAL

CASH ACCOUNT: 999 100100 Cash-General

| CHECK NO | CHK DATE | TYPE | VENDOR | NAME | INVOICE | INV DATE | PO | CHECK RUN | NET |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | INVOICE DTL DESC | | | |
| 24236 | 05/14/2024 | MANL | 30658 | WELLS FARGO BANK | APRIL2024 | 05/08/2024 | | 051424B | 2,196.84 |
| Invoice: APRIL2024 | | | | | | WFB CLIENT ANALYSIS FEE APRIL 2024 | | | |
| | | | | | 2,196.84 101001 862500 | Other Non-Operating Expense | | | |
| | | | | | | | CHECK | 24236 TOTAL: | 2,196.84 |
| | | | | | NUMBER OF CHECKS 1 | | *** | CASH ACCOUNT TOTAL *** | 2,196.84 |

| | COUNT | AMOUNT |
|---|---|---|
| TOTAL MANUAL CHECKS | 1 | 2,196.84 |

*** GRAND TOTAL *** 2,196.84

# A/P CASH DISBURSEMENTS JOURNAL

**JOURNAL ENTRIES TO BE CREATED**

CLERK: 3296jcortez

| YEAR PER JNL / SRC ACCOUNT / EFF DATE | JNL DESC | REF 1 | REF 2 | REF 3 | ACCOUNT DESC / LINE DESC | T | OB | DEBIT | CREDIT |
|---|---|---|---|---|---|---|---|---|---|
| 2024 11 196 | | | | | | | | | |
| APP 101-200000 | | | | | Accounts Payable | | | 2,196.84 | |
| 05/14/2024 | 051424B | 051424 | | | AP CASH DISBURSEMENTS JOURNAL | | | | |
| APP 999-100100 | | | | | Cash-General | | | | 2,196.84 |
| 05/14/2024 | 051424B | 051424 | | | AP CASH DISBURSEMENTS JOURNAL | | | | |
| | | | | | GENERAL LEDGER TOTAL | | | 2,196.84 | 2,196.84 |
| APP 999-201010 | | | | | Due to/Due Frm Potable Wtr Ops | | | 2,196.84 | |
| 05/14/2024 | 051424B | 051424 | | | | | | | |
| APP 101-100100 | | | | | Cash-General | | | | 2,196.84 |
| 05/14/2024 | 051424B | 051424 | | | | | | | |
| | | | | | SYSTEM GENERATED ENTRIES TOTAL | | | 2,196.84 | 2,196.84 |
| | | | | | JOURNAL 2024/11/196 TOTAL | | | 4,393.68 | 4,393.68 |

# A/P CASH DISBURSEMENTS JOURNAL

**JOURNAL ENTRIES TO BE CREATED**

| FUND / ACCOUNT | YEAR | PER | JNL | EFF DATE | ACCOUNT DESCRIPTION | DEBIT | CREDIT |
|---|---|---|---|---|---|---|---|
| 101 Potable Water Operations | 2024 | 11 | 196 | 05/14/2024 | | | |
| 101-100100 | | | | | Cash-General | | 2,196.84 |
| 101-200000 | | | | | Accounts Payable | 2,196.84 | |
| | | | | | FUND TOTAL | 2,196.84 | 2,196.84 |
| 999 Pooled Cash | 2024 | 11 | 196 | 05/14/2024 | | | |
| 999-100100 | | | | | Cash-General | | 2,196.84 |
| 999-201010 | | | | | Due to/Due Frm Potable Wtr Ops | 2,196.84 | |
| | | | | | FUND TOTAL | 2,196.84 | 2,196.84 |

# A/P CASH DISBURSEMENTS JOURNAL

**JOURNAL ENTRIES TO BE CREATED**

| FUND | | DUE TO | DUE FR |
|---|---|---|---|
| 101 | Potable Water Operations | | 2,196.84 |
| 999 | Pooled Cash | 2,196.84 | |
| | TOTAL | 2,196.84 | 2,196.84 |

** END OF REPORT - Generated by Jessica Cortez **

# A/P CASH DISBURSEMENTS JOURNAL

CASH ACCOUNT: 999 100100 Cash-General

| CHECK NO | CHK DATE | TYPE | VENDOR | NAME | INVOICE | INV DATE | PO | CHECK RUN | NET |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | INVOICE DTL DESC | | | | |
| 24237 | 05/14/2024 | MANL | 3352 | LAS VIRGENES MUNICIPAL WATER DIST | 4948073 | 04/24/2024 | | 051424A | 67.32 |
| Invoice: 4948073 | | | | | | EQS TANK 3/21-4/19/24 | | | |
| | | | | | 67.32 101201 540540 | Water | | | |
| | | | | | | CHECK | 24237 TOTAL: | | 67.32 |
| 24238 | 05/14/2024 | MANL | 3352 | LAS VIRGENES MUNICIPAL WATER DIST | 4950698 | 04/24/2024 | | 051424A | 189.51 |
| Invoice: 4950698 | | | | | | RWPS 3/21-4/19/24 | | | |
| | | | | | 189.51 701001 540540 | Water | | | |
| | | | | | | CHECK | 24238 TOTAL: | | 189.51 |
| 24239 | 05/14/2024 | MANL | 3352 | LAS VIRGENES MUNICIPAL WATER DIST | 4950700 | 04/24/2024 | | 051424A | 259.52 |
| Invoice: 4950700 | | | | | | BD#8/RW 3/21-4/19/24 | | | |
| | | | | | 259.52 701001 540540 | Water | | | |
| | | | | | | CHECK | 24239 TOTAL: | | 259.52 |
| 24240 | 05/14/2024 | MANL | 3352 | LAS VIRGENES MUNICIPAL WATER DIST | 4950699 | 04/24/2024 | | 051424A | 189.51 |
| Invoice: 4950699 | | | | | | HQ BD #8/RW 3/21-4/19/24 | | | |
| | | | | | 189.51 701001 540540 | Water | | | |
| | | | | | | CHECK | 24240 TOTAL: | | 189.51 |
| 24241 | 05/14/2024 | MANL | 3352 | LAS VIRGENES MUNICIPAL WATER DIST | 4950701 | 04/24/2024 | | 051424A | 253.08 |
| Invoice: 4950701 | | | | | | BD#7/RW 3/21-4/19/24 | | | |
| | | | | | 253.08 701002 540540 | Water | | | |
| | | | | | | CHECK | 24241 TOTAL: | | 253.08 |
| 24242 | 05/14/2024 | MANL | 3352 | LAS VIRGENES MUNICIPAL WATER DIST | 4950807 | 04/24/2024 | | 051424A | 36.28 |
| Invoice: 4950807 | | | | | | IND HILLS 3/21-4/19/24 | | | |
| | | | | | 36.28 751223 540540 | Water | | | |
| | | | | | | CHECK | 24242 TOTAL: | | 36.28 |
| 24243 | 05/14/2024 | MANL | 3352 | LAS VIRGENES MUNICIPAL WATER DIST | 4950927 | 04/24/2024 | | 051424A | 36.28 |
| Invoice: 4950927 | | | | | | MORRSN P/S 3/21-4/19/24 | | | |
| | | | | | 36.28 751125 540540 | Water | | | |
| | | | | | | CHECK | 24243 TOTAL: | | 36.28 |
| 24244 | 05/14/2024 | MANL | 3352 | LAS VIRGENES MUNICIPAL WATER DIST | 4950112 | 04/24/2024 | | 051424A | 377.23 |
| Invoice: 4950112 | | | | | | WLK FLT 3/21-4/19/24 | | | |
| | | | | | 377.23 101600 540540 | Water | | | |

# A/P CASH DISBURSEMENTS JOURNAL

CASH ACCOUNT: 999 100100 Cash-General

| CHECK NO | CHK DATE | TYPE | VENDOR | NAME | INVOICE | INV DATE | PO | CHECK RUN | NET |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | INVOICE DTL DESC | | | | |
| | | | | | | | | CHECK 24244 TOTAL: | 377.23 |
| | | | | | NUMBER OF CHECKS 8 | | | *** CASH ACCOUNT TOTAL *** | 1,408.73 |

| | COUNT | AMOUNT |
|---|---|---|
| TOTAL MANUAL CHECKS | 8 | 1,408.73 |

*** GRAND TOTAL *** 1,408.73

# A/P CASH DISBURSEMENTS JOURNAL

**JOURNAL ENTRIES TO BE CREATED**

CLERK: 3296jcortez

| YEAR PER JNL / SRC ACCOUNT / EFF DATE | JNL DESC | REF 1 | REF 2 | REF 3 | ACCOUNT DESC / LINE DESC | T | OB | DEBIT | CREDIT |
|---|---|---|---|---|---|---|---|---|---|
| 2024 11 195 | | | | | | | | | |
| APP 101-200000 | | | | | Accounts Payable | | | 444.55 | |
| 05/14/2024 | 051424A | 051424 | | | AP CASH DISBURSEMENTS JOURNAL | | | | |
| APP 999-100100 | | | | | Cash-General | | | | 1,408.73 |
| 05/14/2024 | 051424A | 051424 | | | AP CASH DISBURSEMENTS JOURNAL | | | | |
| APP 701-200000 | | | | | Accounts Payable | | | 891.62 | |
| 05/14/2024 | 051424A | 051424 | | | AP CASH DISBURSEMENTS JOURNAL | | | | |
| APP 751-200000 | | | | | Accounts Payable | | | 72.56 | |
| 05/14/2024 | 051424A | 051424 | | | AP CASH DISBURSEMENTS JOURNAL | | | | |
| | | | | | GENERAL LEDGER TOTAL | | | 1,408.73 | 1,408.73 |
| APP 999-201010 | | | | | Due to/Due Frm Potable Wtr Ops | | | 444.55 | |
| 05/14/2024 | 051424A | 051424 | | | | | | | |
| APP 101-100100 | | | | | Cash-General | | | | 444.55 |
| 05/14/2024 | 051424A | 051424 | | | | | | | |
| APP 999-207010 | | | | | Due to/Due FromInternal Svs | | | 891.62 | |
| 05/14/2024 | 051424A | 051424 | | | | | | | |
| APP 701-100100 | | | | | Cash-General | | | | 891.62 |
| 05/14/2024 | 051424A | 051424 | | | | | | | |
| APP 999-207510 | | | | | Due to/Due FromJPA Operations | | | 72.56 | |
| 05/14/2024 | 051424A | 051424 | | | | | | | |
| APP 751-100100 | | | | | Cash-General | | | | 72.56 |
| 05/14/2024 | 051424A | 051424 | | | | | | | |
| | | | | | SYSTEM GENERATED ENTRIES TOTAL | | | 1,408.73 | 1,408.73 |
| | | | | | JOURNAL 2024/11/195 TOTAL | | | 2,817.46 | 2,817.46 |

# A/P CASH DISBURSEMENTS JOURNAL

**JOURNAL ENTRIES TO BE CREATED**

| FUND / ACCOUNT | YEAR | PER | JNL | EFF DATE | ACCOUNT DESCRIPTION | DEBIT | CREDIT |
|---|---|---|---|---|---|---|---|
| 101 Potable Water Operations | 2024 | 11 | 195 | 05/14/2024 | | | |
| 101-100100 | | | | | Cash-General | | 444.55 |
| 101-200000 | | | | | Accounts Payable | 444.55 | |
| | | | | | FUND TOTAL | 444.55 | 444.55 |
| 701 Internal Service Fund | 2024 | 11 | 195 | 05/14/2024 | | | |
| 701-100100 | | | | | Cash-General | | 891.62 |
| 701-200000 | | | | | Accounts Payable | 891.62 | |
| | | | | | FUND TOTAL | 891.62 | 891.62 |
| 751 JPA Operations | 2024 | 11 | 195 | 05/14/2024 | | | |
| 751-100100 | | | | | Cash-General | | 72.56 |
| 751-200000 | | | | | Accounts Payable | 72.56 | |
| | | | | | FUND TOTAL | 72.56 | 72.56 |
| 999 Pooled Cash | 2024 | 11 | 195 | 05/14/2024 | | | |
| 999-100100 | | | | | Cash-General | | 1,408.73 |
| 999-201010 | | | | | Due to/Due Frm Potable Wtr Ops | 444.55 | |
| 999-207010 | | | | | Due to/Due FromInternal Svs | 891.62 | |
| 999-207510 | | | | | Due to/Due FromJPA Operations | 72.56 | |
| | | | | | FUND TOTAL | 1,408.73 | 1,408.73 |

# A/P CASH DISBURSEMENTS JOURNAL

**JOURNAL ENTRIES TO BE CREATED**

| FUND | | DUE TO | DUE FR |
|---|---|---|---|
| 101 | Potable Water Operations | | 444.55 |
| 701 | Internal Service Fund | | 891.62 |
| 751 | JPA Operations | | 72.56 |
| 999 | Pooled Cash | 1,408.73 | |
| | TOTAL | 1,408.73 | 1,408.73 |

** END OF REPORT - Generated by Jessica Cortez **

# LAS VIRGENES MUNICIPAL WATER DISTRICT
**4232 Las Virgenes Road, Calabasas CA 91302**

## MINUTES
## REGULAR MEETING

9:00 AM May 21, 2024

PLEDGE OF ALLEGIANCE

The Pledge of Allegiance to the Flag was led by Sophia Crocker.

## 1. CALL TO ORDER AND ROLL CALL

The meeting was called to order at **9:00 a.m.** by Board President Lewitt in the Board Room at Las Virgenes Municipal Water District headquarters at 4232 Las Virgenes Road, Calabasas, California 91302. Josie Guzman, Clerk of the Board, conducted the roll call.

| | |
|---|---|
| Present: | Directors Gary Burns, Charles Caspary, Andy Coradeschi, Jay Lewitt, and Len Polan. |
| Absent: | None |
| Staff Present: | David Pedersen, General Manager<br>Joe McDermott, Director of Engineering and External Affairs<br>Don Patterson, Director of Finance and Administration<br>Eric Schlageter, Interim Director of Facilities and Operations<br>Josie Guzman, Clerk of the Board<br>Keith Lemieux, District Counsel |

## 2. APPROVAL OF AGENDA

Director Polan moved to approve the agenda. Motion seconded by Director Caspary. Motion carried 5-0 by the following vote:

AYES: Burns, Caspary, Coradeschi, Lewitt, Polan
NOES: None

ABSTAIN: None
ABSENT: None

## 3. PUBLIC COMMENTS

There were no public comments.

Joe McDermott, Director of Engineering and External Affairs, introduced new employee Jesus Soto, Field Operations Technician I. The Board welcomed Mr. Soto to the District.

Eric Schlageter, Interim Director of Facilities and Operations, introduced new employee Mark Gomez, Electrician. The Board welcomed Mr. Gomez to the District.

Jeremy Wolf, Legislative Program Analyst, introduced Marcus Lopez, Intern for Facilities and Operations. The Board welcomed Mr. Lopez to the District.

## 4. CONSENT CALENDAR

**A List of Demands: May 21, 2024: Receive and file**

**B Minutes Regular Meeting of April 16, 2024: Approve**

**C Directors' Per Diem: April 2024: Ratify**

**D Monthly Cash and Investment Report: March 2024**

**Receive and file the Monthly Cash and Investment Report for March 2024.**

**E Statement of Revenues, Expenses, and Changes in Net Position: March 2024**

**Receive and file the Statement of Revenues, Expenses, and Changes in Net Position for the period ending on March 31, 2024.**

**F Extension of Retired Annuitant part-Time Limited Duration Assignment**

**Authorize the General Manager to execute a contract extending the part-time, limited duration assignment for retired annuitant, James Green, through May 31, 2025.**

**G Establishment of New Control Systems Supervisor Classificatin and Reclassification of SCADA Analyst to Control Systems Supervisor**

**Establish a new Control Systems Supervisor classification and reclassify an existing SCADA Analyst position (Salary Range M85) to a Control Systems Supervisor position (Salary Range M98) on the Supervisor, Professional, and Confidential Unit Salary Schedule.**

**H Purchasing Code Update: Reinstate Federally-Declared Emergency Purchasing Procedures**

**Pass, approve, and adopted proposed Resolution No. 2636, modifying the Las Virgenes Municipal Water District Code as it relates to purchasing and reinstating Federally-Declared Emergency Purchasing Procedures.**

**RESOLUTION NO. 2636**

**A RESOLUTION OF THE BOARD OF DIRECTORS OF LAS VIRGENES MUNICIPAL WATER DISTRICT AMENDING RESOLUTION NO. 2468 (ADMINISTRATIVE CODE) AS IT RELATES TO TITLE 2, CHAPTER 6, ARTICLE 4 – PURCHASING**

**(Reference is hereby made to Resolution No. 2636 on file in the District's Resolution Book and by this reference the same is incorporated herein.)**

**I Water Capacity Fees: Correction of Allocation to Construction and Conservation**

**Pass, approve, and adopt proposed Resolution No. 2638, correcting the allocation of water capacity fees to construction and conservation.**

**RESOLUTION NO. 2638**

**A RESOLUTION OF THE BOARD OF DIRECTORS OF LAS VIRGENES MUNICIPAL WATER DISTRICT AMENDING RESOLUTION NO. 2468 (ADMINISTRATIVE CODE) AS IT RELATES TO POTABLE WATER CAPACITY FEES**

**(Reference is hereby made to Resolution No. 2638 on file in the District's Resolution Book and by this reference the same is incorporated herein.)**

**J Calabasas Recycled Water Pipeline Improvement Park Entrada Project: CEQA Determination and Call for Bids**

**Find that the project is exempt from the provisions of California Environmental Quality Act and authorize the issuance of a call for bids for the Calabasas Recycled Water Pipeline Improvement Park Entrada Project.**

**K Water Main Breaks at 5745 Parkmor Road and Valley Circle Boulevard near Dorie Drive: Continuation of Emergency Declaration**

**Approve the continuation of an emergency declaration due to a 12-inch water main break at 5745 Parkmor Road in the City of Calabasas and a 30-inch water main break along Valley Circle Boulevard near Dorie Drive in West Hills.**

Director Coradeschi moved to approve the Consent Calendar. Motion seconded by Director Caspary.

Eric Schlageter, Interim Director of Facilities and Operations, responded to a question regarding the delay in preparing the design for Item 4J by stating that the design took longer than anticipated due to the need to incorporate additional scope of work to address subsequent breaks in the pipeline.

Motion carried 5-0 by the following vote:

AYES: Burns, Caspary, Coradeschi, Lewitt, Polan
NOES: None
ABSTAIN: None
ABSENT: None

## 5. ILLUSTRATIVE AND/OR VERBAL PRESENTATION AGENDA ITEMS

### A Proclamation Recognizing Glen Peterson, MWD Representative, for 31 Years of Service

Board President Lewitt presented a proclamation and plaque recognizing Glen Peterson for 31 years of service as the District's Representative on the Metropolitan Water District of Southern California's Board of Directors.

Mr. Peterson stated that he was proud of the District and its accomplishments.

The Board acknowledged Mr. Peterson for his service.

### B MWD Representative Report

Glen Peterson, MWD Representative, reported that the MWD Board recognized Director Gloria D. Gray for 15 years of service and Director Gail Goldberg for five years of service. He also reported that the MWD Board amended the Capital Investment Plan for Fiscal Year 2023-24 to include upgrades to the flocculation system at the Joseph Jensen Water Treatment Plant; approved the Department Head 360° Evaluation Process; authorized an option agreement to lease land for possible carbon-free energy production and storage purposes in the Palo Verde Valley; authorized an increase to the legal services contract for litigation in the Aqueous Film-Foaming Foams products liability litigation; and authorized the General Manager to enter into a new Memorandum of Understanding with the MWD Association of Confidential Employees (ACE). He noted that he announced his retirement from the MWD Board at the May 14th MWD Board Meeting, and he thanked the Board for allowing him to serve as the District's MWD Representative.

### C Public Affairs and Communications Updates

Mike McNutt, Public Affairs and Communications Manager, noted that he distributed a copy of the Public Affairs Accomplishments and Activities for 2024 to the Board, and he provided a PowerPoint presentation.

A discussion ensued regarding promoting water supply resiliency, informing customers

regarding upcoming rate increases, updating and shortening the Pure Water Project Las Virgenes-Triunfo video, promoting podcasts, and holding a ceremony for the OceanWell installation in the reservoir.

## 6. TREASURER

Director Coradeschi stated that he reviewed the expenditures.

## 7. BOARD OF DIRECTORS

### A MWD Representative: Open Nominations

**Open the nomination period for individuals to serve as the District's representative to the Board of Metropolitan Water District of Southern California.**

General Manager David Pedersen presented the report.

Director Caspary moved to nominate Jay Lewitt as the District's MWD Representative.

Additional nominations and the appointment of the MWD Representative would be brought back at the June 4, 2024 Regular Board Meeting.

### B General District Election on November 5, 2024: Resolution

**Pass, approve, and adopt proposed Resolution No. 2639, pertaining to a General District Election to be held in the District on Tuesday, November 5, 2024; and authorize the Board Secretary to submit certified copies of said resolution, completed Roster of Officeholders for Local Jurisdictions, and District Boundary and Divisions Map to the Board of Supervisors and the Registrar/Recorder/County Clerk of the County of Los Angeles.**

**RESOLUTION NO. 2639**

**A RESOLUTION OF THE BOARD OF DIRECTORS OF LAS VIRGENES MUNICIPAL WATER DISTRICT REQUESTING THE BOARD OF SUPERVISORS OF THE COUNTY OF LOS ANGELES TO PERMIT THE REGISTRAR-RECORDER/COUNTY CLERK TO RENDER ELECTION SERVICES FOR A GENERAL DISTRICT ELECTION TO BE HELD ON NOVEMBER 5, 2024.**

**(Reference is hereby made to Resolution No. 2639 on file in the District's Resolution Book and by this reference the same is incorporated herein.)**

Josie Guzman, Clerk of the Board, presented the report.

Director Caspary moved to approve Item 7B. Motion seconded by Director Polan.

Ms. Guzman responded to questions regarding the cost for the County of Los Angeles to render elections services.

Motion carried 5-0 by the following vote:

AYES: Burns, Caspary, Coradeschi, Lewitt, Polan
NOES: None
ABSTAIN: None
ABSENT: None

## 8. FINANCE AND ADMINISTRATION

### A Fiscal Years 2024-26 Proposed Biennial Budget

**Review and provide feedback on the Fiscal Years 2024-26 Proposed Biennial Budget.**

Brian Richie, Finance Manager, presented the report and a PowerPoint presentation.

Don Patterson, Director of Finance and Administration, responded to questions regarding the District's credit rating for seeking bonds and working with the District's financial advisors, and the District's reserves and rate stabilization fund.

### B Organizational Structure and Staffing Analysis: Draft Report

**Review and provide feedback on the draft report for the Organizational Structure and Staffing Analysis.**

General Manager David Pedersen provided introductory remarks.

Colleen Rozillis, representing Moss Adams, accompanied by Jessie Lenhard and Tammy Lohr, presented a PowerPoint presentation, and noted that Model B, Four Departments and Assistant General Manager(s), was the preferred option.

General Manager David Pedersen responded to a question regarding whether a laboratory would be needed at the Advanced Water Purification Facility by stating that all regulatory testing would occur at the Tapia Water Reclamation Facility.

Don Patterson, Director of Finance and Administration, responded to questions regarding impacts to the budget and working with the bargaining units on any organizational changes.

## 9. ENGINEERING AND EXTERNAL AFFAIRS

### A Las Virgenes Reservoir Dam Road and Access Road Repairs Project: Construction Award

**Award a construction contract in the amount of $59,275, to MD Engineering and reject all remaining bids upon receipt of duly executed contract documents for the Las Virgenes Reservoir Dam Road and Access Road Repairs Project; and re-appropriate funding, in the amounts of $23,986.07, form CIP Job No. 10811, Recycled Water Reservoir No. 2 Storm Repairs, and $5,604.90 from CIP Job No. 19785, Potable Water System Rehabilitation Fiscal Year 2022-24, to CIP Job No. 10817, Las Virgenes Reservoir Dam Road and Access Road Repairs.**

John Soderberg, Associate Engineer, presented the report.

Director Coradeschi moved to approve Item 9A. Motion seconded by Director Caspary.

Mr. Soderberg responded to questions regarding construction timeline and resurfacing materials.

Eric Schlageter, Interim Director of Facilities and Operations, responded to questions regarding previous maintenance and repair work.

Motion carried 5-0 by the following vote:

AYES: Burns, Caspary, Coradeschi, Lewitt, Polan
NOES: None
ABSTAIN: None
ABSENT: None

**B Commercial Turnkey Turf Transformation Program: Grant Award**

**Authorize the General Manager to execute a Project Partner Agreement for the implementation of the Turnkey Turf Transformation Program amongst Las Virgenes Municipal Water District, Inland Empire Utilities Agency, Calleguas Municipal Water District, and Upper San Gabriel Valley Municipal Water District.**

Craig Jones, Resource Conservation Manager, presented the report.

Director Polan moved to approve Item 9B. Motion seconded by Director Caspary.

Mr. Jones responded to questions regarding irrigation on Lindero Canyon Road and the short deadline for cities to have expressed interest in participating in the program.

Motion carried 5-0 by the following vote:

AYES: Burns, Caspary, Coradeschi, Lewitt, Polan
NOES: None
ABSTAIN: None
ABSENT: None

## 10. INFORMATION ITEMS

**A Total Compensation Refresh Study Report**

## 11. NON-ACTION ITEMS

**A Organization Reports**

Director Caspary reported that he attended the Association of California Water Agencies (ACWA) State Legislative Committee Meeting on May 17th, where they discussed potential water, housing, and education bonds. He noted that the State was considering adopting the federal maximum contaminant levels (MCLs) for per- and polyfluoroalkyl substances (PFAS), and approve a five-year compliance program for drinking water standards. He also noted that the State Water Resources Control Board was proposing *Making Conservation as a California Way of Life* regulations to become effective in August 2024, which could substantially affect District customers. He also reported that he attended the ACWA Joint Powers Insurance Authority (JPIA) meeting, where they discussed the delay in implementing the new pharmacy benefit program and ensuring protection of the member database.

**B Director's Reports on Outside Meetings**

Director Coradeschi reported that he attended the ACWA Energy Committee Meeting during the ACWA Spring Conference, where they discussed decreased gasoline production and increased fuel costs due to the war between Russia and Ukraine, battery storage, and the Advanced Clean Fleet regulations.

Director Polan recommended that everyone view the movie *Dark Water*, which deals with PFAS. He reported that he also attended the ACWA Spring Conference, and he attended the presentation regarding the Bay Delta, the presentation by the District and Tim Quinn regarding the OceanWell project, and the presentation regarding the *Weather Whiplash of 2023*.

Director Burns reported that he also attended the ACWA Spring Conference, where he attended the Business Development Committee Meeting.

Board President Lewitt reported that he also attended the ACWA Spring Conference, where he attended the OceanWell and Delta Conveyance presentations. He also reported that he attended the site visit to the Sites Reservoir site on May 6th, and the Rindge Dam Tour on May 16th.

Director Caspary reported that he attended the ACWA Spring Conference and the Association of Water Agencies of Ventura County (AWAVC) WaterWise Program on May 16th, where a presentation was provided regarding the 1928 St. Francis Dam failure. He also reported that he attended Heal the Bay's "Bring Back the Beach" event on May 16th.

**C General Manager Reports**

(1) General Business

General Manager David Pedersen provided an update regarding the repairs at the Parkmor Road water main break, and noted that repairs to the slope were expected to begin on May 28th as well as restoring the yards of the two affected property owners. He stated that staff anticipated executing settlement and release agreements with both property owners. He also reported that a tour of District facilities would be provided to the City of Calabasas Public Works Director, Curtis Castle, and his staff later in the day, and a tour of District facilities would be provided to Tom Ford from the Bay Foundation and employees from the Environmental Protection Agency on May 22nd. He noted that the Pure Water Project Las Virgenes-Triunfo Partnering Sessions would be held on May 22nd and 23rd; the next OceanWell Working Group Meeting would be held on May 23rd; District Offices would be closed on May 27th for the Memorial Day Holiday; and the JPA would hold a Special Meeting on May 28th for a workshop regarding architectural elements for the Advanced Water Purification Facility. He noted that the tour of the Delta Conveyance Authority Bethany Reservoir Alignment was rescheduled to July 19th, and a limited number of local elected officials may join the tour at their own expense. He also reported that the California Department of Water Resources released an updated cost estimate for the Delta Conveyance Project with a benefit/cost analysis, and the benefit/cost ratio for the project was calculated to be 2.20.

Joe McDermott, Director of Engineering and External Affairs, noted that Ursula Bosson, Customer Service Manager, was recognized as a 2024 Expanding Excellence Award Rising Star Award Rising Star in Customer Service at the Customer Service Week Conference held in Fort Worth, Texas.

(2) Follow-Up Items

None.

**D Directors' Comments**

Director Polan stated that he enjoyed the Pure Water Soquel tour held in 2023, and he expressed an interest in visiting again.

Board President Lewitt expressed an interest in a tour the St. Francis Dam site.

General Manager David Pedersen stated that Burbank Water and Power issued an invitation to tour its Burbank Operable Unit on May 30th. He asked the Board to inform him or Josie Guzman should they be interested in attending this tour.

## 12. FUTURE AGENDA ITEMS

Board President Lewitt requested a Future Agenda Item for the next Board Meeting to consider naming the Board Room the Glen D. Peterson Board Room.

## 13. PUBLIC COMMENTS

Bill Ward, representing PumpPodUSA, spoke regarding their HeloPod, a high-capacity

helicopter dip tank that allows fire engine companies to deploy to extinguish fires. He provided copies of their brochure, which included a quote and a comparison chart with one of their competitors. He noted that the HeloPod could be activated with and without remote activation with cellular/satellite and with Night Ops Lighting. He expressed an interest in providing a presentation to staff.

## 14. CLOSED SESSION

**A Conference with Labor Negotiators (Government Code Section 54956.6)**

**Agency Designated Representatives: Dvid W. Pedersen, General Manager, and Donald Patterson, Director of Finance and Administration**

**Employee Organizations: General and Office Units represented by Service Employees International Union Local 721**

**B Conference with Labor Negotiators (Government Code Section 54956.6)**

**Agency Designated Representatives: Dvid W. Pedersen, General Manager, and Donald Patterson, Director of Finance and Administration**

**Employee Organization: Las Virgenes Manager, Supervisor, Professional, and Confidential Employees Association**

The Board recessed to Closed Session at **12:10 p.m.** and reconvened to Open Session at **1:24 p.m.**

Keith Lemieux, District Counsel, reported that the Board met in Closed Session for items 14A and 14B, and there was no reportable action.

## 15. OPEN SESSION AND ADJOURNMENT

Seeing no further business to come before the Board, the meeting was duly adjourned at **1:24 p.m.**

Jay Lewitt, President
Board of Directors
Las Virgenes Municipal Water District

ATTEST:

Gary Burns, Secretary
Board of Directors
Las Virgenes Municipal Water District

(SEAL)

**AGENDA ITEM NO. 4.C**

**DATE:** June 4, 2024

**TO:** Board of Directors

**FROM:** General Manager

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**SUBJECT: Water Infrastructure Networking Summit: Board Member Attendance**

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**SUMMARY:**

The District sponsored the Water Infrastructure Networking Summit, which was held on May 31, 2024, in Costa Mesa. Director Len Polan attended the event and asked to receive per diem compensation with reimbursement of mileage and overnight accommodation expenses. The Las Virgenes Municipal Water District Code (Code), Section 2-2.106(d) – Compensation, designates specific organizational events that directors are authorized to attend. The Water Infrastructure Networking Summit is not currently covered by the Code; therefore, the Board must authorize the expenses associated with attendance.

**RECOMMENDATION(S):**

Authorize Board Member attendance, per diem compensation and travel expenses for the Water Infrastructure Networking Summit held on May 31, 2024.

**FISCAL IMPACT:**

Yes

**ITEM BUDGETED:**

Yes

**FINANCIAL IMPACT:**

There was no cost for registration; however, there would be per diem compensation and travel expenses. Sufficient funds are available in the adopted Fiscal Year 2023-24 Budget for this purpose.

**DISCUSSION:**

Director Len Polan expressed an interest in attending the Water Infrastructure and Networking Summit held on May 31, 2024, in Costa Mesa, and asked to receive per diem compensation and reimbursement of mileage and overnight accommodation expenses.

The Las Virgenes Municipal Water District Code (Code), Section 2-2.106(d) – Compensation, designates specific organizational events that directors are authorized to attend. The Water Infrastructure Networking Summit is not currently covered by the Code; therefore, the Board must authorize the expenses associated with attendance.

**GOALS:**

Provide Safe and Quality Water with Reliable Services

Prepared by: Josie Guzman, Executive Assistant/Clerk of the Board

**ATTACHMENTS:**
Water Infrastructure Networking Summit Invitation

# WATER INFRASTRUCTURE NETWORKING SUMMIT

**Friday, May 31, 2024**
**11:30AM - 6:00PM**

WATER INFRASTRUCTURE NETWORKING SUMMIT
WINS 2024

# THE NEW POLITICS OF WATER

**The Westin South Coast Plaza**
686 Anton Boulevard, Costa Mesa, CA, 92626

- **Registration & Networking: 11:30AM - 12:00PM**
- **Lunch & Program: 12:00PM - 4:00PM**
- **Reception: 4:00PM - 6:00PM**

**KEYNOTE SPEAKER**

**Honorable Alex Padilla**
*United States Senator of California*

**The Water Infrastructure Networking Summit (WINS)** has evolved into a groundbreaking initiative spanning five counties: San Diego, Orange, Los Angeles, Riverside, and San Bernardino. This year's expansive event is dedicated to fostering a new era of politics in water management, addressing critical needs, and exploring funding opportunities for regional water and wastewater infrastructure.

WINS will bring together a diverse group of leaders from different sectors as they highlight infrastructure vulnerabilities that impact our regional economy and communities. The goal is to facilitate dialogue between regional industry leaders and officials from local, state, and federal government agencies to create a path forward through collaboration and empowered innovation.

**Panel One: Navigating Success: Insights from Transportation, Energy, and Broadband Sectors.**

A dynamic panel discussion featuring state-level leaders and County Supervisors from Los Angeles, Orange, San Diego, San Bernardino, and Riverside.

Exploring the successes and lessons learned in securing funding for infrastructure projects in the Transportation, Energy, and Broadband sectors. This platform aims to share actionable insights that the water infrastructure sector can learn from and adapt to enhance advocacy and funding strategies.

**Panel Two: Navigating New Waters: Advocating for Water Resiliency in Evolving Political Landscapes.**

Water leaders and elected officials will convene to address infrastructure hurdles, emphasize the importance of resource advocacy, and discuss crucial support from political leaders. The objective is to develop actionable strategies for fortifying resilient water systems.

To learn more about WINS watch our 2023 video library at **mnwd.com/wins.**

## RSVP

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## HOST COMMITTEE

## PARTNERS

## SUPPORTERS

**Attendance at this event by a public official will constitute acceptance of a reportable gift.**

**AGENDA ITEM NO. 4.D**

**DATE:** June 4, 2024

**TO:** Board of Directors

**FROM:** Finance and Administration

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**SUBJECT: Monthly Cash and Investment Report: April 2024**

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**SUMMARY:**

During the month of April 2024, the value of the District's total cash and investments decreased from $141,012,851, held on March 31, 2024, to $136,221,261. The total held in the District's investment portfolio decreased from $139,642,841 to $135,101,103 at book value. Three investments matured, and seven investments were purchased. The book value of the District's investment portfolio increased from $89,789,094 to $91,985,599. The value of the District's Local Agency Investment Fund (LAIF) account increased to $6,044,789, and the District's California Asset Management Program (CAMP) account decreased to $36,319,254. The remaining funds were held in the District's checking and money market accounts.

**RECOMMENDATION(S):**

Receive and file the Monthly Cash and Investment Report for April 2024.

**DISCUSSION:**

As of April 30, 2024, the District held $136,221,261 in its cash and investment accounts at book value, down 3.40 percent month-over-month, primarily due to a one-time payment of liability insurance premiums in addition to normal month-over-month fluctuations in expenses. The majority of the funds were held in the District's self-managed investment account, which had an April 30th book value of $91,985,599. CAMP held the majority of the remaining funds, in the amount of $36,319,254. LAIF held $6,044,789, and the remaining portion was held in the District's checking and money market accounts. The annualized yield of the District's investment portfolio was 2.80 percent in April, up from 2.71 percent in March. The annualized yield on the District's CAMP funds was 5.44 percent, down four basis points from March. The annualized yield on the District's LAIF funds was 4.27 percent, up four basis points from March. The combined total yield on the District's accounts was 3.60 percent in April, down seven basis points from March.

The following investments were purchased in April:

- 04/10/24 – FFCB agency bullet, in the amount of $996,800, a par value of $1,000,000,

and a maturity of 04/10/29; YTM 4.447%.
- 04/11/24 – Bank of Hapoalim NY insured CD, in the amount of $243,793, a par value of $244,000, and a maturity of 03/30/26; YTM 4.845%.
- 04/12/24 – BMW Bank NA insured CD, in the amount of $244,000, and a maturity of 04/12/27; YTM 4.600%.
- 04/15/24 – Spokane teachers Credit Union insured CD, in the amount of $248,000, and a maturity of 04/15/27; YTM 4.750%.
- 04/15/24 – FHLB one-time callable agency, in the amount of $1,000,000, and a maturity of 04/15/27; YTM 5.000%.
- 04/22/24 – City of San Diego AA rated water revenue bond, in the amount of $933,530, a par value of $1,000,000, and a maturity of 08/01/26; YTM 5.030%.
- 04/24/24 – Treasury bond, in the amount of $250,000, and a maturity of 04/30/29; YTM 4.650%.

The following investment matured during April:

- 04/01/24 – California State general obligation bond, in the amount of $1,000,000; YTM 2.500%.
- 04/26/24 – FHLB agency bond, in the amount of $1,000,000; YTM 2.500%.
- 04/30/24 – Comenity Capital Bank insured CD, in the amount of $245,000; YTM 2.750%.

The following transactions posted in the District's LAIF account:

- 04/15/24 – Quarterly interest in the amount of $53,348.
- 04/26/24 – Deposit in the amount of $5,000,000.

The following transactions were posted in the District's CAMP account:

- 04/11/24 – Withdraw in the amount of $580,000.
- 04/19/24 – Withdraw in the amount of $900,000.
- 04/22/24 – Withdraw in the amount of $1,000,000.
- 04/25/24 – Withdraw in the amount of $5,000,000.
- 04/30/24 – Monthly interest in the amount of $187,790.

The District's investments are in compliance with the adopted Investment Policy, and the District has sufficient funds to meet expenditures during the next six months from funds held in local agency investment pool liquid accounts.

Cash Analysis:

Another important aspect of the Monthly Cash and Investment Report is to monitor the District's performance as compared to its adopted Financial Policies. Attachment B shows the District's total cash and investments as of April 30, 2024, and compares the balances to the adopted Financial Policies. As shown for April, the Potable Water Enterprise had $15.0 million available for capital projects, the Sanitation Enterprise had $4.0 million funds available for capital, and the Recycled Water Enterprise had $14.3 million available for capital. The Board has assigned $15 million in potable water funds, $10 million in recycled water funds and $10 million in sanitation funds for the Pure Water Project Las Virgenes-Triunfo.

**GOALS:**

Ensure Effective Utilization of the Public's Assets and Money

Prepared by:  Donald Patterson, Director of Finance and Administration

**ATTACHMENTS:**
LVMWD Investment Portfolio 04.30.2024
Investment Report Definitions
Cash Report - April 2024

# LAS VIRGENES MUNICIPAL WATER DISTRICT
## MONTHLY CASH AND INVESTMENT REPORT
## APRIL 30, 2024

District investments are included in this report and all investments, except those relating to debt issues and deferred compensation programs funds, conform to District investment policy. All investment transactions within the period covered by this report, except for the exceptions noted above, conform to District Investment policy. Deferred compensation program funds are not included in this report; their investment is directed by individual employees participating in the deferred compensation program and not by the District. Debt issue funds are included in this report; their investment is controlled by specific provisions of the issuance documents and not by the District."

"The deposits and investments of the District safeguard the principal and maintain the liquidity needs of the District, providing the District with the ability to meet expenditure requirements for the next six months. The maturity dates are compatible with foreseeable cash flow requirements. The deposits and investments can be easily and rapidly converted into cash without substantial loss of value."

| Fund Name | Face Amount/Shares | Market Value | Book Value | % of Portfolio | YTM @ Cost | Days To Maturity |
|---|---|---|---|---|---|---|
| 1 \| Investments | 92,587,000.00 | 88,753,230.81 | 91,985,599.34 | 67.53 | 2.80 | 858 |
| 2 \| LAIF | 6,044,789.38 | 6,044,789.38 | 6,044,789.38 | 4.44 | 4.27 | 1 |
| 3 \| CAMP | 36,319,254.04 | 36,319,254.04 | 36,319,254.04 | 26.66 | 5.44 | 1 |
| 4 \| US Bank Blackrock | 751,460.58 | 751,460.58 | 751,460.58 | 0.55 | 5.17 | 1 |
| 5 \| Wells Fargo Operating | 1,120,157.46 | 1,120,157.46 | 1,120,157.46 | 0.82 | 5.16 | 1 |
| **Total / Average** | **136,822,661.46** | **132,988,892.27** | **136,221,260.80** | **100.00** | **3.60** | **580** |

David W. Pedersen, General Manager _____ Date

Andy Coradeschi, Treasurer _____ Date

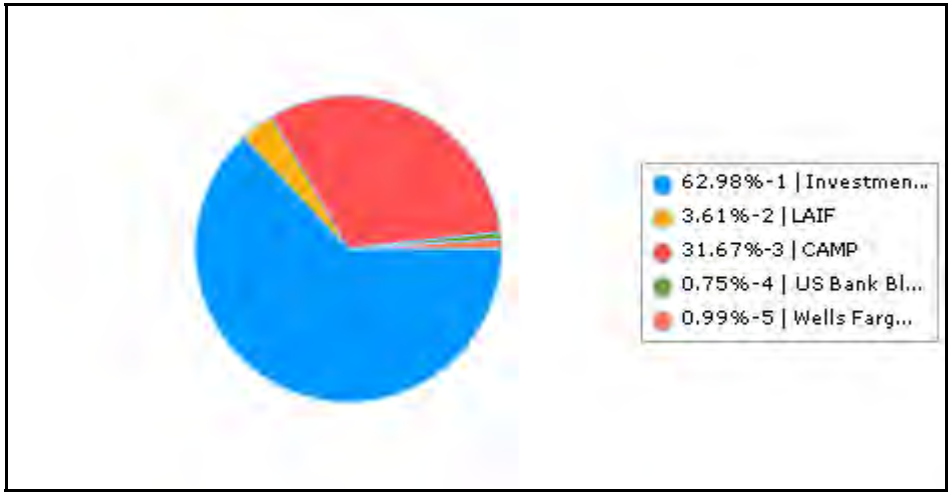
# Las Virgenes Municipal Water District CA
## Distribution by Main Fund - Market Value
### All Portfolios

Begin Date: 3/31/2024, End Date: 4/30/2024

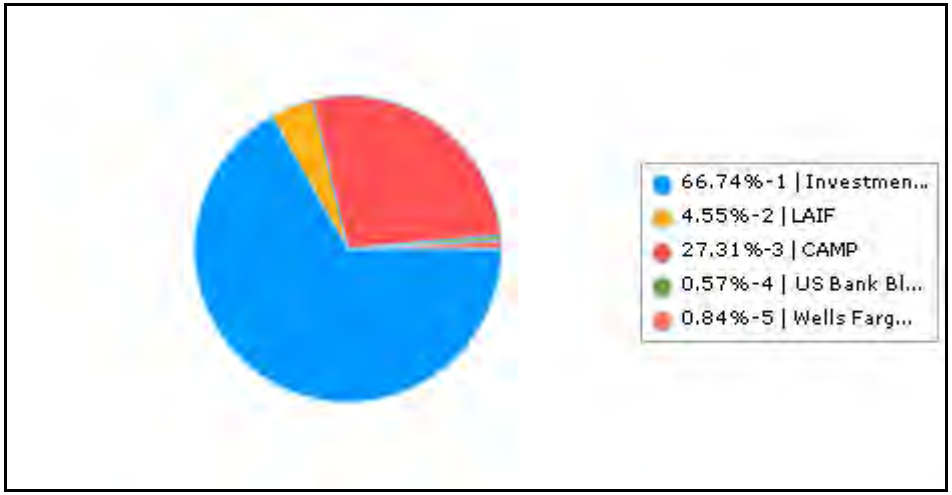
**Main Fund Allocation**

| Main Fund | Market Value 3/31/2024 | % of Portfolio 3/31/2024 | Market Value 4/30/2024 | % of Portfolio 4/30/2024 |
|---|---|---|---|---|
| 1 \| Investments | 87,132,997.36 | 62.98 | 88,753,230.81 | 66.74 |
| 2 \| LAIF | 4,991,441.61 | 3.61 | 6,044,789.38 | 4.55 |
| 3 \| CAMP | 43,819,541.23 | 31.67 | 36,319,254.04 | 27.31 |
| 4 \| US Bank Blackrock | 1,042,764.67 | 0.75 | 751,460.58 | 0.57 |
| 5 \| Wells Fargo Operating | 1,370,009.81 | 0.99 | 1,120,157.46 | 0.84 |
| **Total / Average** | **138,356,754.68** | **100.00** | **132,988,892.27** | **100.00** |

**Portfolio Holdings as of 3/31/2024**




**Portfolio Holdings as of 4/30/2024**



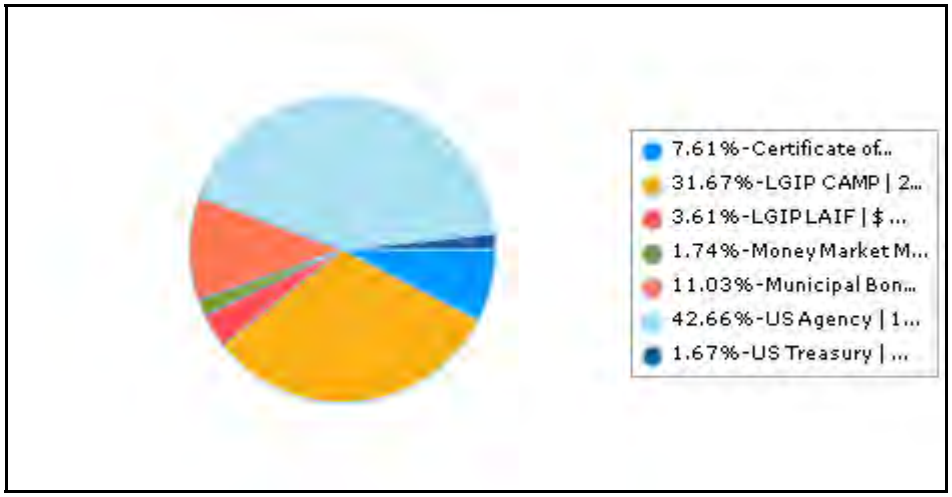
# Las Virgenes Municipal Water District CA
## Distribution by Asset Category - Market Value
### All Portfolios

Begin Date: 3/31/2024, End Date: 4/30/2024

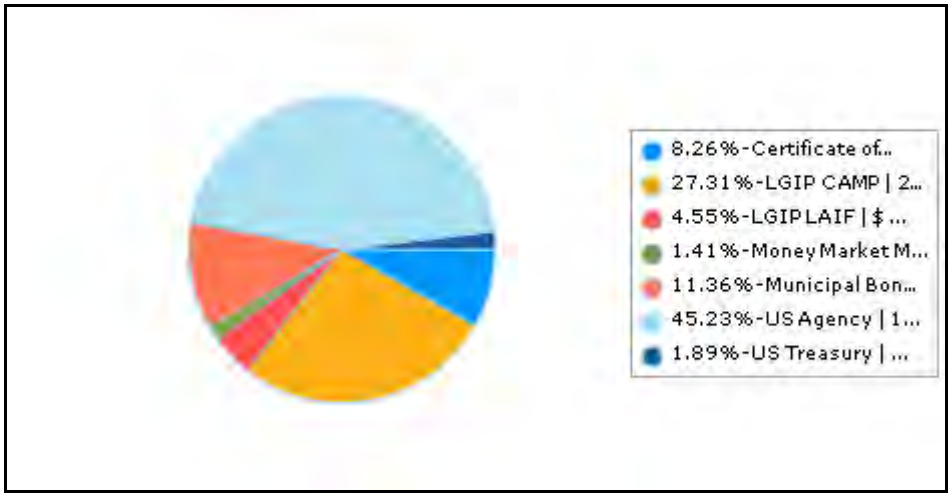
**Asset Category Allocation**

| Asset Category | Market Value 3/31/2024 | % of Portfolio 3/31/2024 | Market Value 4/30/2024 | % of Portfolio 4/30/2024 |
|---|---|---|---|---|
| Certificate of Deposit \| 25 % | 10,533,940.31 | 7.61 | 10,990,338.11 | 8.26 |
| LGIP CAMP \| 25 % | 43,819,541.23 | 31.67 | 36,319,254.04 | 27.31 |
| LGIP LAIF \| $ 65M | 4,991,441.61 | 3.61 | 6,044,789.38 | 4.55 |
| Money Market Mutual Funds \| 20 % | 2,412,774.48 | 1.74 | 1,871,618.04 | 1.41 |
| Municipal Bonds \| 100 % | 15,259,832.80 | 11.03 | 15,101,899.20 | 11.36 |
| US Agency \| 100 % | 59,029,779.25 | 42.66 | 60,145,106.00 | 45.23 |
| US Treasury \| 100 % | 2,309,445.00 | 1.67 | 2,515,887.50 | 1.89 |
| **Total / Average** | **138,356,754.68** | **100.00** | **132,988,892.27** | **100.00** |

**Portfolio Holdings as of 3/31/2024**




**Portfolio Holdings as of 4/30/2024**

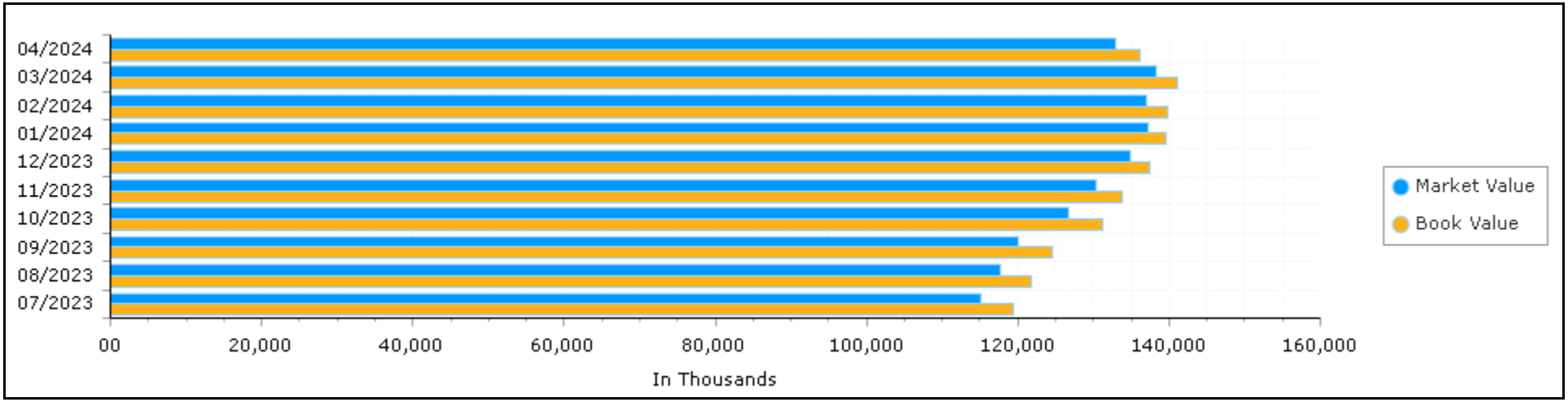


# Las Virgenes Municipal Water District CA
## Portfolio Summary by Month
### All Portfolios

Begin Date: 7/31/2023, End Date: 4/30/2024

| Month | Market Value | Book Value | Unrealized Gain/Loss | YTM @ Cost | YTM @ Market | Duration | Days To Maturity |
|---|---|---|---|---|---|---|---|
| 7/31/2023 | 115,119,377.73 | 119,323,626.02 | -4,204,248.29 | 3.07 | 5.06 | 1.53 | 585 |
| 8/31/2023 | 117,701,877.84 | 121,783,997.72 | -4,082,119.88 | 3.21 | 5.09 | 1.50 | 570 |
| 9/30/2023 | 120,107,835.39 | 124,469,249.78 | -4,361,414.39 | 3.35 | 5.23 | 1.48 | 556 |
| 10/31/2023 | 126,767,554.75 | 131,139,007.45 | -4,371,452.70 | 3.55 | 5.32 | 1.38 | 529 |
| 11/30/2023 | 130,358,044.20 | 133,849,123.16 | -3,491,078.96 | 3.62 | 5.13 | 1.42 | 542 |
| 12/31/2023 | 134,853,491.38 | 137,409,526.69 | -2,556,035.31 | 3.64 | 4.88 | 1.39 | 527 |
| 1/31/2024 | 137,252,790.48 | 139,545,104.92 | -2,292,314.44 | 3.65 | 4.84 | 1.34 | 516 |
| 2/29/2024 | 137,114,239.35 | 139,882,054.88 | -2,767,815.53 | 3.67 | 5.01 | 1.42 | 548 |
| 3/31/2024 | 138,356,754.68 | 141,012,851.06 | -2,656,096.38 | 3.67 | 4.96 | 1.42 | 548 |
| 4/30/2024 | 132,988,892.27 | 136,221,260.80 | -3,232,368.53 | 3.60 | 5.13 | 1.51 | 583 |
| **Total / Average** | **129,062,085.81** | **132,463,580.25** | **-3,401,494.44** | **3.51** | **5.06** | **1.44** | **550** |

## Market Value / Book Value Comparison



# Las Virgenes Municipal Water District CA
## Total Rate of Return - Book Value by Month
### All Portfolios

Begin Date: 7/31/2023, End Date: 4/30/2024

| Month | Beginning BV + Accrued Interest | Interest Earned During Period-BV | Realized Gain/Loss-BV | Investment Income-BV | Average Capital Base-BV | TRR-BV | Annualized TRR-BV | Treasury 3 Year |
|---|---|---|---|---|---|---|---|---|
| 7/31/2023 | 120,911,028.30 | 347,411.65 | 0.00 | 347,411.65 | 120,218,436.94 | 0.29 | 3.52 | 4.47 |
| 8/31/2023 | 119,806,998.50 | 289,124.64 | 0.00 | 289,124.64 | 120,193,396.72 | 0.24 | 2.93 | 4.59 |
| 9/30/2023 | 122,291,592.72 | 302,443.55 | 0.00 | 302,443.55 | 122,357,101.39 | 0.25 | 3.01 | 4.74 |
| 10/31/2023 | 124,871,362.19 | 354,084.06 | 0.00 | 354,084.06 | 127,608,631.12 | 0.28 | 3.38 | 4.89 |
| 11/30/2023 | 131,560,408.82 | 349,775.09 | 0.00 | 349,775.09 | 132,838,118.83 | 0.26 | 3.21 | 4.64 |
| 12/31/2023 | 134,289,433.15 | 393,115.91 | 0.00 | 393,115.91 | 135,094,004.38 | 0.29 | 3.55 | 4.19 |
| 1/31/2024 | 137,872,545.92 | 434,366.94 | 0.00 | 434,366.94 | 137,779,615.42 | 0.32 | 3.85 | 4.11 |
| 2/29/2024 | 140,043,719.53 | 394,965.98 | 0.00 | 394,965.98 | 139,448,959.42 | 0.28 | 3.45 | 4.33 |
| 3/31/2024 | 140,412,552.17 | 405,507.83 | 0.00 | 405,507.83 | 140,048,919.79 | 0.29 | 3.53 | 4.38 |
| 4/30/2024 | 141,487,386.25 | 457,614.89 | 0.00 | 457,614.89 | 140,538,882.08 | 0.33 | 3.98 | 4.71 |
| **Total/Average** | **120,911,028.30** | **3,728,410.54** | **0.00** | **3,728,410.54** | **130,713,187.24** | **2.85** | **3.43** | **4.51** |

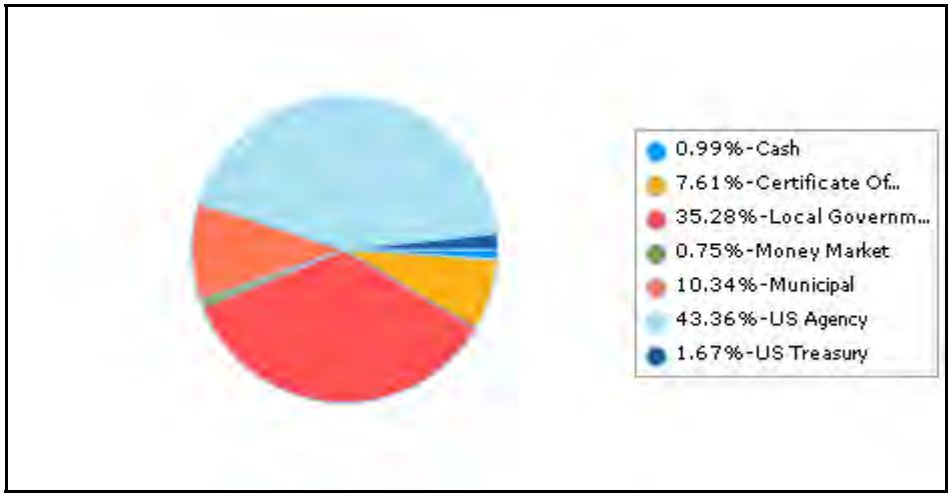
# Las Virgenes Municipal Water District CA
## Distribution by Security Sector - Market Value
### All Portfolios

Begin Date: 3/31/2024, End Date: 4/30/2024

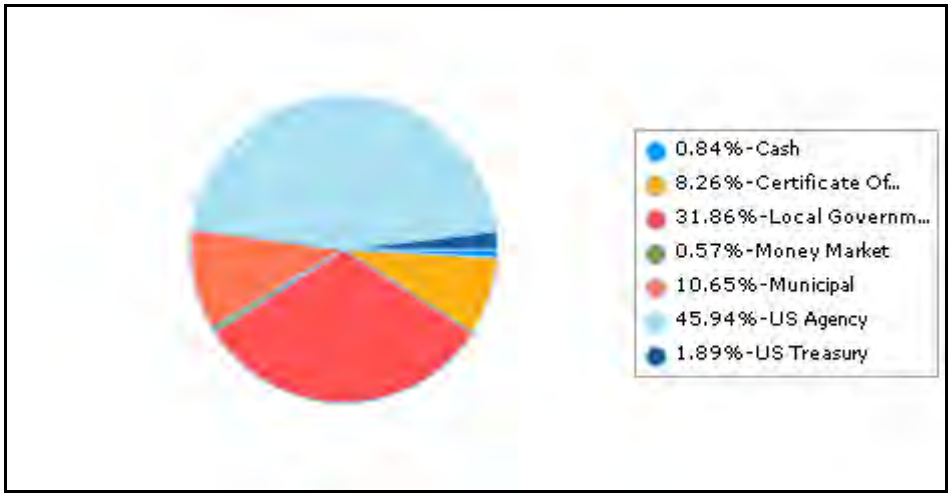
**Security Sector Allocation**

| Security Sector | Market Value 3/31/2024 | % of Portfolio 3/31/2024 | Market Value 4/30/2024 | % of Portfolio 4/30/2024 |
|---|---|---|---|---|
| Cash | 1,370,009.81 | 0.99 | 1,120,157.46 | 0.84 |
| Certificate Of Deposit | 10,533,940.31 | 7.61 | 10,990,338.11 | 8.26 |
| Local Government Investment Pool | 48,810,982.84 | 35.28 | 42,364,043.42 | 31.86 |
| Money Market | 1,042,764.67 | 0.75 | 751,460.58 | 0.57 |
| Municipal | 14,304,682.80 | 10.34 | 14,156,839.20 | 10.65 |
| US Agency | 59,984,929.25 | 43.36 | 61,090,166.00 | 45.94 |
| US Treasury | 2,309,445.00 | 1.67 | 2,515,887.50 | 1.89 |
| **Total / Average** | **138,356,754.68** | **100.00** | **132,988,892.27** | **100.00** |

**Portfolio Holdings as of 3/31/2024**




**Portfolio Holdings as of 4/30/2024**



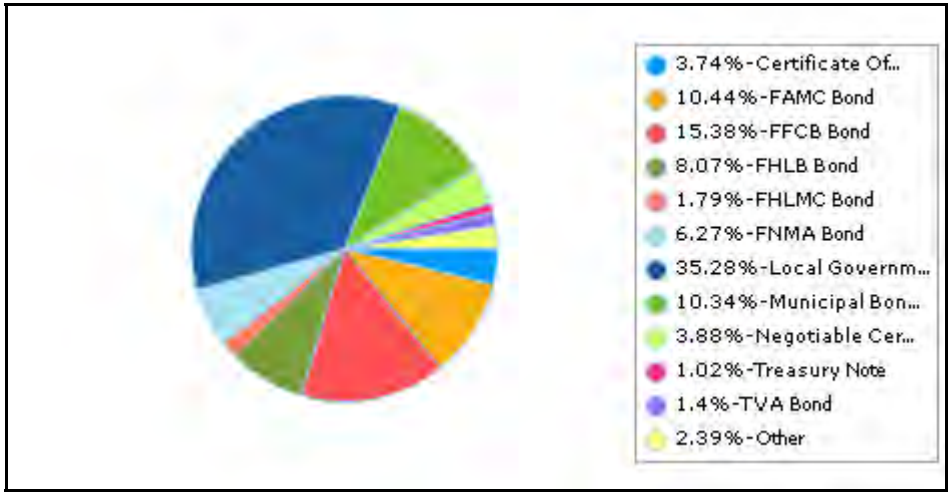
# Las Virgenes Municipal Water District CA
## Distribution by Security Type - Market Value
### All Portfolios

Begin Date: 3/31/2024, End Date: 4/30/2024

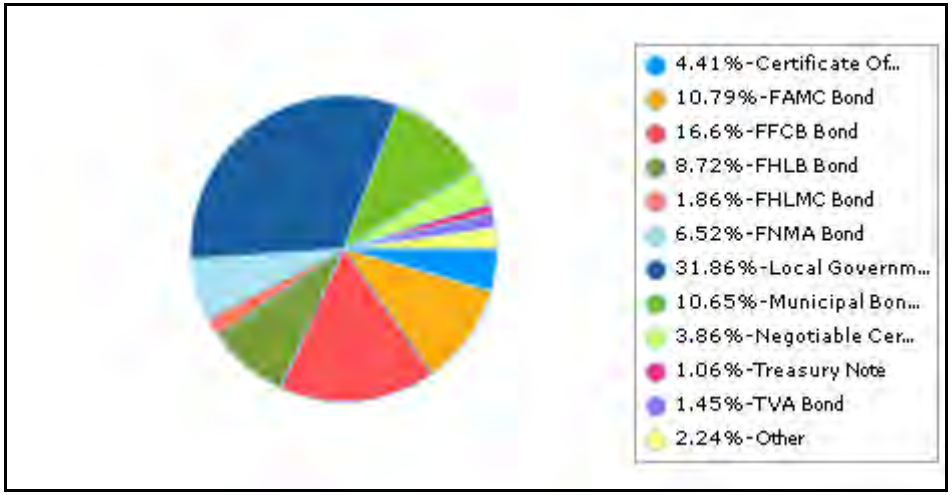
**Security Type Allocation**

| Security Type | Market Value 3/31/2024 | % of Portfolio 3/31/2024 | Market Value 4/30/2024 | % of Portfolio 4/30/2024 |
|---|---|---|---|---|
| Certificate Of Deposit | 5,169,576.25 | 3.74 | 5,861,242.42 | 4.41 |
| FAMC Bond | 14,450,560.00 | 10.44 | 14,355,850.00 | 10.79 |
| FFCB Bond | 21,279,720.00 | 15.38 | 22,071,320.00 | 16.60 |
| FHLB Bond | 11,170,033.25 | 8.07 | 11,596,540.00 | 8.72 |
| FHLMC Bond | 2,473,236.00 | 1.79 | 2,472,516.00 | 1.86 |
| FNMA Bond | 8,674,760.00 | 6.27 | 8,671,240.00 | 6.52 |
| Local Government Investment Pool | 48,810,982.84 | 35.28 | 42,364,043.42 | 31.86 |
| Municipal Bond | 14,304,682.80 | 10.34 | 14,156,839.20 | 10.65 |
| Negotiable Certificate Of Deposit | 5,364,364.06 | 3.88 | 5,129,095.69 | 3.86 |
| Treasury Note | 1,413,585.00 | 1.02 | 1,408,815.00 | 1.06 |
| TVA Bond | 1,936,620.00 | 1.40 | 1,922,700.00 | 1.45 |
| Other | 3,308,634.48 | 2.39 | 2,978,690.54 | 2.24 |
| **Total / Average** | **138,356,754.68** | **100.00** | **132,988,892.27** | **100.00** |

**Portfolio Holdings as of 3/31/2024**




**Portfolio Holdings as of 4/30/2024**



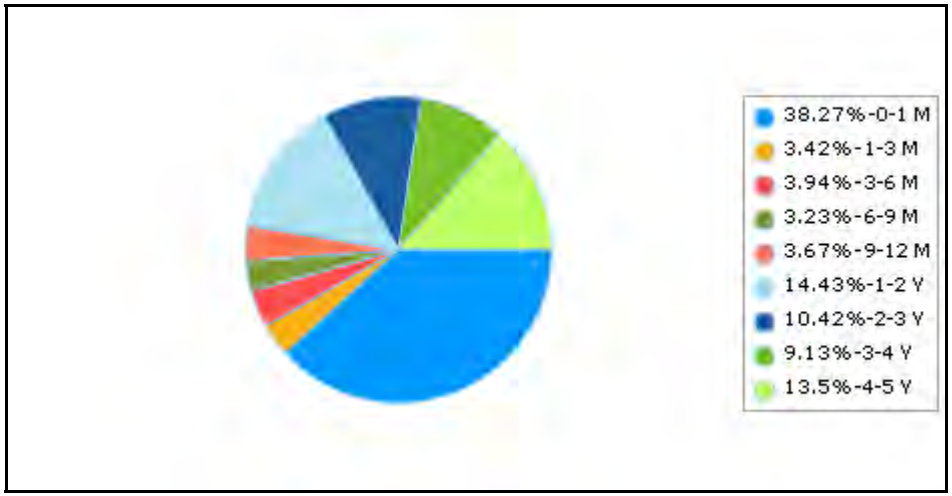
# Las Virgenes Municipal Water District CA
## Distribution by Maturity Range - Market Value
### All Portfolios

Begin Date: 3/31/2024, End Date: 4/30/2024

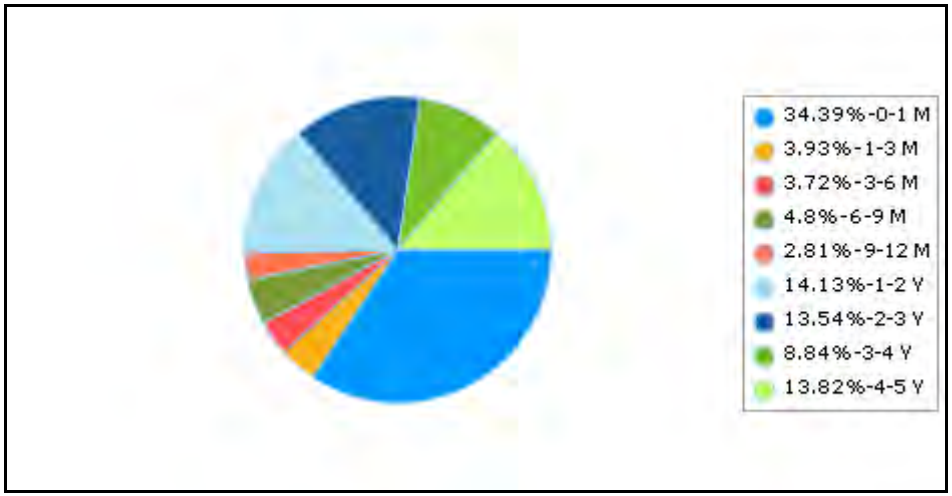
**Maturity Range Allocation**

| Maturity Range | Market Value 3/31/2024 | % of Portfolio 3/31/2024 | Market Value 4/30/2024 | % of Portfolio 4/30/2024 |
|---|---|---|---|---|
| 0-1 Month | 52,942,294.22 | 38.27 | 45,740,182.31 | 34.39 |
| 1-3 Months | 4,733,174.48 | 3.42 | 5,231,855.61 | 3.93 |
| 3-6 Months | 5,447,679.50 | 3.94 | 4,950,937.95 | 3.72 |
| 6-9 Months | 4,463,618.50 | 3.23 | 6,381,273.20 | 4.80 |
| 9-12 Months | 5,080,178.34 | 3.67 | 3,741,762.65 | 2.81 |
| 1-2 Years | 19,963,729.59 | 14.43 | 18,791,274.38 | 14.13 |
| 2-3 Years | 14,415,970.06 | 10.42 | 18,011,357.84 | 13.54 |
| 3-4 Years | 12,626,365.31 | 9.13 | 11,759,350.08 | 8.84 |
| 4-5 Years | 18,683,744.68 | 13.50 | 18,380,898.25 | 13.82 |
| **Total / Average** | **138,356,754.68** | **100.00** | **132,988,892.27** | **100.00** |

**Portfolio Holdings as of 3/31/2024**




**Portfolio Holdings as of 4/30/2024**



Las Virgenes Municipal Water District CA
Portfolio Holdings
Investment Portfolio | by Maturity Range - Monthly Report
Report Format: By Transaction
Group By: Maturity Range
Average By: Cost Value
Portfolio / Report Group: Report Group | Investment Portfolio
As of 4/30/2024

| Description | CUSIP/Ticker | YTM @ Cost | Security Sector | Bullet/Callable | Maturity Date | Book Value | Market Value | % of Portfolio |
|---|---|---|---|---|---|---|---|---|
| **0-1 Month** | | | | | | | | |
| Pasadena Pension CA 1.8 5/1/2024 | 70227RBK5 | 1.800 | Municipal | Bullet | 5/1/2024 | 260,000.00 | 260,000.00 | 0.28 |
| FAMC 2.65 5/2/2024 | 31422XYB2 | 2.690 | US Agency | Bullet | 5/2/2024 | 999,997.88 | 999,930.00 | 1.09 |
| Bank New England NH 2.65 5/23/2024 | 06426KBE7 | 2.650 | Certificate Of Deposit | Bullet | 5/23/2024 | 245,000.00 | 244,590.85 | 0.27 |
| **Total / Average 0-1 Month** | | **2.530** | | | | **1,504,997.88** | **1,504,520.85** | **1.64** |
| **1-3 Months** | | | | | | | | |
| University Northern CO 2.147 6/1/2024 | 914733DV9 | 2.147 | Municipal | Bullet | 6/1/2024 | 1,000,000.00 | 996,930.00 | 1.09 |
| FFCB 2.16 6/3/2024 | 3133EKNX0 | 1.865 | US Agency | Bullet | 6/3/2024 | 1,000,260.75 | 997,050.00 | 1.10 |
| FFCB 3.25 6/17/2024 | 3133ENYX2 | 3.300 | US Agency | Bullet | 6/17/2024 | 999,936.96 | 997,190.00 | 1.09 |
| Lafayette Fed Credit Union 2.85 6/17/2024 | 50625LBK8 | 2.850 | Certificate Of Deposit | Bullet | 6/17/2024 | 249,000.00 | 248,225.61 | 0.27 |
| FNMA 1.75 7/2/2024 | 3135G0V75 | 3.319 | US Agency | Bullet | 7/2/2024 | 997,395.29 | 993,600.00 | 1.06 |
| FHLB 4.8 7/10/2024 | 3130AUU77 | 4.800 | US Agency | Bullet | 7/10/2024 | 1,000,000.00 | 998,860.00 | 1.09 |
| **Total / Average 1-3 Months** | | **3.071** | | | | **5,246,593.00** | **5,231,855.61** | **5.70** |
| **3-6 Months** | | | | | | | | |
| Enerbank UT 2.15 8/7/2024 | 29278TKJ8 | 2.150 | Certificate Of Deposit | Bullet | 8/7/2024 | 245,000.00 | 242,839.10 | 0.27 |
| City of Los Angeles 5 9/1/2024 | 544351QP7 | 4.142 | Municipal | Bullet | 9/1/2024 | 1,002,700.17 | 998,070.00 | 1.11 |
| First Farmers Bank & Trust 1.75 9/4/2024 | 320165JK0 | 1.750 | Certificate Of Deposit | Bullet | 9/4/2024 | 245,000.00 | 241,993.85 | 0.27 |
| FHLB 3.5 9/13/2024 | 3130AT6G7 | 4.068 | US Agency | Bullet | 9/13/2024 | 997,982.60 | 993,300.00 | 1.08 |
| FAMC 1.74 9/26/2024 | 31422BMD9 | 1.664 | US Agency | Bullet | 9/26/2024 | 1,000,295.87 | 986,240.00 | 1.09 |
| South Gate Utility CA 2.224 10/1/2024-24 | 83789TBQ1 | 2.224 | Municipal | Callable | 10/1/2024 | 500,000.00 | 493,055.00 | 0.54 |
| FFCB 4.62 10/17/2024-23 | 3133ENS68 | 4.620 | US Agency | Callable | 10/17/2024 | 1,000,000.00 | 995,440.00 | 1.09 |
| **Total / Average 3-6 Months** | | **3.319** | | | | **4,990,978.64** | **4,950,937.95** | **5.44** |
| **6-9 Months** | | | | | | | | |
| California State University 0.563 11/1/2024 | 13077DQC9 | 0.563 | Municipal | Bullet | 11/1/2024 | 400,000.00 | 390,540.00 | 0.44 |
| FAMC 1.79 11/1/2024 | 31422BPG9 | 1.804 | US Agency | Bullet | 11/1/2024 | 999,932.65 | 982,580.00 | 1.09 |
| California State 1.646 11/1/2024-24 | 13077DKC5 | 1.646 | Municipal | Callable | 11/1/2024 | 400,000.00 | 392,636.00 | 0.44 |
| California State 0.56 12/1/2024-24 | 13067WRB0 | 0.560 | Municipal | Callable | 12/1/2024 | 250,000.00 | 243,245.00 | 0.27 |
| T-Note 1 12/15/2024 | 91282CDN8 | 5.165 | US Treasury | Bullet | 12/15/2024 | 975,023.69 | 973,680.00 | 1.04 |
| FFCB 1.08 1/6/2025 | 31422XRD6 | 1.080 | US Agency | Bullet | 1/6/2025 | 1,000,000.00 | 972,270.00 | 1.09 |

| Description | CUSIP/Ticker | YTM @ Cost | Security Sector | Bullet/Callable | Maturity Date | Book Value | Market Value | % of Portfolio |
|---|---|---|---|---|---|---|---|---|
| FNMA 1.625 1/7/2025 | 3135G0X24 | 4.713 | US Agency | Bullet | 1/7/2025 | 979,383.86 | 975,350.00 | 1.06 |
| KEMBA Financial Credit Union 1.8 1/8/2025 | 48836LAJ1 | 1.800 | Certificate Of Deposit | Bullet | 1/8/2025 | 245,000.00 | 239,259.65 | 0.27 |
| FAMC 1.2 1/14/2025 | 31422XSU7 | 1.195 | US Agency | Bullet | 1/14/2025 | 1,000,035.45 | 972,350.00 | 1.09 |
| Knoxville TVA TN 1.95 1/16/2025 | 499724AL6 | 1.950 | Certificate Of Deposit | Bullet | 1/16/2025 | 245,000.00 | 239,362.55 | 0.27 |
| **Total / Average 6-9 Months** | | **2.401** | | | | **6,494,375.65** | **6,381,273.20** | **7.04** |
| **9-12 Months** | | | | | | | | |
| FFCB 1.67 2/14/2025-24 | 3133ENNX4 | 1.670 | US Agency | Callable | 2/14/2025 | 1,000,000.00 | 972,340.00 | 1.09 |
| Technology FCU 5 2/24/2025 | 87868YAJ2 | 5.000 | Certificate Of Deposit | Bullet | 2/24/2025 | 248,000.00 | 247,504.00 | 0.27 |
| Somerset Trust Company 1 3/19/2025 | 835104BZ2 | 1.000 | Certificate Of Deposit | Bullet | 3/19/2025 | 245,000.00 | 236,113.85 | 0.27 |
| Iberia Bank LA 1 3/20/2025 | 45083ANS7 | 1.000 | Certificate Of Deposit | Bullet | 3/20/2025 | 245,000.00 | 236,072.20 | 0.27 |
| Pacific Western Bank CA 1.35 4/16/2025 | 69506YRG6 | 1.350 | Certificate Of Deposit | Bullet | 4/16/2025 | 245,000.00 | 236,241.25 | 0.27 |
| Celtic Bank UT 1.5 4/17/2025 | 15118RUX3 | 1.500 | Certificate Of Deposit | Bullet | 4/17/2025 | 245,000.00 | 236,574.45 | 0.27 |
| FNMA 0.625 4/22/2025 | 3135G03U5 | 5.086 | US Agency | Bullet | 4/22/2025 | 958,393.90 | 956,520.00 | 1.02 |
| First National Bank TX 1.35 4/28/2025 | 32112UDR9 | 1.350 | Certificate Of Deposit | Bullet | 4/28/2025 | 245,000.00 | 235,988.90 | 0.27 |
| Alexandria Utilities LA 1.498 5/1/2025-25 | 015086NJ6 | 1.498 | Municipal | Callable | 5/1/2025 | 400,000.00 | 384,408.00 | 0.44 |
| **Total / Average 9-12 Months** | | **2.573** | | | | **3,831,393.90** | **3,741,762.65** | **4.15** |
| **1-2 Years** | | | | | | | | |
| TVA 0.75 5/15/2025 | 880591EW8 | 0.625 | US Agency | Bullet | 5/15/2025 | 1,001,279.33 | 954,120.00 | 1.10 |
| Beverly Hills CA 0.719 6/1/2025 | 088013FG7 | 0.719 | Municipal | Bullet | 6/1/2025 | 500,000.00 | 476,175.00 | 0.54 |
| State Bank India NY 1.05 6/10/2025 | 856285TR2 | 1.050 | Certificate Of Deposit | Bullet | 6/10/2025 | 245,000.00 | 234,283.70 | 0.27 |
| San Francisco California 0.728 6/15/2025-25 | 79773KDC5 | 0.728 | Municipal | Callable | 6/15/2025 | 500,000.00 | 475,590.00 | 0.54 |
| FAMC 0.48 6/19/2025 | 31422BD98 | 0.531 | US Agency | Bullet | 6/19/2025 | 999,434.09 | 949,310.00 | 1.09 |
| FHLMC 0.65 6/30/2025-22 | 3134GVT99 | 0.650 | US Agency | Callable | 6/30/2025 | 1,000,000.00 | 948,680.00 | 1.09 |
| Minnwest Bank South MN 0.5 7/15/2025 | 60425SHY8 | 0.500 | Certificate Of Deposit | Bullet | 7/15/2025 | 245,000.00 | 231,779.80 | 0.27 |
| Preferred Bank CA 0.5 7/17/2025 | 740367MA2 | 0.500 | Certificate Of Deposit | Bullet | 7/17/2025 | 245,000.00 | 231,723.45 | 0.27 |
| FNMA 0.625 7/21/2025-22 | 3136G4ZJ5 | 0.625 | US Agency | Callable | 7/21/2025 | 1,000,000.00 | 946,270.00 | 1.09 |
| Bank Baroda NY 0.6 7/22/2025 | 06063HMR1 | 0.600 | Certificate Of Deposit | Bullet | 7/22/2025 | 245,000.00 | 231,968.45 | 0.27 |
| Flagstar Bank MI 0.6 7/22/2025 | 33847E3W5 | 0.600 | Certificate Of Deposit | Bullet | 7/22/2025 | 245,000.00 | 231,968.45 | 0.27 |
| FNMA 0.65 8/14/2025-22 | 3136G4C43 | 0.650 | US Agency | Callable | 8/14/2025 | 1,000,000.00 | 943,830.00 | 1.09 |
| FHLMC 3.45 8/25/2025-23 | 3134GXR55 | 3.530 | US Agency | Callable | 8/25/2025 | 599,406.30 | 586,806.00 | 0.65 |
| City of Santa Rosa 0.977 9/1/2025-25 | 802649TJ2 | 0.977 | Municipal | Callable | 9/1/2025 | 500,000.00 | 472,615.00 | 0.54 |
| FHLMC 0.5 9/30/2025-22 | 3134GWWQ5 | 0.500 | US Agency | Callable | 9/30/2025 | 1,000,000.00 | 937,030.00 | 1.09 |
| FNMA 0.54 10/27/2025-22 | 3136G45C3 | 0.540 | US Agency | Callable | 10/27/2025 | 1,000,000.00 | 934,360.00 | 1.09 |
| FFCB 0.46 11/3/2025 | 3133EMFS6 | 0.493 | US Agency | Bullet | 11/3/2025 | 999,506.98 | 932,520.00 | 1.09 |
| RIA Federal Credit Union 5.4 11/10/2025 | 749622BM7 | 5.400 | Certificate Of Deposit | Bullet | 11/10/2025 | 248,000.00 | 249,274.72 | 0.27 |
| FNMA 0.57 11/17/2025-22 | 3135GA3X7 | 0.570 | US Agency | Callable | 11/17/2025 | 1,000,000.00 | 932,920.00 | 1.09 |
| California State 0.751 12/1/2025-25 | 13067WSV5 | 0.751 | Municipal | Callable | 12/1/2025 | 250,000.00 | 233,570.00 | 0.27 |
| FFCB 0.47 12/22/2025-22 | 3133EMLC4 | 0.470 | US Agency | Callable | 12/22/2025 | 1,000,000.00 | 926,740.00 | 1.09 |
| JPMorgan Chase 0.5 1/6/2026 | 48128UVT3 | 0.500 | Certificate Of Deposit | Bullet | 1/6/2026 | 245,000.00 | 227,254.65 | 0.27 |

| Description | CUSIP/Ticker | YTM @ Cost | Security Sector | Bullet/Callable | Maturity Date | Book Value | Market Value | % of Portfolio |
|---|---|---|---|---|---|---|---|---|
| FAMC 0.48 1/15/2026 | 31422B6K1 | 0.489 | US Agency | Bullet | 1/15/2026 | 999,831.36 | 924,210.00 | 1.09 |
| FFCB 0.45 2/2/2026-23 | 3133EMPD8 | 0.450 | US Agency | Callable | 2/2/2026 | 1,000,000.00 | 921,620.00 | 1.09 |
| FFCB 0.8 3/9/2026-23 | 3133EMSU7 | 0.800 | US Agency | Callable | 3/9/2026 | 1,000,000.00 | 923,300.00 | 1.09 |
| FHLB 0.65 3/10/2026-22 | 3130ALDS0 | 0.650 | US Agency | Callable | 3/10/2026 | 1,000,000.00 | 921,830.00 | 1.09 |
| FAMC 0.83 3/27/2026 | 31422XDX7 | 0.828 | US Agency | Bullet | 3/27/2026 | 1,000,038.60 | 922,040.00 | 1.09 |
| Bank Hapoalim NY 4.8 3/30/2026 | 06251A6T2 | 4.845 | Certificate Of Deposit | Bullet | 3/30/2026 | 243,798.09 | 243,033.76 | 0.27 |
| Nelnet Bank UT 0.75 4/15/2026 | 64034KAF8 | 0.750 | Certificate Of Deposit | Bullet | 4/15/2026 | 245,000.00 | 225,769.95 | 0.27 |
| Greenstate Credit Union 0.95 4/16/2026 | 39573LBC1 | 0.950 | Certificate Of Deposit | Bullet | 4/16/2026 | 245,000.00 | 226,563.75 | 0.27 |
| Oceanside Water CA 1.103 5/1/2026 | 675413DL9 | 1.103 | Municipal | Bullet | 5/1/2026 | 210,000.00 | 194,117.70 | 0.23 |
| **Total / Average 1-2 Years** | | **0.823** | | | | **20,011,294.75** | **18,791,274.38** | **21.79** |
| **2-3 Years** | | | | | | | | |
| FAMC 0.95 5/4/2026-23 | 31422XFP2 | 0.950 | US Agency | Callable | 5/4/2026 | 1,000,000.00 | 920,070.00 | 1.09 |
| FAMC 0.925 6/10/2026-22 | 31422XHF2 | 0.925 | US Agency | Callable | 6/10/2026 | 1,000,000.00 | 915,810.00 | 1.09 |
| Toyota Financial Savings NV 0.95 7/29/2026 | 89235MLE9 | 0.950 | Certificate Of Deposit | Bullet | 7/29/2026 | 245,000.00 | 224,466.55 | 0.27 |
| Upper Santa Clara Valley Water District 1.175 8/1/ | 916544EV7 | 3.350 | Municipal | Bullet | 8/1/2026 | 954,684.72 | 916,450.00 | 1.00 |
| City of San Diego 1.903 8/1/2026 | 79730CJK1 | 5.030 | Municipal | Bullet | 8/1/2026 | 934,169.90 | 932,700.00 | 1.02 |
| FFCB 0.71 8/10/2026-23 | 3133EM2C5 | 0.710 | US Agency | Callable | 8/10/2026 | 1,000,000.00 | 906,030.00 | 1.09 |
| UBS Bank UT 0.95 8/11/2026 | 90348JR93 | 0.950 | Certificate Of Deposit | Bullet | 8/11/2026 | 245,000.00 | 224,057.40 | 0.27 |
| FHLB 0.75 9/28/2026-21 | 3130ANY38 | 0.750 | US Agency | Callable | 9/28/2026 | 1,000,000.00 | 910,890.00 | 1.09 |
| FAMC 0.9 10/2/2026-22 | 31422XNH1 | 0.900 | US Agency | Callable | 10/2/2026 | 1,000,000.00 | 904,710.00 | 1.09 |
| Synchrony Bank 1 10/22/2026 | 87164YE34 | 1.000 | Certificate Of Deposit | Bullet | 10/22/2026 | 248,000.00 | 225,712.24 | 0.27 |
| City of Palm Springs 1.402 11/1/2026 | 69666JHX9 | 1.402 | Municipal | Bullet | 11/1/2026 | 500,000.00 | 455,255.00 | 0.54 |
| FFCB 1.34 11/30/2026 | 3133ENFV7 | 1.291 | US Agency | Bullet | 11/30/2026 | 1,001,220.91 | 910,300.00 | 1.09 |
| California State 1.051 12/1/2026-26 | 13067WSW3 | 1.918 | Municipal | Callable | 12/1/2026 | 978,666.73 | 905,380.00 | 1.05 |
| FHLB Step 12/22/2026-22 | 3130AQ2B8 | 1.869 | US Agency | Callable | 12/22/2026 | 1,000,000.00 | 936,260.00 | 1.09 |
| FAMC 1.5 1/19/2027 | 31422XSV5 | 1.517 | US Agency | Bullet | 1/19/2027 | 999,553.63 | 913,310.00 | 1.09 |
| Beal Bank (Texas) 1.55 2/3/2027 | 07371AWQ2 | 1.550 | Certificate Of Deposit | Bullet | 2/3/2027 | 245,000.00 | 224,510.65 | 0.27 |
| FNMA 5 2/5/2027-25 | 3135GAN49 | 5.000 | US Agency | Callable | 2/5/2027 | 1,000,000.00 | 996,020.00 | 1.09 |
| American Express 2 3/9/2027 | 02589ABQ4 | 3.585 | Certificate Of Deposit | Bullet | 3/9/2027 | 239,621.13 | 231,400.00 | 0.25 |
| State of Maryland 4.05 3/15/2027 | 574193WF1 | 4.114 | Municipal | Bullet | 3/15/2027 | 998,299.74 | 973,950.00 | 1.09 |
| FNMA 5.15 3/26/2027-25 | 3135GAQM6 | 5.150 | US Agency | Callable | 3/26/2027 | 1,000,000.00 | 992,370.00 | 1.09 |
| BMW Bank NA 4.6 4/12/2027 | 05580A6Y5 | 4.600 | Certificate Of Deposit | Bullet | 4/12/2027 | 244,000.00 | 242,701.92 | 0.27 |
| Spokane Teachers Credit Union 4.75 4/15/2027 | 849061AG1 | 4.750 | Certificate Of Deposit | Bullet | 4/15/2027 | 248,000.00 | 247,804.08 | 0.27 |
| FHLB 5 4/15/2027-26 | 3130B0UQ0 | 5.000 | US Agency | Callable | 4/15/2027 | 1,000,000.00 | 995,680.00 | 1.09 |
| FHLB 3 4/21/2027-22 | 3130ARGE5 | 3.000 | US Agency | Callable | 4/21/2027 | 1,000,000.00 | 945,060.00 | 1.09 |
| San Jose California 3.594 5/1/2027 | 798153PY2 | 3.594 | Municipal | Bullet | 5/1/2027 | 1,000,000.00 | 960,460.00 | 1.09 |
| **Total / Average 2-3 Years** | | **2.592** | | | | **19,081,216.76** | **18,011,357.84** | **20.71** |
| **3-4 Years** | | | | | | | | |
| Capital One Bank NA 3.05 5/4/2027 | 14042TFW2 | 3.050 | Certificate Of Deposit | Bullet | 5/4/2027 | 246,000.00 | 234,226.44 | 0.27 |

| Description | CUSIP/Ticker | YTM @ Cost | Security Sector | Bullet/Callable | Maturity Date | Book Value | Market Value | % of Portfolio |
|---|---|---|---|---|---|---|---|---|
| FFCB 3.24 6/28/2027 | 3133ENZK9 | 3.260 | US Agency | Bullet | 6/28/2027 | 999,418.26 | 951,670.00 | 1.09 |
| Commonwealth of Massachusetts 3.679 7/15/2027 | 576004HD0 | 3.679 | Municipal | Bullet | 7/15/2027 | 500,000.00 | 479,890.00 | 0.54 |
| FHLB 4.05 8/10/2027-22 | 3130ASUC1 | 4.050 | US Agency | Callable | 8/10/2027 | 1,000,000.00 | 966,670.00 | 1.09 |
| FFCB 3.375 9/15/2027 | 3133ENL99 | 3.451 | US Agency | Bullet | 9/15/2027 | 997,663.65 | 952,950.00 | 1.09 |
| Security Bank & Trust 3.9 9/28/2027 | 814010CR3 | 3.900 | Certificate Of Deposit | Bullet | 9/28/2027 | 245,000.00 | 239,338.05 | 0.27 |
| FFCB 4 9/29/2027 | 3133ENQ29 | 4.064 | US Agency | Bullet | 9/29/2027 | 998,040.04 | 971,890.00 | 1.09 |
| FHLB 4.7 9/30/2027-22 | 3130ATC21 | 4.700 | US Agency | Callable | 9/30/2027 | 1,000,000.00 | 984,450.00 | 1.09 |
| Discover Bank 4.9 11/8/2027 | 254673Y67 | 4.900 | Certificate Of Deposit | Bullet | 11/8/2027 | 244,000.00 | 245,403.00 | 0.27 |
| FHLB 4.25 12/10/2027 | 3130ATUS4 | 3.738 | US Agency | Bullet | 12/10/2027 | 1,016,667.17 | 978,360.00 | 1.11 |
| University Bank 4.05 12/16/2027 | 914098DM7 | 4.050 | Certificate Of Deposit | Bullet | 12/16/2027 | 249,000.00 | 243,606.66 | 0.27 |
| FFCB 4 1/6/2028 | 3133EN5N6 | 3.662 | US Agency | Bullet | 1/6/2028 | 1,011,286.38 | 972,350.00 | 1.11 |
| Lakeside Bank 3.85 1/13/2028 | 51210STA5 | 3.850 | Certificate Of Deposit | Bullet | 1/13/2028 | 245,000.00 | 237,997.90 | 0.27 |
| Austin Telco FCU 4.75 1/27/2028 | 052392CN5 | 4.750 | Certificate Of Deposit | Bullet | 1/27/2028 | 248,000.00 | 248,550.56 | 0.27 |
| State of California 1.7 2/1/2028 | 13063DC48 | 3.959 | Municipal | Bullet | 2/1/2028 | 923,658.00 | 887,940.00 | 0.98 |
| TVA 3.875 3/15/2028 | 880591EZ1 | 3.886 | US Agency | Bullet | 3/15/2028 | 999,625.17 | 968,580.00 | 1.09 |
| FFCB 3.5 4/12/2028 | 3133EPFU4 | 3.667 | US Agency | Bullet | 4/12/2028 | 994,021.07 | 952,180.00 | 1.08 |
| Dort Financial Credit Unio 4.25 4/21/2028 | 25844MAS7 | 4.250 | Certificate Of Deposit | Bullet | 4/21/2028 | 247,000.00 | 243,297.47 | 0.27 |
| **Total / Average 3-4 Years** | | **3.873** | | | | **12,164,379.74** | **11,759,350.08** | **13.23** |
| **4-5 Years** | | | | | | | | |
| Freedom Northwest Credit Union 5 5/9/2028-24 | 356436AJ4 | 5.000 | Certificate Of Deposit | Callable | 5/9/2028 | 248,000.00 | 248,091.76 | 0.27 |
| Morgan Stanley Bank NA 4.5 5/10/2028 | 61690U5S5 | 4.500 | Certificate Of Deposit | Bullet | 5/10/2028 | 244,000.00 | 242,545.76 | 0.27 |
| T-Note 1.25 5/19/2028 | 91282CCE9 | 3.678 | US Treasury | Bullet | 5/19/2028 | 455,439.76 | 435,135.00 | 0.48 |
| FFCB 3.875 5/30/2028 | 3133EPLD5 | 3.886 | US Agency | Bullet | 5/30/2028 | 999,591.95 | 967,280.00 | 1.09 |
| FFCB 3.875 6/8/2028 | 3133EPME2 | 3.875 | US Agency | Bullet | 6/8/2028 | 1,000,000.00 | 967,110.00 | 1.09 |
| FAMC 4.32 7/17/2028 | 31422X4Y5 | 4.320 | US Agency | Bullet | 7/17/2028 | 1,000,000.00 | 983,140.00 | 1.09 |
| State of Rhode Island1.5 8/1/2028 | 762223ML6 | 4.789 | Municipal | Bullet | 8/1/2028 | 875,944.01 | 870,790.00 | 0.94 |
| FFCB 4.25 8/7/2028 | 3133EPSK2 | 4.325 | US Agency | Bullet | 8/7/2028 | 997,148.11 | 980,270.00 | 1.09 |
| Liberty First Credit Union 4.7 8/7/2028 | 530520AK1 | 4.700 | Certificate Of Deposit | Bullet | 8/7/2028 | 249,000.00 | 251,616.99 | 0.27 |
| FHLB 4.375 9/8/2028 | 3130AWTR1 | 4.445 | US Agency | Bullet | 9/8/2028 | 997,211.60 | 983,160.00 | 1.09 |
| Amerant Bank NA 4.65 9/8/2028 | 02357QCF2 | 4.650 | Certificate Of Deposit | Bullet | 9/8/2028 | 249,000.00 | 249,291.33 | 0.27 |
| State of Texas Financing Authority 5.382 10/1/2028 | 882724V79 | 5.382 | Municipal | Bullet | 10/1/2028 | 750,000.00 | 763,072.50 | 0.82 |
| FAMC 4.78 10/5/2028 | 31424WAH5 | 4.780 | US Agency | Bullet | 10/5/2028 | 1,000,000.00 | 1,000,620.00 | 1.09 |
| United Fidelity Bank FSB 4.8 10/13/2028 | 910286HE6 | 4.800 | Certificate Of Deposit | Bullet | 10/13/2028 | 249,000.00 | 250,904.85 | 0.27 |
| FAMC 4.92 11/1/2028 | 31424WBJ0 | 4.920 | US Agency | Bullet | 11/1/2028 | 1,000,000.00 | 1,006,970.00 | 1.09 |
| Wells Fargo Bank 5.05 11/21/2028 | 949764HZ0 | 5.050 | Certificate Of Deposit | Bullet | 11/21/2028 | 248,000.00 | 252,602.88 | 0.27 |
| SALLIE MAE BANK/SALT LKE 4.4 12/13/2028 | 795451DH3 | 4.400 | Certificate Of Deposit | Bullet | 12/13/2028 | 244,000.00 | 241,974.80 | 0.27 |
| FFCB 4.25 12/15/2028 | 3133EPN50 | 4.335 | US Agency | Bullet | 12/15/2028 | 996,503.45 | 979,620.00 | 1.08 |
| FFCB 3.875 1/9/2029 | 3133EPU37 | 3.950 | US Agency | Bullet | 1/9/2029 | 996,836.59 | 963,690.00 | 1.09 |
| Cedar Rapids Bank & Trust 3.8 1/12/2029 | 150517GS3 | 3.800 | Certificate Of Deposit | Bullet | 1/12/2029 | 249,000.00 | 240,778.02 | 0.27 |

| Description | CUSIP/Ticker | YTM @ Cost | Security Sector | Bullet/Callable | Maturity Date | Book Value | Market Value | % of Portfolio |
|---|---|---|---|---|---|---|---|---|
| FHLB 4.75 2/12/2029-26 | 3130AYY91 | 4.750 | US Agency | Callable | 2/12/2029 | 1,000,000.00 | 982,020.00 | 1.09 |
| FFCB 4.125 2/13/2029 | 3133EP3B9 | 4.137 | US Agency | Bullet | 2/13/2029 | 999,482.76 | 974,300.00 | 1.09 |
| Unibank 4.05 2/16/2029 | 90458JCK0 | 4.050 | Certificate Of Deposit | Bullet | 2/16/2029 | 245,000.00 | 239,477.70 | 0.27 |
| T-Bond 1.875 2/28/2029 | 91282CEB3 | 4.290 | US Treasury | Bullet | 2/28/2029 | 895,962.81 | 877,620.00 | 0.97 |
| Morgan Stanley Pvt Bank 4.35 3/6/2029 | 61768ET29 | 4.350 | Certificate Of Deposit | Bullet | 3/6/2029 | 244,000.00 | 241,594.16 | 0.27 |
| FAMC 4.15 3/12/2029 | 31424WGJ5 | 4.150 | US Agency | Bullet | 3/12/2029 | 1,000,000.00 | 974,560.00 | 1.09 |
| FFCB 4.375 4/10/2029 | 3133ERAK7 | 4.447 | US Agency | Bullet | 4/10/2029 | 996,835.05 | 983,210.00 | 1.09 |
| T-Bond 2.875 4/30/2029 | 91282CEM9 | 4.650 | US Treasury | Bullet | 4/30/2029 | 230,412.93 | 229,452.50 | 0.25 |
| **Total / Average 4-5 Years** | | **4.408** | | | | **18,660,369.02** | **18,380,898.25** | **20.29** |
| **Total / Average** | | **2.796** | | | | **91,985,599.34** | **88,753,230.81** | **100** |

Monthly Investment Report Definitions

- Disc./Cpn Rate – The yield paid by a fixed income security.
- Yield to Call (YTC) – The rate of return of a security held to call when interest payments, market value and par value are considered.
- Yield to Maturity (YTM) – The rate of return of a security held to maturity when interest payments, market value and par value are considered.
- Bullet – A fixed income security that cannot be redeemed by the issuer until the maturity date.
- Callable – A fixed income security that can be redeemed by the issuer before the maturity date.
- Book Value – The price paid for the security.
- Par Value – The face value of a security.
- Market Value – The current price of a security.
- Sinking Bond – In the case of the CASPWR Bond held by the District, a sinking bond pays a portion of principal on a defined schedule throughout the life of the bond.
- Custodian – The financial institution that holds securities for an investor.

Investment Abbreviations

- FHLB – Federal Home Loan Bank
- FHLMC – Federal Home Loan Mortgage Corporation (Freddie Mac)
- FNMA – Federal National Mortgage Association (Fannie Mae)
- FFCB – Federal Farm Credit Bank
- FAMCA/AGM – Federal Agricultural Mortgage Corporation (Farmer Mac)
- TVA – Tennessee Valley Authority

Attachment B

# LVMWD CASH ANALYSIS - April 30, 2024

| | Restricted Cash | Cash Held by Policy | Policy Requirement | Funds Available for Capital |
|---|---|---|---|---|
| 101 - Potable Water Operations | | 16,461,334 | 10,830,708 | |
| 201 - Potable Water Construction | 7,753,929 | | | |
| 301 - Potable Water Replacement | | 13,415,493 | 11,758,111 | |
| Potable Water Assigned Funds | | 15,000,000 | | |
| 603 - Rate Stabilization Fund | | 8,000,000 | 8,000,000 | |
| **Total Potable Water** | **7,753,929** | **52,876,828** | **30,588,819** | **15,041,938** |
| 102 - Recycled Water Operations | | 4,536,582 | 1,846,729 | |
| 203 - Recycled Water Construction | 817,515 | | | |
| 302 - Recycled Water Replacement | | 13,044,658 | 2,216,989 | |
| Recyled Water Assigned Funds | | 10,000,000 | | |
| **Total Recycled Water** | **817,515** | **27,581,241** | **4,063,718** | **14,335,038** |
| 130 - Sanitation Operations | | 4,534,089 | 4,609,371 | |
| 230 - Sanitation Construction | 5,958,282 | | | |
| 330 - Sanitation Replacement | | 11,193,647 | 13,062,729 | |
| Sanitation Assigned Funds | | 10,000,000 | | |
| **Total Sanitation** | **5,958,282** | **25,727,736** | **17,672,100** | **4,013,918** |
| 701 - Vested Sick Leave Reserve | 917,616 | | | |
| 720 - Insurance Reserve | | 9,289,888 | 8,672,937 | **616,951** |
| JPA | 11,877,959 | | | |
| 701 - Internal Services Fund | (6,579,732) | | | |
| *Subtotal* | *20,745,569* | *115,475,692* | | |
| **TOTAL** | **136,221,261** | | | |

**Financial Policy** - Cash required to comply with District's adopted Financial Policy.
**Assigned Fund** - Revenue restricted to a particular purpose.

**AGENDA ITEM NO. 4.E**

**DATE:** June 4, 2024

**TO:** Board of Directors

**FROM:** Finance and Administration

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**SUBJECT: CalPERS Pension and Other Post-Employment Benefit Liabilities: Update**

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## SUMMARY:

Governmental Accounting Standards Board (GASB) Statement Nos. 68 and 75 require local government agencies to report financial information related to future pension and Other Post-Employment Benefit (OPEB) obligations in their annual financial reports. In April 2024, staff received updated actuarial reports reflecting revised estimates for the District's future pension and OPEB liabilities.

As of June 30, 2023 (measurement date), the net pension and OPEB liabilities for the District were $25.3 million and $6.8 million, respectively. The corresponding funded statuses of the net pension and OPEB liabilities were 79.4 percent and 68.7 percent, respectively. Staff recommends that the Board authorize an additional OPEB contributions, in the amount of $1,121,833, for Fiscal Year 2024-25. The Board has approved additional contributions for the past four years, resulting in a significant decrease in the District's net OPEB liability.

## RECOMMENDATION(S):

Receive and file an update on CalPERS pension and Other Post-Employment Benefit (OPEB) liabilities, and authorize the General Manager to approve an additional contribution, in the amount of $1,121,833, for Fiscal Year 2024-25 to reduce the District's long-term net OPEB liability.

## FISCAL IMPACT:

Yes

## FINANCIAL IMPACT:

The cost of this action is $1,121,833, consisting of an additional contribution to reduce the District's net OPEB liability. Sufficient funds for this purpose are included in the Fiscal Year 2024-25 Proposed Budget.

## DISCUSSION:

California Public Employees' Retirement System (CalPERS):

The District is currently enrolled in an agent multiple-employer defined benefit pension plan with CalPERS for management of its employees' pensions. An agent multiple-employer plan is one in which the assets of the participating agencies are pooled for investment purposes, but separate accounts are maintained for each individual employer. As a result, each participating employer's share of the pooled assets is legally available to pay the defined benefit pensions of its retirees.

As of June 30, 2023, the total pension liability for the District was $122.6 million. The total pension liability is reduced by the market value of assets invested by CalPERS, in the amount of $97.3 million, resulting in a net pension liability of $25.3 million. The net pension liability is reported in the District's financial statements as reflected in the Annual Comprehensive Financial Report (ACFR). The District's reported funded status as of June 30, 2023 was 79.4 percent. The District's employer contribution rate as a percentage of projected payroll for Fiscal Year 2024-25 will be 27.4 percent. The pension plan for the District is currently projected to be fully-funded in approximately six to seven years.

Other Post-Employment Benefits (OPEB):

The District is currently enrolled in the California Employers' Benefit Trust (CERBT) Fund for investment of its funds set aside for OPEB. The trust fund helps finance future costs from investment earnings managed by CalPERS. As of June 30, 2023, the District's total OPEB liability was $21.7 million. The total OPEB liability is reduced by the market value of the District's CERBT investments, in the amount of $14.9 million, resulting in a net OPEB liability of $6.8 million. As such, the District's OPEB obligations were 68.7 percent funded as of June 30, 2023. For the past four years, the Board has authorized staff to accelerate the District's pay-down of its net OPEB liability by contributing additional funds to CERBT each year. The plan has proved to be very successful as the District's OPEB funded status has increased from 31.5 percent to 68.7 percent over the four year period.

Staff recommends continuing the additional contributions to CERBT in the form of quarterly payments of actuarially-determined contributions (ADC), in addition to monthly "pay-go" retiree health contributions. The Fiscal Year 2024-25 Proposed Budget includes $1,121,833 in funding for the additional contributions to reduce the District's net OPEB liability. The District's OPEB plan is currently projected to be fully-funded in approximately four to five years.

**GOALS:**

Ensure Effective Utilization of the Public's Assets and Money

Prepared by: Brian Richie, Finance Manager

**ATTACHMENTS:**
Pension-OPEB Update Presentation
GASB 68 CalPERS Pension Reporting as of June 30, 2024
GASB 75 OPEB Reporting as of June 30, 2024
OPEB Actuarial Valuation as of June 30, 2022

CERBT Account Update as of March 31, 2024

# Fiscal Year 2023/24
# CalPERS Pension and OPEB Update

June 4, 2024

# Update on CalPERS

# CalPERS

| | |
|---|---|
| Total Pension Liability | $122.6 M |
| Market Value of Assets | ($97.3)M |
| Unfunded Liability | $25.3 M |

# CalPERS

- Projected Funded Status – 79.39% (June 30, 2023 measurement date) approx. $25.3m unfunded liability
- Fiscal Year 2024/25 Employer Contribution Rate – 27.39%
- Estimated Contribution Rates will range between 27-32% until Fiscal Year 2032, then decrease to 16% by 2041, and 8% indefinitely after.
- Estimated “fully funded” by Fiscal Year 2030/31

# CalPERS


Funded Status and Employer Rates
105%
100%
95%
90%
85%
80%
75%
35%
30%
25%
20%
15%
10%
5%
0%
27.39%
100.53%
78.00%
7.97%
Funded Status
Employer Rate
6/30/22
6/30/23
6/30/24
6/30/25
6/30/26
6/30/27
6/30/28
6/30/29
6/30/30
6/30/31
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6/30/41
6/30/42
6/30/43
6/30/44
6/30/45
6/30/46
6/30/47
6/30/48
6/30/49
6/30/50
6/30/51
6/30/52
Valuation Date
Base Funded Status
Base Employer Rate

# Update on OPEB

# OPEB

| | |
|---|---|
| Total OPEB Liability | $21.7 M |
| Market Value of Assets | ($14.9)M |
| Unfunded Liability | $6.8 M |

# OPEB – Current Status

- Current Total Liability is $21,704,991
- As of Fiscal Year 2023-24, Funded in CERBT Trust $14,903,721 or 68.66% Funded vs 62.71% funded prior year.
- Unfunded Liability is Total Liability minus CERBT = $6,801,270
- Measurement Date is June 30, 2023.  Reporting Date is June 30, 2024.

# OPEB – Unfunded Liability

*Schedule of Changes in Net OPEB Liability (June 30, 2022 to June 30, 2023)*

| | |
|---|---|
| **Total OPEB Liability** | |
| Service Cost | 437,388 |
| Interest | 1,163,187 |
| Changes of benefit terms | 0 |
| Difference between expected and actual experience | 0 |
| Changes in assumptions or other inputs | 0 |
| Benefit payments[1] | (1,198,059) |
| **Net change in total OPEB liability** | 402,516 |
| **Total OPEB liability – June 30, 2022 (a)** | $21,302,475 |
| **Total OPEB liability – June 30, 2023 (b)** | $21,704,991 |
| | |
| **Plan fiduciary net position** | |
| Contributions – employer[1] | 2,483,143 |
| Other income – adjustment | 0 |
| Net investment income | 263,416 |
| Benefit payments[1] | (1,198,059) |
| Administrative expenses | (3,940) |
| Other disbursements – reimbursement to employer | 0 |
| **Net change in plan fiduciary net position** | 1,544,560 |
| **Plan fiduciary net position – June 30, 2022 (c)** | $13,359,161 |
| **Plan fiduciary net position – June 30, 2023 (d)** | $14,903,721 |
| | |
| **Net OPEB liability (asset) – June 30, 2022 (a) – (c)** | $7,943,314 |
| **Net OPEB liability (asset) – June 30, 2023 (b) – (d)** | $6,801,270 |

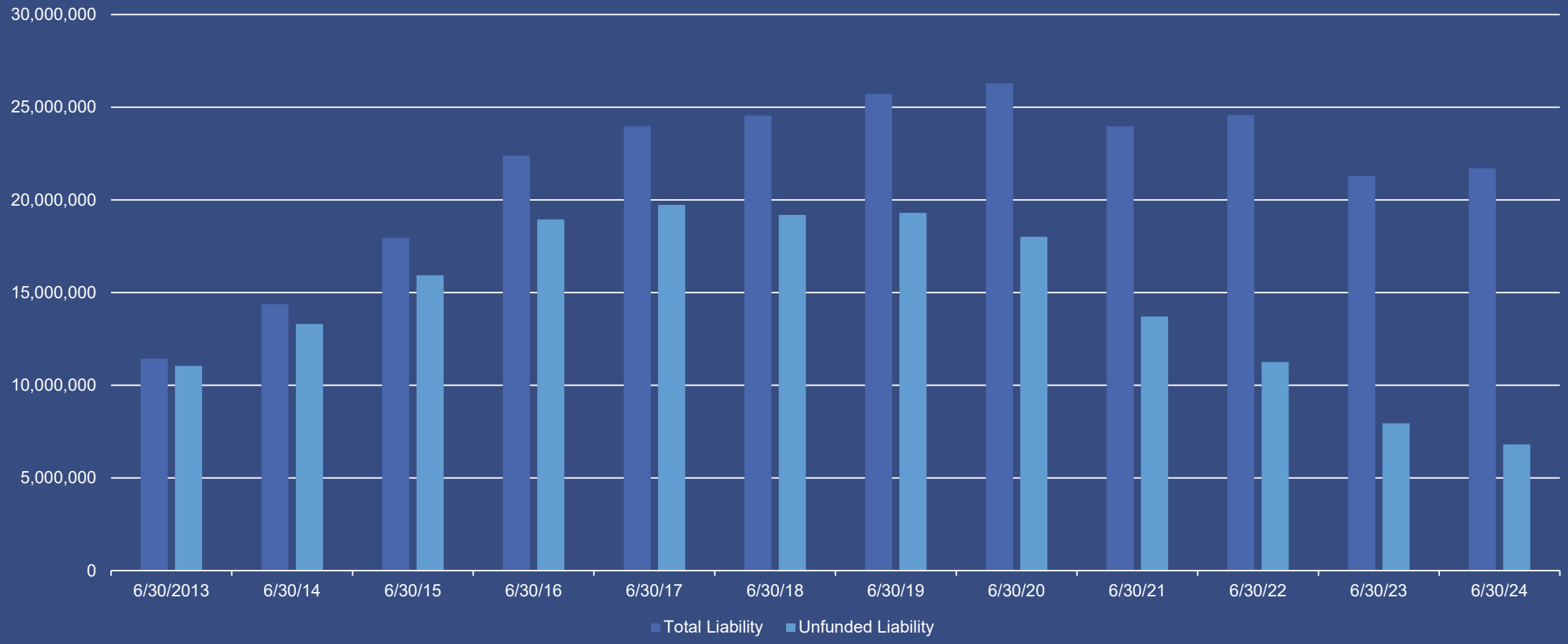
# CERBT Account Summary

| As of March 31, 2024 | Strategy 3 |
|---|---|
| Initial contribution (06/15/2009) | $328,180 |
| Additional contributions | $12,322,114 |
| Disbursements | $0 |
| CERBT expenses | ($80,840) |
| Investment earnings | $4,113,308 |
| Total assets | $16,682,762 |
| Annualized net rate of return (06/15/2009-03/31/2024 = 14.79 years) | 5.06% |

# OPEB Historical Funding Status

| Reporting Period | Total Liability | Unfunded Liability | Percent Funded |
|---|---|---|---|
| 6/30/13 | 11,438,687 | 11,038,989 | 3.49% |
| 6/30/14 | 14,364,922 | 13,305,441 | 7.38% |
| 6/30/15 | 17,945,074 | 15,927,925 | 11.24% |
| 6/30/16 | 22,376,865 | 18,944,796 | 15.34% |
| 6/30/17 | 23,976,840 | 19,722,139 | 17.75% |
| 6/30/18 | 24,540,649 | 19,183,096 | 21.83% |
| 6/30/19 | 25,713,197 | 19,301,046 | 24.94% |
| 6/30/20 | 26,284,898 | 18,003,904 | 31.50% |
| 6/30/21 | 23,960,183 | 13,706,306 | 42.80% |
| 6/30/22 | 24,584,584 | 11,251,628 | 54.23% |
| 6/30/23 | 21,302,475 | 7,943,314 | 62.71% |
| 6/30/24 | 21,704,991 | 6,801,270 | 68.66% |

# Historical Funding Status Trend



# Recommendation

- Continue contributing additional funding to CERBT in the form of quarterly payments of Actuarially Determined Contributions (ADC) in addition to monthly “paygo” retiree health contributions.

  – Fiscal Year 2024/25 proposed annual estimate **$2,506,648**

  $1,121,833 (ADC)
  + $1,384,815 (Paygo)
  $2,506,648 Total Contribution


# GASB 68 Accounting Report

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**CalPERS ID: 7263774238**
**Valuation Rate Plan Identifier: 710**

## Prepared for
## Las Virgenes Municipal Water District Miscellaneous Plan,
### an Agent Multiple-Employer Defined Benefit Pension Plan

## Measurement Date of June 30, 2023

# Table of Contents

# Actuarial Certification

This report provides disclosure and reporting information as required under Governmental Accounting Standards Board Statement 68 (GASB 68) for the Miscellaneous Plan of the Las Virgenes Municipal Water District (the "Plan"), an Agent Multiple-Employer Defined Benefit Pension Plan participating in the California Public Employees' Retirement System (CalPERS), for the measurement period ended June 30, 2023.

This report is to be viewed solely for the purpose of financial accounting requirements. Any usage of the contents provided in this report for purposes other than financial accounting requirements would be inappropriate.

This accounting report relies on liabilities and related validation work performed by the CalPERS Actuarial Office as part of the June 30, 2022 annual funding valuation for the Plan. The census data and benefit provisions underlying the liabilities were prepared as of June 30, 2022 and certified as part of the annual funding valuation by the CalPERS Actuarial Office. The June 30, 2022 liabilities, which were rolled forward to June 30, 2023 and used for this accounting report, are based on actuarial assumptions adopted by the CalPERS Board of Administration and consistent with the requirements of GASB 68. The assumptions and methods are internally consistent and reasonable for this Plan. The asset information used in this accounting report is provided by the CalPERS Financial Office.

With the provided liability and asset information, the total pension liability, net pension liability, deferred inflows and outflows and pension expense were developed for the measurement period using standard actuarial techniques.

The undersigned is an actuary who satisfies the *Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States* with regard to pensions.

Julian M Robinson

Julian Robinson, FSA, EA, MAAA
Senior Actuary, CalPERS

# Introduction

This is the GASB 68 accounting report for the measurement date June 30, 2023. Notes to the Agent Multiple-Employer Defined Benefit Pension Plan GASB 68 accounting reports are in a separate document, which may be accessed on the CalPERS website at www.calpers.ca.gov.

GASB 68 requires that the reported results must pertain to liability and asset information within certain defined timeframes. For this report, the following timeframes are used.

| | |
|---|---|
| Valuation Date | June 30, 2022 |
| Measurement Date | June 30, 2023 |
| Measurement Period | July 1, 2022 to June 30, 2023 |

**Pension Plan Fiduciary Net Position**

The plan fiduciary net position disclosed in the GASB 68 accounting report may differ from the plan assets reported in the funding valuation report due to several reasons. For example, for the accounting reports, CalPERS must keep items such as deficiency reserves and fiduciary self-insurance included as assets. These amounts are excluded for rate setting purposes in the funding valuation.

**Subsequent Events**

During the time period between the valuation date and the publication of this report, price inflation has been higher than the assumed rate of 2.3% per annum. Since inflation influences cost of living adjustments for retirees and beneficiaries and active member pay increases, higher inflation is likely to put at least some upward pressure on the pension expense and the net pension liability in future valuations. The actual impact of higher inflation on future valuation results will depend on, among other factors, how long higher inflation persists. At this time, we continue to believe the long-term price inflation assumption of 2.3% per annum is appropriate.

# Changes in the Net Pension Liability

The following table shows the changes in net pension liability recognized over the measurement period.

| | Increase (Decrease) | | |
|---|---|---|---|
| | **Total Pension Liability (a)** | **Plan Fiduciary Net Position (b)** | **Net Pension Liability/(Asset) (c) = (a) – (b)** |
| **Balance at: 06/30/2022** | **$116,873,253** | **$93,983,839** | **$22,889,414** |
| **Beginning of Year Adjustment** | **$0** | **$0** | **$0** |
| **Adjusted Balance at: 06/30/2022** | **$116,873,253** | **$93,983,839** | **$22,889,414** |
| **Changes Recognized for the Measurement Period:** | | | |
| Service Cost | 2,170,113 | | 2,170,113 |
| Interest on Total Pension Liability | 8,062,847 | | 8,062,847 |
| Changes of Benefit Terms | 114,822 | | 114,822 |
| Changes of Assumptions | 0 | | 0 |
| Differences Between Expected and Actual Experience | 2,139,641 | | 2,139,641 |
| Net Plan to Plan Resource Movement | | 0 | 0 |
| Contributions – Employer | | 3,394,789 | (3,394,789) |
| Contributions – Employees | | 909,902 | (909,902) |
| Net Investment Income | | 5,860,858 | (5,860,858) |
| Benefit Payments, Including Refunds of Employee Contributions | (6,719,837) | (6,719,837) | 0 |
| Administrative Expense | | (69,111) | 69,111 |
| Other Miscellaneous (Income)/Expense | | 0 | 0 |
| **Net Changes During 2022-23** | **$5,767,586** | **$3,376,601** | **$2,390,985** |
| **Balance at: 06/30/2023** | **$122,640,839** | **$97,360,440** | **$25,280,399** |

**Sensitivity of the Net Pension Liability to Changes in the Discount Rate**

| | **Discount Rate -1% 5.90%** | **Current Discount Rate 6.90%** | **Discount Rate + 1% 7.90%** |
|---|---|---|---|
| Plan's Net Pension Liability/(Asset) | $40,502,588 | $25,280,399 | $12,607,559 |

# Pension Expense/(Income) for Measurement Period Ended June 30, 2023

| Description | Amount |
|---|---|
| Service Cost | $2,170,113 |
| Interest on Total Pension Liability | 8,062,847 |
| Changes of Benefit Terms | 114,822 |
| Recognized Changes of Assumptions | 375,619 |
| Recognized Differences Between Expected and Actual Experience | 530,629 |
| Net Plan to Plan Resource Movement | 0 |
| Employee Contributions | (909,902) |
| Projected Earnings on Pension Plan Investments | (6,397,165) |
| Recognized Differences Between Projected and Actual Earnings on Plan Investments | 856,633 |
| Administrative Expense | 69,111 |
| Other Miscellaneous (Income)/Expense | 0 |
| **Total Pension Expense/(Income)** | **$4,872,707** |

# Deferred Outflows and Deferred Inflows of Resources Related to Pensions

The following table presents deferred outflows and deferred inflows of resources related to pensions as of June 30, 2023. Note that no adjustments have been made for contributions subsequent to the measurement date. Appropriate treatment of any contributions made after the measurement date is the responsibility of the employer.

| | Deferred Outflows of Resources | Deferred Inflows of Resources |
|---|---|---|
| Changes of Assumptions | $450,743 | $0 |
| Differences Between Expected and Actual Experience | 1,528,315 | (308,208) |
| Net Difference Between Projected and Actual Earnings on Pension Plan Investments | 4,387,233 | 0 |
| **Total** | **$6,366,291** | **($308,208)** |

Amounts reported as deferred outflows and deferred inflows of resources related to pensions will be recognized in future pension expense as follows:

| Measurement Periods Ended June 30: | Deferred Outflows/(Inflows) of Resources |
|---|---|
| 2024 | $1,510,293 |
| 2025 | 1,058,527 |
| 2026 | 3,382,000 |
| 2027 | 107,263 |
| 2028 | 0 |
| Thereafter | 0 |

**Expected Average Remaining Service Lifetime (EARSL)**

The EARSL for the Plan for the measurement period ending June 30, 2023 is 3.5 years, which was obtained by dividing the total service years of 1,264 (the sum of remaining service lifetimes of the active employees) by 362 (the total number of participants: active, inactive, and retired). Inactive employees and retirees have remaining service lifetimes equal to 0. Total future service is based on the members' probability of decrementing due to an event other than receiving a cash refund.

# Schedules of Required Supplementary Information

**Schedule of Changes in Net Pension Liability and Related Ratios for the Measurement Periods Ended June 30**

| Measurement Period | 2023 | 2022 | 2021 | 2020 | 2019 |
|---|---|---|---|---|---|
| **TOTAL PENSION LIABILITY:** | | | | | |
| Service Cost | $2,170,113 | $2,090,119 | $1,890,607 | $1,744,616 | $1,783,579 |
| Interest on Total Pension Liability | 8,062,847 | 7,665,701 | 7,629,771 | 7,306,938 | 6,894,754 |
| Changes of Benefit Terms | 114,822 | 0 | 0 | 0 | 0 |
| Changes of Assumptions | 0 | 1,201,981 | 0 | 0 | 0 |
| Difference Between Expected and Actual Experience | 2,139,641 | (821,886) | 567,566 | 1,884,476 | 1,883,971 |
| Benefit Payments, Including Refunds of Employee Contributions | (6,719,837) | (5,869,237) | (5,357,190) | (4,996,713) | (4,560,334) |
| **Net Change in Total Pension Liability** | **$5,767,586** | **$4,266,678** | **$4,730,754** | **$5,939,317** | **$6,001,970** |
| Total Pension Liability – Beginning | 116,873,253 | 112,606,575 | 107,875,821 | 101,936,504 | 95,934,534 |
| **Total Pension Liability – Ending (a)** | **$122,640,839** | **$116,873,253** | **$112,606,575** | **$107,875,821** | **$101,936,504** |
| **PLAN FIDUCIARY NET POSITION** | | | | | |
| Contributions – Employer | $3,394,789 | $3,121,268 | $2,784,221 | $2,588,930 | $2,414,889 |
| Contributions – Employee | 909,902 | 861,955 | 829,015 | 849,386 | 766,262 |
| Net Investment Income | 5,860,858 | (7,760,816) | 19,355,162 | 4,134,868 | 5,268,968 |
| Benefit Payments, Including Refunds of Employee Contributions | (6,719,837) | (5,869,237) | (5,357,190) | (4,996,713) | (4,560,334) |
| Net Plan to Plan Resource Movement | 0 | 0 | 0 | 0 | 0 |
| Administrative Expense | (69,111) | (64,596) | (86,079) | (118,013) | (57,003) |
| Other Miscellaneous Income/(Expense)[1] | 0 | 0 | 0 | 0 | 185 |
| **Net Change in Fiduciary Net Position** | **$3,376,601** | **($9,711,426)** | **$17,525,129** | **$2,458,458** | **$3,832,967** |
| Plan Fiduciary Net Position – Beginning[2] | $93,983,839 | $103,695,265 | $86,170,136 | $83,711,678 | $79,878,711 |
| Plan Fiduciary Net Position – Ending (b) | 97,360,440 | 93,983,839 | 103,695,265 | 86,170,136 | 83,711,678 |
| **Plan Net Pension Liability/(Asset) – (a)-(b)** | **$25,280,399** | **$22,889,414** | **$8,911,310** | **$21,705,685** | **$18,224,826** |
| **Plan Fiduciary Net Position as a Percentage of the Total Pension Liability** | **79.39%** | **80.42%** | **92.09%** | **79.88%** | **82.12%** |
| Covered Payroll[3] | $12,551,258 | $11,889,188 | $11,354,999 | $10,459,327 | $10,718,623 |
| **Plan Net Pension Liability/(Asset) as a Percentage of Covered-Employee Payroll** | **201.42%** | **192.52%** | **78.48%** | **207.52%** | **170.03%** |

[1] During Fiscal Year 2017-18, as a result of Governmental Accounting Standards Board Statement (GASB) No. 75, Accounting and Financial Reporting for Postemployment Benefit Plans Other than Pensions (GASB 75), CalPERS reported its proportionate share of activity related to postemployment benefits for participation in the State of California's agent OPEB plan. Accordingly, CalPERS recorded a one-time expense as a result of the adoption of GASB 75.

Additionally, CalPERS employees participate in various State of California agent pension plans and during Fiscal Year 2017-18, CalPERS recorded a correction to previously reported financial statements to properly reflect its proportionate share of activity related to pensions in accordance with GASB Statement No. 68, Accounting and Financial Reporting for Pensions (GASB 68).

[2] Includes any beginning of year adjustment.

[3] Includes one year's payroll growth using 2.80% payroll growth assumption for fiscal years ended in 2022 and 2023; 2.75% payroll growth assumption for fiscal years ended in 2018 through 2021; 3.00% payroll growth assumption for fiscal years ended in 2014 through 2017.

# Schedules of Required Supplementary Information (continued)

| Measurement Period | 2018 | 2017 | 2016 | 2015 | 2014 |
|---|---|---|---|---|---|
| **TOTAL PENSION LIABILITY:** | | | | | |
| Service Cost | $1,744,796 | $1,813,978 | $1,511,819 | $1,593,701 | $1,694,463 |
| Interest on Total Pension Liability | 6,486,599 | 6,456,858 | 6,362,749 | 6,129,355 | 6,040,285 |
| Changes of Benefit Terms | 0 | 0 | 0 | 0 | 0 |
| Changes of Assumptions | (2,708,692) | 5,214,612 | 0 | (1,492,369) | 0 |
| Difference Between Expected and Actual Experience | (1,061,287) | (2,211,229) | (600,876) | (2,996,239) | 0 |
| Benefit Payments, Including Refunds of Employee Contributions | (4,292,253) | (3,808,359) | (3,984,639) | (4,076,072) | (3,145,116) |
| **Net Change in Total Pension Liability** | **$169,163** | **$7,465,860** | **$3,289,053** | **($841,624)** | **$4,589,632** |
| Total Pension Liability – Beginning | 95,765,371 | 88,299,511 | 85,010,458 | 85,852,082 | 81,262,450 |
| **Total Pension Liability – Ending (a)** | **$95,934,534** | **$95,765,371** | **$88,299,511** | **$85,010,458** | **$85,852,082** |
| **PLAN FIDUCIARY NET POSITION** | | | | | |
| Contributions – Employer | $2,100,676 | $1,992,743 | $1,888,232 | $1,701,878 | $1,780,006 |
| Contributions – Employee | 815,450 | 741,264 | 694,766 | 700,118 | 919,090 |
| Net Investment Income | 6,323,046 | 7,711,377 | 341,006 | 1,610,606 | 10,570,584 |
| Benefit Payments, Including Refunds of Employee Contributions | (4,292,253) | (3,808,359) | (3,984,639) | (4,076,072) | (3,145,116) |
| Net Plan to Plan Resource Movement | (185) | 0 | 0 | 0 | 0 |
| Administrative Expense | (117,295) | (101,485) | (42,564) | (78,615) | 0 |
| Other Miscellaneous Income/(Expense)[1] | (222,744) | 0 | 0 | 0 | 0 |
| **Net Change in Fiduciary Net Position** | **$4,606,695** | **$6,535,540** | **($1,103,199)** | **($142,085)** | **$10,124,564** |
| Plan Fiduciary Net Position – Beginning[2] | $75,272,016 | $68,736,476 | $69,839,675 | $69,981,760 | $59,857,196 |
| Plan Fiduciary Net Position – Ending (b) | 79,878,711 | 75,272,016 | 68,736,476 | 69,839,675 | 69,981,760 |
| **Plan Net Pension Liability/(Asset) – (a)-(b)** | **$16,055,823** | **$20,493,355** | **$19,563,035** | **$15,170,783** | **$15,870,322** |
| **Plan Fiduciary Net Position as a Percentage of the Total Pension Liability** | **83.26%** | **78.60%** | **77.84%** | **82.15%** | **81.51%** |
| Covered Payroll[3] | $10,448,503 | $10,538,421 | $9,882,462 | $10,333,277 | $10,635,596 |
| **Plan Net Pension Liability/(Asset) as a Percentage of Covered-Employee Payroll** | **153.67%** | **194.46%** | **197.96%** | **146.81%** | **149.22%** |

[1] During Fiscal Year 2017-18, as a result of Governmental Accounting Standards Board Statement (GASB) No. 75, Accounting and Financial Reporting for Postemployment Benefit Plans Other than Pensions (GASB 75), CalPERS reported its proportionate share of activity related to postemployment benefits for participation in the State of California's agent OPEB plan. Accordingly, CalPERS recorded a one-time expense as a result of the adoption of GASB 75.

Additionally, CalPERS employees participate in various State of California agent pension plans and during Fiscal Year 2017-18, CalPERS recorded a correction to previously reported financial statements to properly reflect its proportionate share of activity related to pensions in accordance with GASB Statement No. 68, Accounting and Financial Reporting for Pensions (GASB 68).

[2] Includes any beginning of year adjustment.

[3] Includes one year's payroll growth using 2.80% payroll growth assumption for fiscal years ended in 2022 and 2023; 2.75% payroll growth assumption for fiscal years ended in 2018 through 2021; 3.00% payroll growth assumption for fiscal years ended in 2014 through 2017.

# Schedules of Required Supplementary Information (continued)

**Notes to Schedule of Changes in Net Pension Liability and Related Ratios:**

Changes of Benefit Terms: The figures above generally include any liability impact that may have resulted from voluntary benefit changes that occurred on or before the Measurement Date. However, offers of Two Years Additional Service Credit (a.k.a. Golden Handshakes) that occurred after the Valuation Date are not included in the figures above, unless the liability impact is deemed to be material by the plan actuary.

In 2022, SB 1168 increased the standard retiree lump sum death benefit from $500 to $2,000 for any death occurring on or after July 1, 2023. The impact, if any, is included in the changes of benefit terms.

Changes of Assumptions: There were no assumption changes in 2023. Effective with the June 30, 2021 valuation date (June 30, 2022 measurement date), the accounting discount rate was reduced from 7.15% to 6.90%. In determining the long-term expected rate of return, CalPERS took into account long-term market return expectations as well as the expected pension fund cash flows. In addition, demographic assumptions and the price inflation assumption were changed in accordance with the 2021 CalPERS Experience Study and Review of Actuarial Assumptions. The accounting discount rate was 7.15% for measurement dates June 30, 2017 through June 30, 2021, 7.65% for measurement dates June 30, 2015 through June 30, 2016, and 7.50% for measurement date June 30, 2014.

**Schedule of Plan Contributions for the Fiscal Years Ended June 30[1]**

| Employer Fiscal Year End | 2023 | 2022 | 2021 | 2020 | 2019 |
|---|---|---|---|---|---|
| Actuarially Determined Contribution[2] | $3,394,789 | $3,121,268 | $2,784,221 | $2,588,930 | $2,414,889 |
| Contributions in Relation to the Actuarially Determined Contribution[2] | (3,394,789) | (3,121,268) | (2,784,221) | (2,588,930) | (2,414,889) |
| Contribution Deficiency (Excess) | $0 | $0 | $0 | $0 | $0 |
| Covered Payroll[3] | $12,551,258 | $11,889,188 | $11,354,999 | $10,459,327 | $10,718,623 |
| Contributions as a Percentage of Covered Payroll[3] | 27.05% | 26.25% | 24.52% | 24.75% | 22.53% |

| Employer Fiscal Year End | 2018 | 2017 | 2016 | 2015 | 2014 |
|---|---|---|---|---|---|
| Actuarially Determined Contribution[2] | $2,100,676 | $1,992,743 | $1,888,232 | $1,701,878 | $1,780,006 |
| Contributions in Relation to the Actuarially Determined Contribution[2] | (2,100,676) | (1,992,743) | (1,888,232) | (1,701,878) | (1,780,006) |
| Contribution Deficiency (Excess) | $0 | $0 | $0 | $0 | $0 |
| Covered Payroll[3] | $10,448,503 | $10,538,421 | $9,882,462 | $10,333,277 | $10,635,596 |
| Contributions as a Percentage of Covered Payroll[3] | 20.11% | 18.91% | 19.11% | 16.47% | 16.74% |

[1] As prescribed in GASB 68, paragraph 46, the information presented in the Schedule of Plan Contributions should also be presented as of the employer's most recent fiscal year-end. The employer is responsible for determining this information as prescribed by the standard as this data is not available to CalPERS.

[2] Employers are assumed to make contributions equal to the actuarially determined contributions. However, some employers may choose to make additional contributions towards their unfunded liability. Employer contributions for such plans exceed the actuarially determined contributions.

[3] Includes one year's payroll growth using 2.80% payroll growth assumption for fiscal years ended in 2022 and 2023; 2.75% payroll growth assumption for fiscal years ended in 2018 through 2021; 3.00% payroll growth assumption for fiscal years ended in 2014 through 2017.

# Schedules of Required Supplementary Information (continued)

### Notes to Schedule of Plan Contributions:

The actuarial methods and assumptions used to set the actuarially determined contributions for Fiscal Year 2022-23 were derived from the June 30, 2020 funding valuation report.

| | |
|---|---|
| Actuarial Cost Method | Entry Age Actuarial Cost Method |
| Amortization Method/Period | For details, see June 30, 2020 Funding Valuation Report. |
| Asset Valuation Method | Fair Value of Assets. For details, see June 30, 2020 Funding Valuation Report. |
| Inflation | 2.5% |
| Salary Increases | Varies by entry age and service |
| Payroll Growth | 2.75% |
| Investment Rate of Return | 7.00% net of pension plan investment and administrative expenses; includes inflation. |
| Retirement Age | The probabilities of retirement are based on the 2017 CalPERS Experience Study for the period from 1997 to 2015. |
| Mortality | The probabilities of mortality are based on the 2017 CalPERS Experience Study for the period from 1997 to 2015. Mortality rates include 15 years of projected mortality improvement using 90% of Scale MP-2016 published by the Society of Actuaries. |

Other Information:
For changes to previous years' information, refer to past GASB 68 reports.

# Appendices

- **Appendix A – Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions**
- **Appendix B – Interest and Total Projected Earnings**

# Appendix A

## Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions

- Schedule of Changes of Assumptions
- Deferred Outflows of Resources and Deferred Inflows of Resources Arising From Changes of Assumptions
- Schedule of Differences Between Expected and Actual Experience
- Deferred Outflows of Resources and Deferred Inflows of Resources Arising From Differences Between Expected and Actual Experience
- Schedule of Differences Between Projected and Actual Earnings on Pension Plan Investments
- Deferred Outflows of Resources and Deferred Inflows of Resources Arising From Differences Between Projected and Actual Earnings on Pension Plan Investments
- Summary of Recognized Deferred Outflows of Resources and Deferred Inflows of Resources

**Schedule of Changes of Assumptions**

| | | | Increase (Decrease) in Pension Expense Arising From the Recognition of the Effects of Changes of Assumptions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Measurement Date | Changes of Assumptions | Recognition Period (Years) | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | Thereafter |
| 2014 | $0 | 0.0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| 2015 | (1,492,369) | 3.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2016 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2017 | 5,214,612 | 3.2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2018 | (2,708,692) | 3.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2019 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2020 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2021 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2022 | 1,201,981 | 3.2 | 375,619 | 375,619 | 75,124 | 0 | 0 | 0 | 0 |
| 2023 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Net Increase (Decrease) in Pension Expense** | | | **$375,619** | **$375,619** | **$75,124** | **$0** | **$0** | **$0** | **$0** |

**Deferred Outflows of Resources and Deferred Inflows of Resources Arising From Changes of Assumptions**

| Measurement Date | Increase in Total Pension Liability (a) | Decrease in Total Pension Liability (b) | Amounts Recognized in Pension Expense Through June 30, 2023 (c) | Balances at June 30, 2023 | |
|---|---|---|---|---|---|
| | | | | Deferred Outflows of Resources (a) – (c) | Deferred Inflows of Resources (b) – (c) |
| 2014 | $0 | $0 | $0 | $0 | $0 |
| 2015 | 0 | (1,492,369) | (1,492,369) | 0 | 0 |
| 2016 | 0 | 0 | 0 | 0 | 0 |
| 2017 | 5,214,612 | 0 | 5,214,612 | 0 | 0 |
| 2018 | 0 | (2,708,692) | (2,708,692) | 0 | 0 |
| 2019 | 0 | 0 | 0 | 0 | 0 |
| 2020 | 0 | 0 | 0 | 0 | 0 |
| 2021 | 0 | 0 | 0 | 0 | 0 |
| 2022 | 1,201,981 | 0 | 751,238 | 450,743 | 0 |
| 2023 | 0 | 0 | 0 | 0 | 0 |
| | | | | **$450,743** | **$0** |

**Schedule of Differences Between Expected and Actual Experience**

| Measurement Date | Differences Between Expected and Actual Experience | Recognition Period (Years) | Increase (Decrease) in Pension Expense Arising From the Recognition of the Effects of Differences Between Expected and Actual Experience | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | Thereafter |
| 2014 | $0 | 0.0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| 2015 | (2,996,239) | 3.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2016 | (600,876) | 3.2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2017 | (2,211,229) | 3.2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2018 | (1,061,287) | 3.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2019 | 1,883,971 | 3.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2020 | 1,884,476 | 2.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2021 | 567,566 | 2.9 | 176,142 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2022 | (821,886) | 3.2 | (256,839) | (256,839) | (51,369) | 0 | 0 | 0 | 0 |
| 2023 | 2,139,641 | 3.5 | 611,326 | 611,326 | 611,326 | 305,663 | 0 | 0 | 0 |
| **Net Increase (Decrease) in Pension Expense** | | | **$530,629** | **$354,487** | **$559,957** | **$305,663** | **$0** | **$0** | **$0** |

**Deferred Outflows of Resources and Deferred Inflows of Resources Arising From Differences Between Expected and Actual Experience**

| Measurement Date | Experience Losses (a) | Experience Gains (b) | Amounts Recognized in Pension Expense Through June 30, 2023 (c) | Balances at June 30, 2023 | |
|---|---|---|---|---|---|
| | | | | Deferred Outflows of Resources (a) – (c) | Deferred Inflows of Resources (b) – (c) |
| 2014 | $0 | $0 | $0 | $0 | $0 |
| 2015 | 0 | (2,996,239) | (2,996,239) | 0 | 0 |
| 2016 | 0 | (600,876) | (600,876) | 0 | 0 |
| 2017 | 0 | (2,211,229) | (2,211,229) | 0 | 0 |
| 2018 | 0 | (1,061,287) | (1,061,287) | 0 | 0 |
| 2019 | 1,883,971 | 0 | 1,883,971 | 0 | 0 |
| 2020 | 1,884,476 | 0 | 1,884,476 | 0 | 0 |
| 2021 | 567,566 | 0 | 567,566 | 0 | 0 |
| 2022 | 0 | (821,886) | (513,678) | 0 | (308,208) |
| 2023 | 2,139,641 | 0 | 611,326 | 1,528,315 | 0 |
| | | | | **$1,528,315** | **($308,208)** |

**Schedule of Differences Between Projected and Actual Earnings on Pension Plan Investments**

| Measurement Date | Differences Between Projected and Actual Earnings on Pension Plan Investments | Recognition Period (Years) | Increase (Decrease) in Pension Expense Arising From the Recognition of the Differences Between Projected and Actual Earnings on Pension Plan Investments | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | Thereafter |
| 2014 | ($6,114,496) | 5.0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| 2015 | 3,659,772 | 5.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2016 | 4,932,092 | 5.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2017 | (2,850,577) | 5.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2018 | (1,012,335) | 5.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2019 | 382,230 | 5.0 | 76,446 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2020 | 1,783,695 | 5.0 | 356,739 | 356,739 | 0 | 0 | 0 | 0 | 0 |
| 2021 | (13,264,452) | 5.0 | (2,652,890) | (2,652,890) | (2,652,892) | 0 | 0 | 0 | 0 |
| 2022 | 14,845,384 | 5.0 | 2,969,077 | 2,969,077 | 2,969,077 | 2,969,076 | 0 | 0 | 0 |
| 2023 | 536,307 | 5.0 | 107,261 | 107,261 | 107,261 | 107,261 | 107,263 | 0 | 0 |
| **Net Increase (Decrease) in Pension Expense** | | | **$856,633** | **$780,187** | **$423,446** | **$3,076,337** | **$107,263** | **$0** | **$0** |

**Deferred Outflows of Resources and Deferred Inflows of Resources Arising From Differences Between Projected and Actual Earnings on Pension Plan Investments**

| Measurement Date | Investment Earnings Less Than Projected (a) | Investment Earnings Greater Than Projected (b) | Amounts Recognized in Pension Expense Through June 30, 2023 (c) | Balances at June 30, 2023 | |
|---|---|---|---|---|---|
| | | | | Deferred Outflows of Resources (d) = (a) – (c) | Deferred Inflows of Resources (e) = (b) – (c) |
| 2014 | $0 | ($6,114,496) | ($6,114,496) | $0 | $0 |
| 2015 | 3,659,772 | 0 | 3,659,772 | 0 | 0 |
| 2016 | 4,932,092 | 0 | 4,932,092 | 0 | 0 |
| 2017 | 0 | (2,850,577) | (2,850,577) | 0 | 0 |
| 2018 | 0 | (1,012,335) | (1,012,335) | 0 | 0 |
| 2019 | 382,230 | 0 | 382,230 | 0 | 0 |
| 2020 | 1,783,695 | 0 | 1,426,956 | 356,739 | 0 |
| 2021 | 0 | (13,264,452) | (7,958,670) | 0 | (5,305,782) |
| 2022 | 14,845,384 | 0 | 5,938,154 | 8,907,230 | 0 |
| 2023 | 536,307 | 0 | 107,261 | 429,046 | 0 |
| | | | | **$9,693,015** | **($5,305,782)** |

| Net Deferred Outflows/(Inflows) of Resources (d) + (e) |
|---|
| **$4,387,233** |

**Note**: GASB 68 paragraph 33 requires that deferred outflows of resources and deferred inflows of resources arising from differences between projected and actual pension plan investment earnings in different measurement periods should be aggregated and reported as a net deferred outflow or inflow.

**Summary of Recognized Deferred Outflows of Resources and Deferred Inflows of Resources**

| | Net Increase (Decrease) in Pension Expense | | | | | | |
|---|---|---|---|---|---|---|---|
| | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **Thereafter** |
| Changes of Assumptions | $375,619 | $375,619 | $75,124 | $0 | $0 | $0 | $0 |
| Differences Between Expected and Actual Experience | 530,629 | 354,487 | 559,957 | 305,663 | 0 | 0 | 0 |
| Net Differences Between Projected and Actual Earnings on Pension Plan Investments | 856,633 | 780,187 | 423,446 | 3,076,337 | 107,263 | 0 | 0 |
| **Grand Total** | **$1,762,881** | **$1,510,293** | **$1,058,527** | **$3,382,000** | **$107,263** | **$0** | **$0** |

# Appendix B

# Interest and Total Projected Earnings

- Interest on Total Pension Liability and Total Projected Earnings

**Interest on Total Pension Liability and Total Projected Earnings**

| Interest on Total Pension Liability | Amount for Period (a) | Portion of Period (b) | Interest Rate (c) | Interest on the Total Pension Liability (a) X (b) X (c) |
|---|---|---|---|---|
| Beginning Total Pension Liability | $116,873,253 | 100% | 6.90% | $8,064,254 |
| Changes of Benefit Terms | 114,822 | 100% | 6.90% | 7,923 |
| Changes of Assumptions | 0 | 100% | 6.90% | 0 |
| Difference Between Expected and Actual Experience | 2,139,641 | 100% | 6.90% | 147,635 |
| Service Cost | 2,170,113 | 50% | 6.90% | 74,869 |
| Benefit Payments, Including Refunds of Employee Contributions | (6,719,837) | 50% | 6.90% | (231,834) |
| **Total Interest on Total Pension Liability** | | | | **$8,062,847** |

| Projected Earnings on Pension Plan Investments | Amount for Period (a) | Portion of Period (b) | Projected Rate of Return (c) | Projected Earnings (a) X (b) X (c) |
|---|---|---|---|---|
| Beginning Plan Fiduciary Net Position Excluding Receivables[1] | $93,950,527 | 100% | 6.90% | $6,482,586 |
| Net Plan to Plan Resource Movement | 0 | 50% | 6.90% | 0 |
| Employer Contributions | 3,394,789 | 50% | 6.90% | 117,120 |
| Employee Contributions[2] | 918,160 | 50% | 6.90% | 31,677 |
| Benefit Payments, Including Refunds of Employee Contributions | (6,719,837) | 50% | 6.90% | (231,834) |
| Administrative Expense | (69,111) | 50% | 6.90% | (2,384) |
| Other Miscellaneous Income/(Expense) | 0 | 50% | 6.90% | 0 |
| **Total Projected Earnings** | | | | **$6,397,165** |

[1] Includes any beginning of year adjustment. Contribution receivables for employee service buybacks, totaling $33,312 as of June 30, 2022, were excluded for purposes of calculating projected earnings on pension plan investments.

[2] The increase/(decrease) in contribution receivables for employee service buybacks, totaling ($8,258) during fiscal year 2022-23, was excluded for purposes of calculating projected earnings on pension plan investments.

FOSTER & FOSTER
ACTUARIES AND CONSULTANTS

# GASB Statement No. 75

## Supplemental Schedules for Las Virgenes Municipal Water District

| | |
|---|---|
| *Reporting Period:* | *July 1, 2023 to June 30, 2024* |
| *Measurement Period:* | *July 1, 2022 to June 30, 2023* |
| *Valuation Date:* | *June 30, 2022* |

April 3, 2024

**Las Virgenes Municipal Water District**
**Post-Employment Medical Benefits Plan**

**GASB 75 Disclosure Information**

## Note to Auditors

DFA, LLC (DFA)—acquired by Foster & Foster Consulting Actuaries, Inc. (Foster & Foster) as of January 1, 2024— has prepared the following supplemental schedules to accompany the District's actuarial valuation as of June 30, 2022 to (1) facilitate preparation of GASB 75 reporting and (2) to provide information that (if applicable) was not determinable as of the valuation date. We have prepared this supplement based on the results of our actuarial valuation and (if applicable) subsequent projections. We are available to discuss and reconcile any differences between your records and our calculations.

Our actuarial valuation report is intended to comply with GASB 75's valuation requirements (at least one every two years); the following schedules are intended to provide the reporting information specific to the applicable reporting period (July 1, 2023 to June 30, 2024), with updates to the measurement date (June 30, 2023).

## Notes to the Financial Statements for the Year Ended June 30, 2024

### Plan Description

*Plan administration.* The District contributes to a multi-employer defined benefit plan to provide post-employment medical benefits. Specifically, the District provides postretirement medical benefits to all employees who retire from the District. The level of benefit varies based on entry date and employee bargaining unit.

*Benefits provided*. Both the Management group, and the Supervisor, Professional, and Confidential group have the same health benefits structure in retirement as follows:

| Date of Hire | Minimum Age | Minimum Service | Maximum Benefit |
|---|---|---|---|
| Before or on 3/31/2006 | Any | 5 years | 100% Employee +1 for any plan |
| 4/1/2006 to 6/30/2013 | 55 | 10 years | 75% Employee +1 for PPO |
| On or after 7/1/2013 | 55 | 10 years | 75% Employee only for lowest cost plan |

Both the General Unit and Office Unit (SEIU) and the Executive Group and Non-Represented Employees have the same health benefits structure in retirement as follows:

| Date of Hire | Minimum Age | Minimum Service | Maximum Benefit |
|---|---|---|---|
| Before or on 3/31/2006 | Any | 5 years | 100% Employee +1 for any plan |
| 4/1/2006 to 12/31/2014 | 55 | 10 years | 75% Employee +1 for PPO |
| On or after 1/1/2015 | 55 | 10 years | 75% Employee only for lowest cost plan |

The General Manager has the following health benefit in retirement:

| Date of Hire | Minimum Age | Minimum Service | Maximum Benefit |
|---|---|---|---|
| Any | 55 | 10 years | 75% Employee only for lowest cost plan |

*Plan membership*. On June 30, 2022, the most recent valuation date, membership consisted of the following:

| | |
|---|---|
| Inactive plan members or beneficiaries currently receiving benefit payments | 104 |
| Active plan members | 116 |

*Contributions*. The District has elected to join the California Employers' Retiree Benefit Trust in accordance with GASB 75, which provides a means to fund the annual OPEB costs, referred to the Actuarially Determined Contribution (ADC). The ADC includes the normal cost plus an amortization of the Net OPEB Liability.

## Net OPEB Liability

The District's Net OPEB Liability was measured as of June 30, 2023 and the Total OPEB Liability used to calculate the Net OPEB Liability was determined by an actuarial valuation as of June 30, 2022. Standard actuarial update procedures were used to project/discount from valuation to measurement dates.

*Actuarial assumptions*. The total OPEB liability was determined using the following actuarial assumptions, applied to all periods included in the measurement, unless otherwise specified:

| | |
|---|---|
| Actuarial cost method | Entry Age, Level Percent of Pay |
| Valuation of fiduciary net position | Fair value of assets. |
| Recognition of deferred inflows and outflows of resources | Closed period equal to the average of the expected remaining service lives of all employees provided with OPEB |
| Salary increases | 3.00 percent |
| Inflation rate | 2.75 percent |
| Investment rate of return | 5.50 percent, net of OPEB plan investment expense |
| Healthcare cost trend rate | 6.00 percent for 2023, 5.50 percent for 2024, 5.25 percent for 2025-2029, 5.00 percent for 2030-2039, 4.75 percent for 2040-2049, 4.50 percent for 2050-2069, and 4.00 percent for 2070 and later years; Medicare ages: 4.50 percent for 2023-2069 and 4.00 percent for 2070 and later years. |
| Preretirement Mortality | Preretirement Mortality Rates from CalPERS Experience Study (2000-2019). |
| Postretirement Mortality | Post-retirement Mortality Rates for Healthy Recipients from CalPERS Experience Study (2000-2019). |

Actuarial assumptions used in the June 30, 2022 valuation were based on a review of plan experience during the period June 30, 2020 to June 30, 2022.

The long-term expected rate of return on OPEB plan investments was determined using a building-block method in which expected future real rates of return (expected returns, net of investment expense and inflation) are developed for each major asset class. The calculated investment rate of return was set equal to the expected ten-year compound (geometric) real return plus inflation (rounded to the nearest 25 basis points, where appropriate). The table below provides the long-term expected real rates of return by asset class (based on published capital market assumptions).

| Asset Class | Assumed Asset Allocation | Real Rate of Return |
|---|---|---|
| Global ex-U.S. Equity | 23% | 4.8% |
| U.S. Fixed | 51% | 1.8% |
| TIPS | 9% | 1.6% |
| Real Estate | 14% | 3.7% |
| Commodities | 3% | 1.9% |

*Discount rate*. GASB 75 requires a discount rate that reflects the following:

a) The long-term expected rate of return on OPEB plan investments – to the extent that the OPEB plan's fiduciary net position (if any) is projected to be enough to make projected benefit payments and assets are expected to be invested using a strategy to achieve that return.
b) A yield or index rate for 20-year, tax-exempt general obligation municipal bonds with an average rating of AA/Aa or higher – to the extent that the conditions in (a) are not met.

To determine a resulting single (blended) rate, the amount of the plan's projected fiduciary net position (if any) and the amount of projected benefit payments is compared in each period of projected benefit payments. The discount rate used to measure the District's Total OPEB liability is based on these requirements and the following information:

| Reporting Date | Measurement Date | Long-Term Expected Return of Plan Investments | Fidelity GO AA 20 Years Municipal Index | Discount Rate |
|---|---|---|---|---|
| June 30, 2023 | June 30, 2022 | 5.50% | 3.69% | 5.50% |
| June 30, 2024 | June 30, 2023 | 5.50% | 3.86% | 5.50% |

**Las Virgenes Municipal Water District**
**Post-Employment Medical Benefits Plan**

**GASB 75 Disclosure Information**

The components of the net OPEB liability were as follows:

| | |
|---|---|
| Total OPEB liability | 21,704,991 |
| Plan fiduciary net position | 14,903,721 |
| Net OPEB liability (asset) | $6,801,270 |

| | |
|---|---|
| Measurement date | June 30, 2023 |
| Reporting date | June 30, 2024 |

| | |
|---|---|
| Covered employee payroll | $13,170,993 |
| Net OPEB liability (asset) as a percentage of covered payroll | 51.64% |
| Plan fiduciary net position as a percentage of the total OPEB liability | 68.66% |

*Schedule of Changes in Net OPEB Liability (June 30, 2022 to June 30, 2023)*

| | |
|---|---|
| **Total OPEB Liability** | |
| Service Cost | 437,388 |
| Interest | 1,163,187 |
| Changes of benefit terms | 0 |
| Difference between expected and actual experience | 0 |
| Changes in assumptions or other inputs | 0 |
| Benefit payments[1] | (1,198,059) |
| **Net change in total OPEB liability** | 402,516 |
| **Total OPEB liability – June 30, 2022 (a)** | $21,302,475 |
| **Total OPEB liability – June 30, 2023 (b)** | $21,704,991 |
| | |
| **Plan fiduciary net position** | |
| Contributions – employer[1] | 2,483,143 |
| Other income – adjustment | 0 |
| Net investment income | 263,416 |
| Benefit payments[1] | (1,198,059) |
| Administrative expenses | (3,940) |
| Other disbursements – reimbursement to employer | 0 |
| **Net change in plan fiduciary net position** | 1,544,560 |
| **Plan fiduciary net position – June 30, 2022 (c)** | $13,359,161 |
| **Plan fiduciary net position – June 30, 2023 (d)** | $14,903,721 |
| | |
| **Net OPEB liability (asset) – June 30, 2022 (a) – (c)** | $7,943,314 |
| **Net OPEB liability (asset) – June 30, 2023 (b) – (d)** | $6,801,270 |

[1] Amount includes any implicit subsidy associated with benefits paid (see Footnote 4).

*Sensitivity of the net OPEB liability to changes in the discount rate*. The following presents the net OPEB liability, as well as what the net OPEB liability would be if it were calculated using a discount rate that is 1-percentage point lower or 1-percentage-point higher than the current discount rate:

| | 1% Decrease *(4.50%)* | Discount Rate *(5.50%)* | 1% Increase *(6.50%)* |
|---|---|---|---|
| Net OPEB liability (asset) | 9,134,895 | 6,801,270 | 4,819,951 |

*Sensitivity of the net OPEB liability to changes in the healthcare cost trend rates*. The following presents the net OPEB liability, as well as what the net OPEB liability would be if it were calculated using healthcare cost trend rates that are 1-percentage-point lower or 1-percentage-point higher than the current healthcare cost trend rates:

| | 1% Decrease[2] | Trend Rate | 1% Increase[3] |
|---|---|---|---|
| Net OPEB liability (asset) | 4,443,756 | 6,801,270 | 9,628,711 |

[2] Trend rate for each future year reduced by 1.00%.
[3] Trend rate for each future year increased by 1.00%.

**Las Virgenes Municipal Water District**
**Post-Employment Medical Benefits Plan**

**GASB 75 Disclosure Information**

**Statement of Fiduciary Net Position**

| | |
|---|---|
| **Assets** | |
| Cash, deposits, and cash equivalents | 0 |
| Receivables: | |
| Accrued Income | 0 |
| Total receivables | 0 |
| Investments: | |
| Managed account | 14,903,721 |
| Total Investments | 14,903,721 |
| Total Assets | 14,903,721 |
| | |
| **Liabilities** | |
| Accrued Expenses | 0 |
| Total Liabilities | 0 |
| | |
| **Net position restricted for postemployment benefits other than pensions** | $14,903,721 |

| | |
|---|---|
| Measurement date | June 30, 2023 |
| Reporting date | June 30, 2024 |

**Statement of Changes in Fiduciary Net Position**

| | |
|---|---|
| **Additions** | |
| Employer contributions[4] | 2,483,143 |
| Other income – adjustment | 0 |
| Net increase in fair value of investments | 263,416 |
| Total additions | 2,746,559 |
| | |
| **Deductions** | |
| Administrative expenses | 3,940 |
| Benefit payments[4] | 1,198,059 |
| Other disbursements – reimbursement to employer | 0 |
| Total deductions | 1,201,999 |
| | |
| Net increase in net position | 1,544,560 |
| | |
| **Net position restricted for postemployment benefits other than pensions** | |
| Beginning of year – June 30, 2022 | $13,359,161 |
| End of year – June 30, 2023 | $14,903,721 |

[4] Includes an implicit subsidy credit as follows:

| | Trust | Non-Trust | Total |
|---|---|---|---|
| Employer contribution | $1,285,084 | $979,126 | $2,264,210 |
| Implicit subsidy credit | 0 | 218,933 | 218,933 |
| Total employer contributions | $1,285,084 | $1,198,059 | $2,483,143 |
| | | | |
| Benefit payments | $0 | $979,126 | $979,126 |
| Implicit subsidy credit | 0 | 218,933 | 218,933 |
| Total benefit payments | $0 | $1,198,059 | $1,198,059 |

## Investments

*Investment policy*. The allocation of the plan's invested assets is established by CERBT Strategy 3. The objective is to seek returns that reflect the broad investment performance of the financial markets through capital appreciation and investment income. The asset allocations and benchmarks for CERBT Strategy 3 are listed below:

| Asset Class | Target Allocation | Target Range | Benchmark |
|---|---|---|---|
| Global Equity | 23% | ± 5% | MSCI All Country World Index IMI (Net) |
| Fixed Income | 51% | ± 5% | Bloomberg Long Liability Index |
| Treasury Inflation-Protected Securities | 9% | ± 3% | Bloomberg US TIPS Index, Series L |
| Real Estate Investment Trusts | 14% | ± 5% | FTSE EPRA/NAREIT Developed Index (Net) |
| Commodities | 3% | ± 3% | S&P GSCI Total Return Index |
| Cash | - | ± 2% | 91 Day Treasury Bill |

*Rate of return*. For the year ended on the measurement date, the annual money-weighted rate of return on investments, net of investment expense, was 1.88 percent. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts invested.

| | |
|---|---|
| **Annual money-weighted rate of return, net of investment expense** | 1.88% |

## Deferred Outflows of Resources and Deferred Inflows of Resources Related to OPEB

On June 30, 2024, the District's deferred outflows of resources and deferred inflows of resources to OPEB from the following sources are:

| | Deferred Outflows of Resources | Deferred Inflows of Resources |
|---|---|---|
| Difference between expected and actual experience[5,6] | 0 | (5,096,634) |
| Changes in assumptions or other inputs[5,6] | 1,912,705 | (574,295) |
| Net difference between projected and actual return on OPEB investments[5,6] | 1,524,749 | 0 |
| **Total** | $3,437,454 | $(5,670,929) |
| | | |
| Contributions after the measurement date[7] | TBD | 0 |
| **Total with contributions after measurement date** | TBD | $(5,670,929) |

[5] Measured on June 30, 2023.
[6] See Schedule of Deferred Outflows and Inflows of Resources for additional information.
[7] To be determined by auditor. District contributions made between June 30, 2023, and June 30, 2024, which will be recognized as a reduction in the Total OPEB Liability during the year ending June 30, 2024. Should include a credit for implicit subsidy equal to the amount of actual District-paid premiums on behalf of retirees (from trust and non-trust) multiplied by 0.2236.

Amounts reported as deferred outflows and deferred inflows of resources will be recognized in OPEB expense as follows:

| Fiscal Year ending June 30: | Deferred Outflows of Resources | Deferred Inflows of Resources |
|---|---|---|
| 2025 | 853,176 | (1,518,327) |
| 2026 | 833,868 | (1,512,550) |
| 2027 | 994,163 | (1,047,222) |
| 2028 | 510,591 | (995,520) |
| 2029 | 245,656 | (597,310) |
| Thereafter+ | 0 | 0 |

**Las Virgenes Municipal Water District**
**Post-Employment Medical Benefits Plan**

**GASB 75 Disclosure Information**

## Schedule of Deferred Outflows of Resources

| Year | Type | Category | Initial Base | Amortization Period | Current Recognition | Current Balance |
|---|---|---|---|---|---|---|
| 2017 | Deferred Outflow | Difference between expected and actual experience | 0 | 0.0 | 0 | 0 |
| 2018 | Deferred Outflow | Difference between expected and actual experience | 0 | 0.0 | 0 | 0 |
| 2019 | Deferred Outflow | Difference between expected and actual experience | 0 | 6.2 | 0 | 0 |
| 2020 | Deferred Outflow | Difference between expected and actual experience | 0 | 0.0 | 0 | 0 |
| 2021 | Deferred Outflow | Difference between expected and actual experience | 0 | 6.1 | 0 | 0 |
| 2022 | Deferred Outflow | Difference between expected and actual experience | 0 | 0.0 | 0 | 0 |
| 2023 | Deferred Outflow | Difference between expected and actual experience | 0 | 6.6 | 0 | 0 |
| 2024 | Deferred Outflow | Difference between expected and actual experience | 0 | 6.6 | 0 | 0 |
| | | | | Total | 0 | 0 |

| Year | Type | Category | Initial Base | Amortization Period | Current Recognition | Current Balance |
|---|---|---|---|---|---|---|
| 2017 | Deferred Outflow | Changes in assumptions or other inputs | 0 | 0.0 | 0 | 0 |
| 2018 | Deferred Outflow | Changes in assumptions or other inputs | 0 | 0.0 | 0 | 0 |
| 2019 | Deferred Outflow | Changes in assumptions or other inputs | 909,501 | 6.2 | 146,694 | 29,337 |
| 2020 | Deferred Outflow | Changes in assumptions or other inputs | 0 | 0.0 | 0 | 0 |
| 2021 | Deferred Outflow | Changes in assumptions or other inputs | 0 | 6.1 | 0 | 0 |
| 2022 | Deferred Outflow | Changes in assumptions or other inputs | 0 | 0.0 | 0 | 0 |
| 2023 | Deferred Outflow | Changes in assumptions or other inputs | 2,702,224 | 6.6 | 409,428 | 1,883,368 |
| 2024 | Deferred Outflow | Changes in assumptions or other inputs | 0 | 6.6 | 0 | 0 |
| | | | | Total | 556,122 | 1,912,705 |

| Year | Type | Category | Initial Base | Amortization Period | Current Recognition | Current Balance |
|---|---|---|---|---|---|---|
| 2017 | Deferred Outflow | Net difference between projected and actual earnings on plan investments | 0 | 0.0 | 0 | 0 |
| 2018 | Deferred Outflow | Net difference between projected and actual earnings on plan investments | 0 | 0.0 | 0 | 0 |
| 2019 | Deferred Outflow | Net difference between projected and actual earnings on plan investments | 0 | 5.0 | 0 | 0 |
| 2020 | Deferred Outflow | Net difference between projected and actual earnings on plan investments | 0 | 5.0 | 0 | 0 |
| 2021 | Deferred Outflow | Net difference between projected and actual earnings on plan investments | 0 | 5.0 | 0 | 0 |
| 2022 | Deferred Outflow | Net difference between projected and actual earnings on plan investments | 0 | 5.0 | 0 | 0 |
| 2023 | Deferred Outflow | Net difference between projected and actual earnings on plan investments | 2,417,870 | 5.0 | 483,574 | 1,450,722 |
| 2024 | Deferred Outflow | Net difference between projected and actual earnings on plan investments | 505,807 | 5.0 | 101,161 | 404,646 |
| | | | | Total | 584,735 | 1,855,368 |

**Las Virgenes Municipal Water District**
**Post-Employment Medical Benefits Plan**

**GASB 75 Disclosure Information**

## Schedule of Deferred Inflows of Resources

| Year | Type | Category | Initial Base | Amortization Period | Current Recognition | Current Balance |
|---|---|---|---|---|---|---|
| 2017 | Deferred Inflow | Difference between expected and actual experience | 0 | 0.0 | 0 | 0 |
| 2018 | Deferred Inflow | Difference between expected and actual experience | 0 | 0.0 | 0 | 0 |
| 2019 | Deferred Inflow | Difference between expected and actual experience | (179,003) | 6.2 | (28,871) | (5,777) |
| 2020 | Deferred Inflow | Difference between expected and actual experience | 0 | 0.0 | 0 | 0 |
| 2021 | Deferred Inflow | Difference between expected and actual experience | (1,485,687) | 6.1 | (243,555) | (511,467) |
| 2022 | Deferred Inflow | Difference between expected and actual experience | 0 | 0.0 | 0 | 0 |
| 2023 | Deferred Inflow | Difference between expected and actual experience | (6,570,430) | 6.6 | (995,520) | (4,579,390) |
| 2024 | Deferred Inflow | Difference between expected and actual experience | 0 | 6.6 | 0 | 0 |
| | | | | Total | (1,267,946) | (5,096,634) |

| Year | Type | Category | Initial Base | Amortization Period | Current Recognition | Current Balance |
|---|---|---|---|---|---|---|
| 2017 | Deferred Inflow | Changes in assumptions or other inputs | 0 | 0.0 | 0 | 0 |
| 2018 | Deferred Inflow | Changes in assumptions or other inputs | 0 | 0.0 | 0 | 0 |
| 2019 | Deferred Inflow | Changes in assumptions or other inputs | 0 | 6.2 | 0 | 0 |
| 2020 | Deferred Inflow | Changes in assumptions or other inputs | 0 | 0.0 | 0 | 0 |
| 2021 | Deferred Inflow | Changes in assumptions or other inputs | (1,668,195) | 6.1 | (273,475) | (574,295) |
| 2022 | Deferred Inflow | Changes in assumptions or other inputs | 0 | 0.0 | 0 | 0 |
| 2023 | Deferred Inflow | Changes in assumptions or other inputs | 0 | 6.6 | 0 | 0 |
| 2024 | Deferred Inflow | Changes in assumptions or other inputs | 0 | 6.6 | 0 | 0 |
| | | | | Total | (273,475) | (574,295) |

| Year | Type | Category | Initial Base | Amortization Period | Current Recognition | Current Balance |
|---|---|---|---|---|---|---|
| 2017 | Deferred Inflow | Net difference between projected and actual earnings on plan investments | 0 | 0.0 | 0 | 0 |
| 2018 | Deferred Inflow | Net difference between projected and actual earnings on plan investments | 0 | 0.0 | 0 | 0 |
| 2019 | Deferred Inflow | Net difference between projected and actual earnings on plan investments | (132,362) | 5.0 | 0 | 0 |
| 2020 | Deferred Inflow | Net difference between projected and actual earnings on plan investments | (114,809) | 5.0 | (22,961) | 0 |
| 2021 | Deferred Inflow | Net difference between projected and actual earnings on plan investments | (50,137) | 5.0 | (10,027) | (10,029) |
| 2022 | Deferred Inflow | Net difference between projected and actual earnings on plan investments | (801,475) | 5.0 | (160,295) | (320,590) |
| 2023 | Deferred Inflow | Net difference between projected and actual earnings on plan investments | 0 | 5.0 | 0 | 0 |
| 2024 | Deferred Inflow | Net difference between projected and actual earnings on plan investments | 0 | 5.0 | 0 | 0 |
| | | | | Total | (193,283) | (330,619) |

**Las Virgenes Municipal Water District**
**Post-Employment Medical Benefits Plan**

**GASB 75 Disclosure Information**

## OPEB Expense

The District's OPEB expense (credit) was $241,445.

| | |
|---|---|
| Net OPEB Liability (Asset) – beginning (a) | $7,943,314 |
| Net OPEB Liability (Asset) – ending (b) | $6,801,270 |
| Change in Net OPEB Liability (Asset) [(b)-(a)] | (1,142,044) |
| Change in Deferred Outflows | 635,050 |
| Change in Deferred Inflows | (1,734,704) |
| Employer Contributions | 2,483,143 |
| Adjustment – Transfer In (Employer Reimbursement) | 0 |
| Adjustment – OPEB Expense | 0 |
| OPEB Expense (Credit) – June 30, 2022 to June 30, 2023 | $241,445 |

| | |
|---|---|
| Service Cost | 437,388 |
| Interest Cost | 1,163,187 |
| Expected Return on Assets | (769,223) |
| Changes of benefit terms | 0 |
| Administrative expenses | 3,940 |
| Recognition of Deferred Outflows and Inflows | |
| Differences between expected and actual experience | (1,267,946) |
| Changes of assumptions | 282,647 |
| Differences between projected and actual investments | 391,452 |
| Total | (593,847) |
| Adjustment | 0 |
| OPEB Expense (Credit) – June 30, 2022 to June 30, 2023 | $241,445 |

## Actuarially Determined Contribution

The actuarially determined contributions from the most recent actuarial valuation are:

| | |
|---|---|
| Actuarially Determined Contribution for year ending June 30, 2023 | $1,089,158 |
| Actuarially Determined Contribution for year ending June 30, 2024 | 1,121,833 |

| | |
|---|---|
| Valuation Date | June 30, 2022 |
| Discount Rate (Expected Long-term Return on Assets) | 5.50% |
| Salary Increases | 3.00% |

## Journal Entries[8]

OPEB Expense Journal Entries - June 30, 2024 Reporting Date

| | | Debit | Credit |
|---|---|---|---|
| Differences between Expected and Actual Experience | Deferred Outflows | $0 | $0 |
| | Deferred Inflows | 1,267,946 | 0 |
| Change in Assumptions and Other Inputs | Deferred Outflows | 0 | (556,122) |
| | Deferred Inflows | 273,475 | 0 |
| Differences between Projected and Actual Investment Earnings | Deferred Outflows | 114,355 | 0 |
| | Deferred Inflows | 0 | 0 |
| Net OPEB Liability/(Asset) | | 0 | (1,341,099) |
| OPEB Expense/(Credit) | | 241,445 | 0 |
| *Total* | | *$1,897,221* | *$(1,897,221)* |

Employer Contribution Journal Entries - June 30, 2024 Reporting Date

| | | Debit | Credit |
|---|---|---|---|
| Contributions paid July 1, 2022 to June 30, 2023 | Net OPEB Liability/(Asset) | $2,483,143 | $0 |
| | Deferred Outflows | 0 | (2,488,637) |
| | Other Healthcare (Implicit Subsidy) | 0 | 0 |
| | Contributions Expense | 5,494 | 0 |
| Contributions paid July 1, 2023 to June 30, 2024[9] | Deferred Outflows[10] | TBD | 0 |
| | Other Healthcare (Implicit Subsidy)[11] | 0 | TBD |
| | Contributions Expense[12] | 0 | TBD |
| *Total* | | *TBD* | *TBD* |

[8] Provided for illustrative purpose. Actual entries may differ. We are available to discuss any differences.
[9] To be determined using audited actual contributions made between June 30, 2023, and June 30, 2024.
[10] Debit equal to total employer contributions plus adjustment for implicit subsidy.
[11] Credit equal to adjustment for implicit subsidy (the amount of actual District-paid premiums on behalf of retirees—from trust and non-trust—multiplied by a factor of 0.2236).
[12] Credit equal to total employer contributions (before adjustment for implicit subsidy).

**Las Virgenes Municipal Water District**
**Post-Employment Medical Benefits Plan**

**GASB 75 Disclosure Information**

## Actuarial Certification

The results set forth in this supplement are based on our actuarial valuation of the health and welfare benefit plans of the Las Virgenes Municipal Water District as of June 30, 2022.

The valuation was performed in accordance with generally accepted actuarial principles and practices. We relied on census data for active employees and retirees provided to us by the District. We also made use of claims, premium, expense, and enrollment data, and copies of relevant sections of healthcare documents provided to us by the District, and (when applicable) trust statements prepared by the trustee and provided to us by the District.

The assumptions used in performing the valuation, as summarized in this report, and the results based thereupon, represent our best estimate of the actuarial costs of the program under GASB 74 and GASB 75, and the existing and proposed Actuarial Standards of Practice for measuring post-retirement healthcare benefits.

Each undersigned actuary meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained in this report.

Certified by:

Carlos Diaz, ASA, EA, MAAA
Senior Consulting Actuary

Brian Richie
Finance Manager
Las Virgenes Municipal Water District
4232 Las Virgenes Road
Calabasas, CA  91302-1994

# GASB Statement No. 75

## Actuarial Valuation Report – Retiree Health Insurance Program
## Las Virgenes Municipal Water District

| | |
|---|---|
| *Valuation Date:* | *June 30, 2022* |
| *Measurement Date:* | *June 30, 2022* |

April 27, 2023

April 27, 2023

Brian Richie
Finance Manager
Las Virgenes Municipal Water District
4232 Las Virgenes Road
Calabasas, CA 91302-1994

Re: Las Virgenes Municipal Water District ("District") GASB 75 Valuation

Dear Brian:

This report sets forth the results of our GASB 75 actuarial valuation of the District's retiree health insurance program as of June 30, 2022.

In June 2004, the Governmental Accounting Standards Board (GASB) issued its accrual accounting standards for retiree healthcare benefits, GASB 43 and GASB 45. GASB 43/45 require public employers such as the District to perform periodic actuarial valuations to measure and disclose their retiree healthcare liabilities for the financial statements of both the employer and the trust, if any, set aside to pre-fund these liabilities. In June 2015, GASB released new accounting standards for postretirement benefit programs, GASB 74 and GASB 75, which replace GASB 43 and GASB 45, respectively.

The District selected DFA, LLC (DFA) to perform an actuarial valuation of the retiree health insurance program as of June 30, 2022. This report may be compared with the valuation performed by DFA as of June 30, 2020, to see how the liabilities have changed since the last valuation.

## Basis for Actuarial Valuation

To perform the valuation, we relied on the following information provided by the District:

- Census data for active employees and retirees
- Claims, premium, expense, and enrollment data
- Copies of relevant sections of healthcare documents, and
- (If applicable) trust statements prepared by the trustee

We also made certain assumptions regarding rates of employee turnover, retirement, and mortality, as well as economic assumptions regarding healthcare inflation and interest rates. Our assumptions are based on a standard set of assumptions used for similar valuations, modified as appropriate for the District. A complete description of the actuarial assumptions used in the valuation is set forth in the Actuarial Assumptions section.

**Certification**

The actuarial certification, including a caveat regarding limitations of scope, if any, is contained in the Actuarial Certification section.

We have enjoyed working with the District on this project and are available to answer any questions you may have concerning any information contained herein.

**Disclosure of Risk**

Considering recent events, it is important to call attention to the external risk factors associated with actuarial projections. An event like the COVID-19 pandemic has the potential to affect future measurements that would deviate from current long-term expectations. The following is a list of specific factors that impact OPEB liabilities:

- Census – retirement, turnover, and mortality experience different than expected.
- Medical coverage – premiums, participation, and level of coverage different than expected.
- Municipal bond rates – changes in applicable rates (rates are currently declining and may result in increased liabilities). Under GASB 75, the municipal rate may affect the discount rate. The quantitative effect of changes in the discount rate can be seen in the sensitivity results.
- Investment performance – (for funded plans) investment performance different than the long-term expected return. Investment performance may also affect the discount rate.

The current environment's impact on these factors will continue to unfold. We are available to discuss both short-term and long-term impact upon request.

*****

Sincerely,
DFA, LLC

Carlos Diaz, ASA, EA, MAAA
Actuary

## Financial Results

In this section, we present financial results based on a long-term expected return on plan investments of 5.50%. This rate is based on our best estimate of expected long-term plan experience for funded plans such as the District's. The results are intended to help (1) in comparing financial results from the previous valuation and (2) in long-term budget and strategic planning (without regard to short-term volatility in municipal bond indices). Results specific to GASB 75 reporting are presented in the next section.

We have determined that the present value of all benefits expected to be paid by the District for its current and future retirees is $25,294,917 as of June 30, 2022. If the District were to place this amount in a fund earning interest at the rate of 5.50% per year, and all other actuarial assumptions were exactly met, the fund would have exactly enough to pay all expected benefits.


When we apportion the $25,294,917 into past service and future service components under the Entry Age, Level Percent of Pay Cost Method, the Total OPEB Liability is $21,302,475 as of June 30, 2022. This represents the present value of all benefits accrued through the valuation date if each employee's liability is expensed from hire date until retirement date as a level percentage of pay. The $21,302,475 is comprised of liabilities of $8,110,836 for active employees and $13,191,639 for retirees.

The District has adopted an irrevocable trust for the pre-funding of retiree healthcare benefits. As of June 30, 2022, the trust balance, or Plan Fiduciary's Net Position (GASB 75) is $13,359,161.

The Net OPEB Liability (Asset), equal to the Total OPEB Liability over the Plan Fiduciary's Net Position, is $7,943,314.

This valuation includes benefits for 104 retirees and 116 active employees who may become eligible to retire and receive benefits in the future. It excludes employees hired after the valuation date.

## Financial Results (continued)

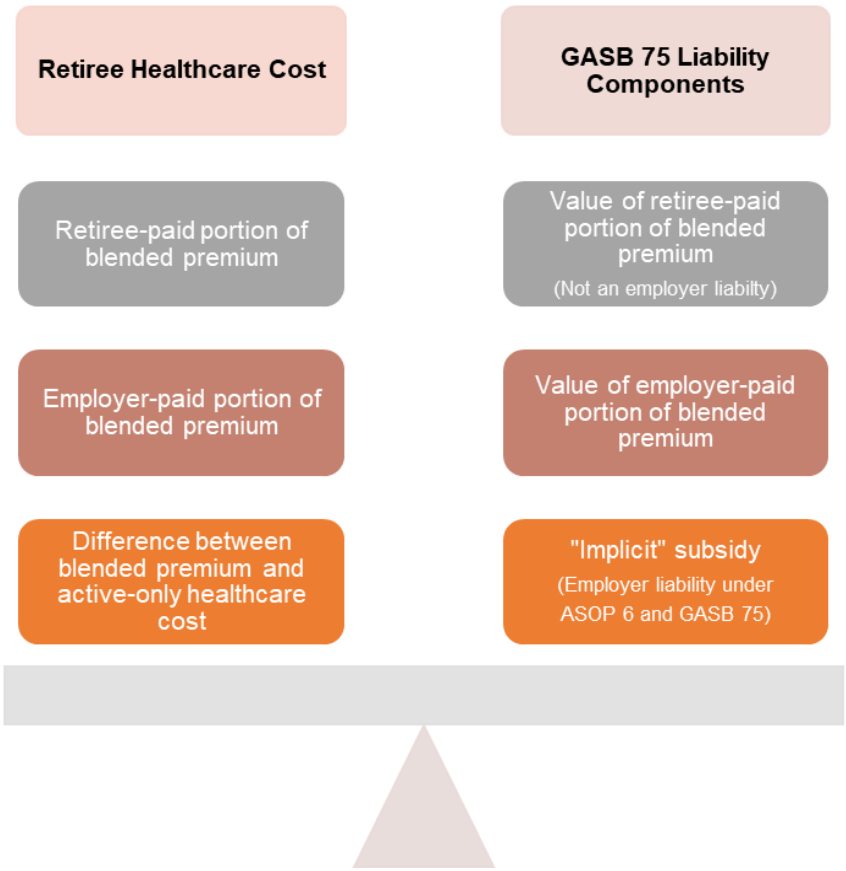
**ASOP 6 – Age-Specific Costs and Implicit Subsidy**

The valuation reflects the value of an implicit subsidy equal to $3,892,987.

The implicit subsidy represents the value of age-specific claims over average premiums. To determine age-specific claims, we used an age-specific claim cost matrix fitted to the average premium charged by the District.

Actuarial Standard of Practice No. 6 (ASOP 6) provides guidance in measuring OPEB obligations and determining periodic costs or actuarially determined contributions. The standard specifies that in (almost all instances), the actuary should use age-specific costs in the development of the initial per capita costs and in the projection of future benefit plan costs.

When claims experience of both active employees and retirees are pooled in determining healthcare premiums, a retiree may pay an amount based on a blended pool of members that, on average, is younger and healthier. In a pooled environment, retiree claims are covered by premiums charged to the retiree plus an added cost included in active premiums. Blended premium charged represents an "explicit" cost, while the added cost represents an "implicit" cost.



## Financial Results (continued)

**Differences from Prior Valuation**

The most recent prior valuation was completed as of June 30, 2020 by DFA. The Total OPEB Liability as of that date was $23,960,183, compared to $21,302,475 as of June 30, 2022 (determined using a discount rate of 5.50%).

Several factors have caused the Total OPEB Liability to change since 2020:

- An increase as employees accrue more service and get closer to receiving benefits.
- A decrease from a release of benefits.
- Changes in the plan census from new employees and differences between actual and expected retirement, terminations, and deaths.
- Changes in healthcare costs from differences between actual and expected healthcare trend; and
- Changes in actuarial assumptions and methodology for the current valuation.

To summarize, the most important changes were as follows:

1. An increase of $1,210,499 from the passage of time (service and interest costs less benefits paid).
2. A decrease of $580,301 resulting from population experience (terminations, retirements, and mortality) different than expected.
3. A decrease of $5,688,321 from changes in healthcare premiums different than expected.
4. A decrease of $301,809 from changes in employer-paid cap different than expected.
5. An increase of $1,799,417 from changes in the healthcare trend rate.
6. An increase of $223,527 from change in assumed termination of employment rates.
7. A decrease of $445,859 from changes in assumed retirement rates.
8. An increase of $98,159 from an update in the mortality assumption.
9. An increase of $1,026,980 from a change in discount rate (change in long-term expected return from 6.00% to 5.50%).

These changes from June 30, 2020 to June 30, 2022 are combined as follows:

| | |
|---|---|
| Total OPEB Liability as of June 30, 2020 | $23,960,183 |
| Passage of time | 1,210,499 |
| Difference between expected/actual experience | (6,570,431) |
| Changes in assumptions or other inputs | 2,702,224 |
| Changes in plan provisions | 0 |
| Total OPEB Liability as of June 30, 2022 | $21,302,475 |

## GASB 75 Results

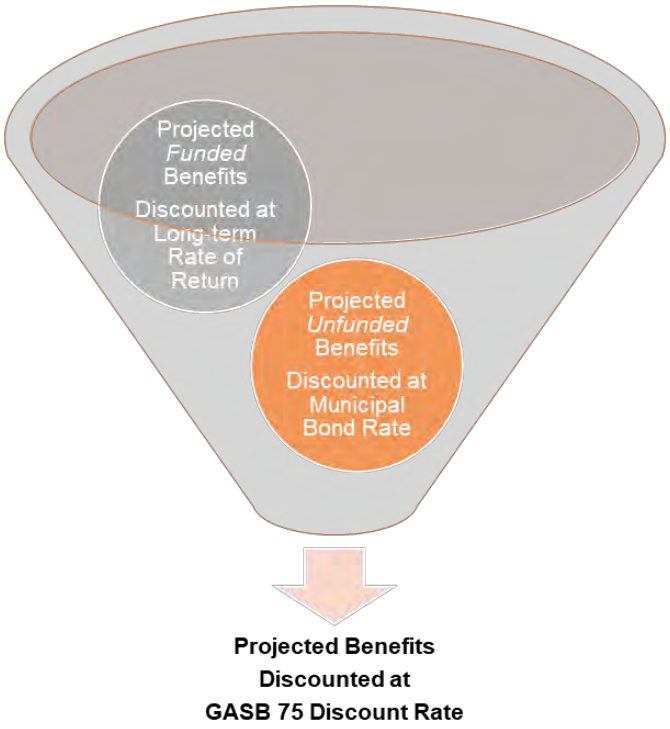
For financial reporting purposes, GASB 75 requires a discount rate that reflects the following:

a. The long-term expected rate of return on OPEB plan investments – to the extent that the OPEB plan's fiduciary net position is projected to be enough to make projected benefit payments and assets are expected to be invested using a strategy to achieve that return.
b. A yield or index rate for 20-year, tax-exempt general obligation municipal bonds with an average rating of AA/Aa or higher – to the extent that the conditions in (a) are not met.

The amount of the plan's projected fiduciary net position and the amount of projected benefit payments should be compared in each period of projected benefit payments.

Based on these requirements and the following information, we have determined a discount rate of 5.50% for GASB 75 reporting purposes:

| | |
|---|---|
| Long-Term Expected Return on Assets | 5.50% |
| Fidelity General Obligations AA - 20 Years Index on June 30, 2022 | 3.69% |
| GASB 75 Discount Rate | 5.50% |



## GASB 75 Results (continued)

**Las Virgenes Municipal Water District**
**Net OPEB Liabilities and Expense Under**
**GASB 75 Accrual Accounting Standard**

| | June 30, 2022[1] | | |
|---|---|---|---|
| | Long-Term Return | Municipal Bond Index | GASB 75 Rate |
| Discount Rate | 5.50% | 3.69% | 5.50% |
| | | | |
| Present Value of Future Benefits | | | |
| Active | $12,103,278 | $17,120,141 | $12,103,278 |
| Retired | 13,191,639 | 15,582,857 | 13,191,639 |
| Total | $25,294,917 | $32,702,998 | $25,294,917 |
| | | | |
| Total OPEB Liability | | | |
| Active | $8,110,836 | $10,249,488 | $8,110,836 |
| Retired | 13,191,639 | 15,582,857 | 13,191,639 |
| Total | $21,302,475 | $25,832,345 | $21,302,475 |
| | | | |
| Plan Fiduciary Net Position | $13,359,161 | $13,359,161 | $13,359,161 |
| | | | |
| Net OPEB Liability (Asset) | $7,943,314 | $12,473,184 | $7,943,314 |
| | | | |
| Sensitivity Analysis | | | |
| 1% Decrease in Discount Rate | 4.50% | 2.69% | 4.50% |
| Total OPEB Liability | $23,630,361 | $29,032,092 | $23,630,361 |
| Net OPEB Liability (Asset) | $10,271,200 | $15,672,931 | $10,271,200 |
| | | | |
| 1% Increase in Discount Rate | 6.50% | 4.69% | 6.50% |
| Total OPEB Liability | $19,327,808 | $23,157,247 | $19,327,808 |
| Net OPEB Liability (Asset) | $5,968,647 | $9,798,086 | $5,968,647 |
| | | | |
| 1% Decrease in Trend Rate[2] | | | |
| Total OPEB Liability | $19,136,697 | $22,873,392 | $19,136,697 |
| Net OPEB Liability (Asset) | $5,777,536 | $9,514,231 | $5,777,536 |
| | | | |
| 1% Increase in Trend Rate[3] | | | |
| Total OPEB Liability | $23,893,857 | $29,436,004 | $23,893,857 |
| Net OPEB Liability (Asset) | $10,534,696 | $16,076,843 | $10,534,696 |

[1] For the District's financial statements, DFA will provide separate schedules with supplemental GASB 75 information.
[2] Trend rate for each future year reduced by 1.00%.
[3] Trend rate for each future year increased by 1.00%.

## GASB 75 Results (continued)

**OPEB Expense**

We have determined the following components of the District's OPEB Expense for the measurement year ending June 30, 2023: Service Cost, Interest Cost, Expected Return on Assets, and Deferred Outflows and Inflows (determined as of the valuation date).

- Service Cost represents the present value of benefits accruing in the current year.
- Interest Cost represents the interest on the Total OPEB Obligation and interest on the Service Cost.
- Expected Return on Assets is the expected return based on a 5.50% investment rate of return.
- Deferred Outflows and Inflows of Resources (determined as of the valuation date) are changes in the Net OPEB Liability resulting from differences between projected and actual plan experience, from differences between projected and actual OPEB plan investments, and from changes in assumptions.


The OPEB Expense will reflect additional Deferred Outflows and Inflows that will be determined based on the Net OPEB Obligation as of June 30, 2023.

We summarize results in the table on the next page. For comparative purposes, we provide service cost and interest cost at three discount rates (the expected return on assets, the municipal bond index, and the GASB 75 rate, discussed above). We determine Deferred Outflows and Inflows solely on the applicable GASB 75 rate. All amounts are net of expected future retiree contributions, if any.

DFA will be available to assist the District and its auditors in preparing the footnotes and required supplemental information for compliance with GASB 75 (and GASB 74, if applicable). In the meantime, we are available to answer any questions the District may have concerning the report.

## GASB 75 Results (continued)

**Actuarially Determined Contribution and Pay-As-You-Go with Implied Subsidy**

We have calculated an actuarially determined contribution representing the Service Cost and a 15-year amortization (as a level percent of pay) of the Net OPEB Liability. We include the results in the table on the next page. We provide results at three discount rates (the expected long-term expected return on assets, the municipal bond index, and the GASB 75 rate).

An actuarially determined contribution is a potential payment to the plan determined using a contribution allocation procedure. It is not a required contribution, but a measurement commonly used to prefund OPEB benefits. We provide the amounts for illustrative purposes.

The actuarially determined contribution may be compared to the pay-as-you-go payment. The table shows the pay-as-you-go payment along with the projected implied subsidy payment.

The Funding Schedules section provides additional prefunding alternatives.

## GASB 75 Results (continued)

**Las Virgenes Municipal Water District**
**Net OPEB Liabilities and Expense Under**
**GASB 75 Accrual Accounting Standard**

| | July 1, 2022 | | |
|---|---|---|---|
| | **Long-Term Return** | **Municipal Bond Index** | **GASB 75 Rate** |
| Discount Rate | 5.50% | 3.69% | 5.50% |
| | | | |
| Components of OPEB Expense for 2022-23 | | | |
| Service Cost (beginning of year) | $437,388 | $654,304 | $437,388 |
| Interest Cost | 1,164,520 | 956,352 | 1,164,520 |
| Expected Return on Assets | (734,754) | (734,754) | (734,754) |
| Total[4] | $867,154 | $875,902 | $867,154 |
| | | | |
| Actuarially Determined Contribution for 2022-23 | | | |
| Service Cost (mid-year) | $449,255 | $666,267 | $449,255 |
| Amortization of Net OPEB Liability[5] | 639,903 | 886,893 | 639,903 |
| Total[6,7] | $1,089,158 | $1,553,160 | $1,089,158 |
| | | | |
| Pay-As-You-Go Payment with Implied Subsidy for 2022-23 | | | |
| Projected Pay-As-You-Go | $938,958 | $938,958 | $938,958 |
| Projected Implied Subsidy | 209,951 | 209,951 | 209,951 |
| Total | $1,148,909 | $1,148,909 | $1,148,909 |

[4] Additional components are shown on the following pages. Deferred Outflows/Inflows of Resources will also include changes determined based on the Total OPEB Obligation and Plan Fiduciary Net Position as June 30, 2023.
[5] 15-year amortization (as a level percent of pay).
[6] Estimated Actuarially Determined Contribution for subsequent year:

| | **Long-Term Return** | **Municipal Bond Index** | **GASB 75 Rate** |
|---|---|---|---|
| Actuarially Determined Contribution for 2023-24[7] | $1,121,833 | $1,599,755 | $1,121,833 |

[7] Total includes any adjustment for implicit subsidy. Adjustment for implicit subsidy would equal District-paid premiums on behalf of retirees (from trust and non-trust) multiplied by a factor of 0.2236.

## GASB 75 Results (continued)

**Schedule of Changes in Net OPEB Liability (July 1, 2021 to June 30, 2022)**

| | |
|---|---|
| 1. Total OPEB Liability | |
| a. Total OPEB Liability on July 1, 2021[8] | $24,584,584 |
| b. Service Cost[9] | 369,911 |
| c. Interest Cost | 1,460,484 |
| d. Benefit Payments[10] | (1,244,298) |
| e. Changes in plan provisions[11] | 0 |
| f. Difference between expected and actual experience[12] | (6,570,430) |
| g. Changes in assumptions and other inputs[12] | 2,702,224 |
| h. Total OPEB Liability on June 30, 2022 | $21,302,475 |
| | |
| 2. Plan Fiduciary Net Position | |
| a. Plan Fiduciary Net Position on July 1, 2021[8] | $13,332,956 |
| b. Contributions[10] | 2,845,102 |
| c. Expected Investment Income | 846,803 |
| d. Administrative Expenses | (3,532) |
| e. Benefit Payments[10] | (1,244,298) |
| f. Net Transfers | 0 |
| g. Difference between actual and expected return on assets[12] | (2,417,870) |
| h. Plan Fiduciary Net Position on June 30, 2022 | $13,359,161 |
| | |
| 3. Net OPEB Liability: (1h) - (2h) | $7,943,314 |
| | |
| 4. Discount Rate | |
| a. July 1, 2021 | 6.00% |
| b. June 30, 2022 | 5.50% |

[8] From June 30, 2022 disclosure report, based on the June 30, 2020 actuarial valuation.
[9] Discounted from June 30, 2022 valuation.
[10] Includes credit toward implicit subsidy (if applicable).
[11] Included in OPEB Expense.
[12] Deferred (Outflow)/Inflow of Resources to be established during fiscal year end June 30, 2023.

## GASB 75 Results (continued)

### Deferred Outflows of Resources and Deferred Inflows of Resources Related to OPEB

| Type | Initial Amount | Fiscal Year Established | Period (Years) | Annual Recognition[13] |
|---|---|---|---|---|
| Difference between expected/actual experience | 0 | 2018 | 0.0 | 0 |
| Difference between expected/actual return on assets | 0 | 2018 | 0.0 | 0 |
| Changes in assumptions or other inputs | 0 | 2018 | 0.0 | 0 |
| Difference between expected/actual experience | (179,003) | 2019 | 6.2 | (28,871) |
| Difference between expected/actual return on assets | (132,362) | 2019 | 5.0 | (26,474) |
| Changes in assumptions or other inputs | 909,501 | 2019 | 6.2 | 146,694 |
| Difference between expected/actual experience | 0 | 2020 | 0.0 | 0 |
| Difference between expected/actual return on assets | (114,809) | 2020 | 5.0 | (22,962) |
| Changes in assumptions or other inputs | 0 | 2020 | 0.0 | 0 |
| Difference between expected/actual experience | (1,485,687) | 2021 | 6.1 | (243,555) |
| Difference between expected/actual return on assets | (50,137) | 2021 | 5.0 | (10,027) |
| Changes in assumptions or other inputs | (1,668,195) | 2021 | 6.1 | (273,475) |
| Difference between expected/actual experience | 0 | 2022 | 0.0 | 0 |
| Difference between expected/actual return on assets | (801,475) | 2022 | 5.0 | (160,295) |
| Changes in assumptions or other inputs | 0 | 2022 | 0.0 | 0 |
| Difference between expected/actual experience | (6,570,430) | 2023 | 6.6 | (995,520) |
| Difference between expected/actual return on assets | 2,417,870 | 2023 | 5.0 | 483,574 |
| Changes in assumptions or other inputs | 2,702,224 | 2023 | 6.6 | 409,428 |
| | | | *Total* | *(721,483)* |

[13] Charge/(Credit) included in OPEB Expense.

## Funding Schedules

There are many ways to approach the pre-funding of retiree healthcare benefits. In the sections above, we determined the annual expense for all District-paid benefits. The expense is an orderly methodology, developed by the GASB, to account for retiree healthcare benefits. However, the GASB 75 expense has no direct relation to amounts the District may set aside to pre-fund healthcare benefits.

The table on the next page provides the District with three alternative schedules for funding (as contrasted with expensing) retiree healthcare benefits. The schedules all assume that the retiree fund earns, or is otherwise credited with, 5.50% per annum on its investments, a starting Trust value of $13,359,161 as of June 30, 2022, and that contributions and benefits are paid mid-year.

The schedules are:

1. A level contribution amount for the next 20 years.
2. A level percent of the Unfunded Accrued Liability.
3. A constant percentage (3.00%) increase for the next 20 years.

We provide these funding schedules to give the District a sense of the various alternatives available to it to pre-fund its retiree healthcare obligation. The three funding schedules are simply three different examples of how the District may choose to spread its costs.

By comparing the schedules, you can see the effect that early pre-funding has on the total amount the District will eventually have to pay. Because of investment earnings on fund assets, the earlier contributions are made, the less the District will have to pay in the long run. Of course, the advantages of pre-funding will have to be weighed against other uses of the money.

The table on the following page shows the required annual outlay under the pay-as-you-go method and each of the above schedules. **The three funding schedules include the "pay-as-you-go" costs; therefore, the amount of pre-funding is the excess over the "pay-as-you-go" amount.**

**Treatment of Implicit Subsidy**

We exclude any implicit subsidy from these funding schedules because we do not recommend that the District pre-fund for the full age-adjusted costs reflected in the liabilities shown in the first section of this report. If the District's premium structure changes in the future to explicitly charge under-age 65 retirees for the full actuarial cost of their benefits, this change will be offset by a lowering of the active employee rates (all else remaining equal), resulting in a direct reduction in District operating expenses on behalf of active employees from that point forward. For this reason, among others, we believe that pre-funding of the full GASB liability would be redundant.

## Funding Schedules (continued)

**Sample Funding Schedules (Closed Group)**
**Starting Trust Value of $13,359,161 as of June 30, 2022**

| Year Beginning | Pay-as-you-go | Level Contribution for 20 years | Level % of Unfunded Liability | Constant Percentage Increase for 20 years |
|---|---|---|---|---|
| 2022 | $938,958 | $551,295 | $638,332 | $432,303 |
| 2023 | 991,372 | 551,295 | 614,563 | 445,272 |
| 2024 | 1,025,629 | 551,295 | 593,393 | 458,631 |
| 2025 | 1,051,761 | 551,295 | 574,028 | 472,390 |
| 2026 | 1,096,741 | 551,295 | 556,015 | 486,561 |
| 2027 | 1,145,839 | 551,295 | 539,417 | 501,158 |
| 2028 | 1,178,556 | 551,295 | 523,978 | 516,193 |
| 2029 | 1,190,993 | 551,295 | 509,172 | 531,679 |
| 2030 | 1,231,378 | 551,295 | 494,560 | 547,629 |
| 2031 | 1,260,595 | 551,295 | 480,377 | 564,058 |
| 2032 | 1,280,181 | 551,295 | 466,309 | 580,980 |
| 2033 | 1,293,472 | 551,295 | 452,144 | 598,409 |
| 2034 | 1,309,686 | 551,295 | 437,760 | 616,361 |
| 2035 | 1,341,711 | 551,295 | 423,135 | 634,852 |
| 2036 | 1,347,287 | 551,295 | 408,294 | 653,898 |
| 2037 | 1,373,657 | 551,295 | 393,025 | 673,514 |
| 2038 | 1,377,400 | 551,295 | 377,382 | 693,720 |
| 2039 | 1,368,683 | 551,295 | 361,256 | 714,532 |
| 2040 | 1,388,256 | 551,295 | 344,043 | 735,967 |
| 2041 | 1,370,849 | 551,295 | 307,333 | 758,046 |
| 2042 | 1,372,238 | 0 | 274,548 | 0 |
| 2043 | 1,370,879 | 0 | 245,270 | 0 |
| 2044 | 1,374,975 | 0 | 219,121 | 0 |
| 2045 | 1,387,404 | 0 | 195,770 | 0 |
| 2046 | 1,325,741 | 0 | 174,916 | 0 |
| 2047 | 1,301,018 | 0 | 156,288 | 0 |
| 2048 | 1,271,620 | 0 | 139,651 | 0 |
| 2049 | 1,208,706 | 0 | 124,791 | 0 |
| 2050 | 1,191,633 | 0 | 111,517 | 0 |
| 2055 | 991,431 | 0 | 63,612 | 0 |
| 2060 | 768,598 | 0 | 36,346 | 0 |
| 2065 | 553,916 | 0 | 20,803 | 0 |
| 2070 | 398,293 | 0 | 11,931 | 0 |
| 2075 | 265,031 | 0 | 6,857 | 0 |
| 2080 | 160,613 | 0 | 3,946 | 0 |
| 2085 | 83,381 | 0 | 2,271 | 0 |
| 2090 | 33,392 | 0 | 1,304 | 0 |

Note to auditor: when calculating the employer OPEB contribution for the year ending on the statement date, we recommend multiplying the actual District-paid premiums on behalf of retirees by a factor of 1.2236 to adjust for the implicit subsidy.

## Funding Schedules (continued)

The table below provides an alternative comparison of the funding schedules. The present value (or time-value) of payments for each alternative is $6,762,155 and is equal to the excess of the present value of projected pay-as-you-go payments over any current trust/fund.

The difference between the sum of the contributions and the present value of contributions is the total interest cost associated with each alternative. As discussed above, the advantages of pre-funding should be weighed against other financial considerations.

| | Pay-as-you-go | Level Contribution for 20 years | Level % of Unfunded Liability | Constant Percentage Increase for 20 years |
|---|---|---|---|---|
| Present value of contributions[a] | $6,762,155 | $6,762,155 | $6,762,155 | $6,762,155 |
| Total interest cost | 26,938,627 | 4,263,745 | 5,315,225 | 4,853,998 |
| Total contributions[b] | 33,700,782 | 11,025,900 | 12,077,380 | 11,616,153 |

[a] Based on a discount rate of 5.50%.
[b] Reflects no prefunding of implicit subsidy.

## Plan Provisions

The District contributes to a multi-employer defined benefit plan to provide post-employment medical benefits. Specifically, the District provides postretirement medical benefits to all employees who retire from the District. The level of benefit varies based on entry date and employee bargaining unit.

### Post-Retirement Coverage

Both the Management group, and the Supervisor, Professional, and Confidential group have the same health benefits structure in retirement as follows:

| Date of Hire | Minimum Age | Minimum Service | Maximum Benefit |
|---|---|---|---|
| Before or on 3/31/2006 | Any | 5 years | 100% Employee +1 for any plan |
| 4/1/2006 to 6/30/2013 | 55 | 10 years | 75% Employee +1 for PPO |
| On or after 7/1/2013 | 55 | 10 years | 75% Employee only for lowest cost plan |

Both the General Unit and Office Unit (SEIU) and the Executive Group and Non-Represented Employees have the same health benefits structure in retirement as follows:

| Date of Hire | Minimum Age | Minimum Service | Maximum Benefit |
|---|---|---|---|
| Before or on 3/31/2006 | Any | 5 years | 100% Employee +1 for any plan |
| 4/1/2006 to 12/31/2014 | 55 | 10 years | 75% Employee +1 for PPO |
| On or after 1/1/2015 | 55 | 10 years | 75% Employee only for lowest cost plan |

The General Manager has the following health benefit in retirement:

| Date of Hire | Minimum Age | Minimum Service | Maximum Benefit |
|---|---|---|---|
| Any | 55 | 10 years | 75% Employee only for lowest cost plan |

This valuation is based on census data as of June 30, 2022 and a 50-50 blend of premiums for calendar years 2022 and 2023.

### Premiums

The following table shows January 1, 2023 monthly premiums for retirees:

| | Blue Cross Classic PPO | Blue Cross Advantage PPO | Blue Cross Cal Care HMO | Blue Cross Value HMO | Traditional Kaiser HMO | Value Kaiser HMO |
|---|---|---|---|---|---|---|
| Basic Plan | | | | | | |
| Retiree | $692.28 | $609.21 | $905.15 | $833.72 | $673.19 | $615.33 |
| Retiree + 1 | 1,384.56 | 1,218.42 | 1,810.30 | 1,667.44 | 1,346.38 | 1,230.66 |
| Family | 1,834.54 | 1,614.41 | 2,398.65 | 2,209.36 | 1,871.47 | 1,710.62 |

| | Kaiser Senior Advantage | United Healthcare PPO |
|---|---|---|
| Medicare Supplement | | |
| Retiree | $160.97 | $404.70 |
| Retiree + 1 | 321.94 | 809.40 |
| Family | 894.29 | 1,214.10 |

## Valuation Data

Retiree Census - Age distribution of retirees included in the valuation

| Age | Total |
|---|---|
| Under 55 | 0 |
| 55-59 | 8 |
| 60-64 | 18 |
| 65-69 | 21 |
| 70-74 | 21 |
| 75-79 | 17 |
| 80-84 | 10 |
| 85+ | 9 |
| All Ages | 104 |
| Average Age | 71.2 |

Active Census - Age/service distribution of active employees included in the valuation

| | Years of Service | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Age | 0-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 | 35+ | Total |
| <25 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 25-29 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 30-34 | 15 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| 35-39 | 10 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 13 |
| 40-44 | 5 | 6 | 2 | 1 | 0 | 0 | 0 | 0 | 14 |
| 45-49 | 6 | 2 | 3 | 3 | 2 | 0 | 0 | 0 | 16 |
| 50-54 | 5 | 4 | 1 | 6 | 1 | 0 | 1 | 0 | 18 |
| 55-59 | 2 | 3 | 3 | 1 | 2 | 3 | 3 | 1 | 18 |
| 60-64 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 2 | 6 |
| 65+ | 0 | 2 | 1 | 2 | 1 | 0 | 0 | 0 | 6 |
| All Ages | 53 | 20 | 11 | 15 | 6 | 3 | 5 | 3 | 116 |

Average Age: 46.2
Average Service: 10.0

## Actuarial Assumptions

The liabilities set forth in this report are based on the actuarial assumptions described in this section.

| | |
|---|---|
| Valuation Date: | June 30, 2022 |
| Actuarial Cost Method: | Entry Age, Level Percent of Pay |
| Discount Rate: | |
| Long-term Expected Return | 5.50% |
| Municipal Bond Index | 3.69% |
| GASB 75 | 5.50% |
| Salary Increases: | 3.00% |
| Withdrawal: | Preretirement Mortality Rates for Public Agency Miscellaneous from CalPERS Experience Study (2000-2019). |
| Pre-retirement Mortality: | Preretirement Mortality Rates for Public Agency Miscellaneous from CalPERS Experience Study (2000-2019). |
| Postretirement Mortality: | Post-retirement Mortality Rates for Public Agency Miscellaneous from CalPERS Experience Study (2000-2019). |
| Retirement: | |
| Miscellaneous – Classic | Service Retirement Rates for Public Agency Miscellaneous—2.00% at 55—from 2021 CalPERS Experience Study. |
| Miscellaneous – PEPRA | Service Retirement Rates for Public Agency Miscellaneous—2.00% at 60—from 2021 CalPERS Experience Study. |
| Medical Claim Cost: | Annual Per Retiree or Spouse |

| Age | Medical |
|---|---|
| 50 | $9,650 |
| 55 | 12,913 |
| 60 | 17,281 |
| 64 | 21,817 |
| 65 | 4,225 |
| 70 | 4,440 |
| 75 | 4,667 |

| | |
|---|---|
| Percent Electing Coverage: | 100% of those eligible to receive 100% district-paid benefits.<br>90% of those eligible to receive 75% district-paid benefits. |
| Spouse Coverage: | Future retirees: 80%<br>Current retirees: Actual dependent data used.<br>Female spouses are assumed to be three years younger than male spouses. |

## Actuarial Assumptions (continued)

Medical Trend:

| Year | Pre-Medicare | Medicare |
|---|---|---|
| 2022 | 6.50% | 4.50% |
| 2023 | 6.00% | 4.50% |
| 2024 | 5.50% | 4.50% |
| 2025-2029 | 5.25% | 4.50% |
| 2030-2039 | 5.00% | 4.50% |
| 2040-2049 | 4.75% | 4.50% |
| 2050-2069 | 4.50% | 4.50% |
| 2070+ | 4.00% | 4.00% |

`

## Actuarial Certification

The results set forth in this report are based on our actuarial valuation of the health and welfare benefit plans of the Las Virgenes Municipal Water District ("District") as of June 30, 2022.

The valuation was performed in accordance with generally accepted actuarial principles and practices. We relied on census data for active employees and retirees provided to us by the District. We also made use of claims, premium, expense, and enrollment data, and copies of relevant sections of healthcare documents provided to us by the District, and (when applicable) trust statements prepared by the trustee and provided to us by the District.

The assumptions used in performing the valuation, as summarized in this report, and the results based thereupon, represent our best estimate of the actuarial costs of the program under GASB 74 and GASB 75, and the existing and proposed Actuarial Standards of Practice for measuring post-retirement healthcare benefits.

Throughout the report, we have used unrounded numbers, because rounding and the reconciliation of the rounded results would add an additional, and in our opinion unnecessary, layer of complexity to the valuation process. By our publishing of unrounded results, no implication is made as to the degree of precision inherent in those results. Clients and their auditors should use their own judgment as to the desirability of rounding when transferring the results of this valuation report to the clients' financial statements.

Each undersigned actuary meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained in this report.

Certified by:

Carlos Diaz, ASA, EA, MAAA
Actuary

# CERBT Account Update Summary

## Las Virgenes Municipal Water District

as of March 31, 2024

CalPERS

# OPEB Valuation Report Summary

| OPEB Actuarial Valuation Report by Demsey, Filliger, and Associates | |
|---|---|
| Valuation Date | 6/30/2022 |
| Measurement Date | 6/30/2022 |
| Total OPEB Liability (TOL) | $21,302,475 |
| Valuation Assets | $13,359,161 |
| Net OPEB Liability (NOL) | $7,943,314 |
| Funded Status | 63% |
| Actuarially Determined Contribution (ADC) | $1,089,158 |
| CERBT Asset Allocation Strategy | Strategy 3 |
| Discount Rate | 5.50% |

# CERBT Account Summary

| As of March 31, 2024 | Strategy 3 |
|---|---|
| Initial contribution (06/15/2009) | $328,180 |
| Additional contributions | $12,322,114 |
| Disbursements | $0 |
| CERBT expenses | ($80,840) |
| Investment earnings | $4,113,308 |
| Total assets | $16,682,762 |
| Annualized net rate of return (06/15/2009-03/31/2024 = 14.79 years) | 5.06% |

# Cash Flow Summary by Fiscal Year

| Fiscal Year | Contributions | Disbursements | Cumulative Investment Gains (Losses) | Cumulative Fees | Cumulative Ending Assets |
|---|---|---|---|---|---|
| 2006-07 | $0 | $0 | $0 | $0 | $0 |
| 2007-08 | $0 | $0 | $0 | $0 | $0 |
| 2008-09 | $328,180 | $0 | ($182) | ($11) | $327,987 |
| 2009-10 | $298,602 | $0 | $49,799 | ($389) | $676,192 |
| 2010-11 | $342,716 | $0 | $221,518 | ($1,390) | $1,189,626 |
| 2011-12 | $421,610 | $0 | $232,315 | ($2,774) | $1,620,649 |
| 2012-13 | $327,466 | $0 | $423,669 | ($5,426) | $2,136,817 |
| 2013-14 | $495,889 | $0 | $846,379 | ($8,908) | $3,051,934 |
| 2014-15 | $520,383 | $0 | $845,756 | ($12,137) | $3,568,465 |
| 2015-16 | $630,886 | $0 | $903,854 | ($15,246) | $4,254,340 |
| 2016-17 | $634,899 | $0 | $1,376,107 | ($19,186) | $5,357,552 |
| 2017-18 | $583,672 | $0 | $1,855,754 | ($24,169) | $6,415,888 |
| 2018-19 | $1,330,305 | $0 | $2,396,485 | ($30,099) | $8,280,994 |
| 2019-20 | $1,393,400 | $0 | $2,983,672 | ($37,803) | $10,253,877 |
| 2020-21 | $1,615,024 | $0 | $4,459,101 | ($47,643) | $13,334,490 |
| 2021-22 | $1,600,804 | $0 | $2,893,533 | ($59,374) | $13,357,994 |
| 2022-23 | $1,285,084 | $0 | $3,162,077 | ($71,098) | $14,899,898 |
| as of 3/31/2024 | $841,375 | $0 | $4,113,308 | ($80,840) | $16,682,762 |

# CERBT/CEPPT Investment Returns Outperform Benchmarks

Periods ended February 29, 2024

| Fund | Assets | 1 Month | 3 Months | FYTD | 1 Year | 3 Years | 5 Years | 10 Years | ITD |
|---|---|---|---|---|---|---|---|---|---|
| CERBT Strategy 1 (Inception June 1, 2007) | $17,205,007,186 | 1.61% | 6.71% | 7.28% | 11.70% | 2.17% | 6.56% | 5.81% | 5.20% |
| Benchmark | | 1.58% | 6.66% | 7.15% | 11.44% | 1.97% | 6.33% | 5.47% | 4.81% |
| CERBT Strategy 2 (Inception October 1, 2011) | $1,942,474,401 | 0.72% | 5.63% | 5.33% | 8.82% | 0.46% | 4.94% | 4.68% | 6.17% |
| Benchmark | | 0.70% | 5.57% | 5.26% | 8.66% | 0.33% | 4.79% | 4.40% | 5.91% |
| CERBT Strategy 3 (Inception January 1, 2012) | $784,150,125 | 0.08% | 4.77% | 3.97% | 6.81% | -0.34% | 3.81% | 3.79% | 4.61% |
| Benchmark | | 0.06% | 4.71% | 3.90% | 6.68% | -0.43% | 3.70% | 3.54% | 4.35% |
| CERBT Total | $19,931,631,712 | | | | | | | | |
| CEPPT Strategy 1 (Inception October 1, 2019) | $164,899,849 | 0.83% | 5.35% | 5.85% | 9.64% | 0.97% | - | - | 4.06% |
| Benchmark | | 0.80% | 5.32% | 5.74% | 9.44% | 0.76% | - | - | 3.94% |
| CEPPT Strategy 2 (Inception January 1, 2020) | $50,021,441 | -0.12% | 3.95% | 4.05% | 6.83% | -0.75% | - | - | 1.25% |
| Benchmark | | -0.13% | 3.92% | 3.95% | 6.70% | -0.84% | - | - | 1.14% |
| CEPPT Total | $214,921,290 | | | | | | | | |

# CERBT Portfolios

| 2022 Capital Market Assumptions | CERBT Strategy 1 | CERBT Strategy 2 | CERBT Strategy 3 |
|---|---|---|---|
| Expected Return | 6.0% | 5.5% | 5.0% |
| Risk | 12.1% | 9.9% | 8.4% |

# CERBT Portfolio Details

| Asset Classification | Benchmark | CERBT Strategy 1 | CERBT Strategy 2 | CERBT Strategy 3 |
|---|---|---|---|---|
| Global Equity | MSCI All Country World Index IMI (Net) | 49% ±5% | 34% ±5% | 23% ±5% |
| Fixed Income | Bloomberg Long Liability Index | 23% ±5% | 41% ±5% | 51% ±5% |
| Global Real Estate (REITs) | FTSE EPRA/NAREIT Developed Index (Net) | 20% ±5% | 17% ±5% | 14% ±5% |
| Treasury Inflation Protected Securities (TIPS) | Bloomberg US TIPS Index, Series L | 5% ±3% | 5% ±3% | 9% ±3% |
| Commodities | S&P GSCI Total Return Index | 3% ±3% | 3% ±3% | 3% ±3% |
| Cash | 91-Day Treasury Bill | 0% +2% | 0% +2% | 0% +2% |

# Total Participation Cost Fee Rate

- Total all-inclusive cost of participation
  - Combines administrative, custodial, and investment fees
  - Separate trust funds
  - Self-funded, fee rate may change in the future
  - Fee is applied daily to assets under management
    - 10 basis points - CERBT
    - 25 basis points - CEPPT

# 629 Prefunding Program Employers

604 CERBT and 94 CEPPT

- State of California
- 157 Cities or Towns
- 10 Counties
- 83 School Employers
- 32 Courts
- 347 Special Districts and other Public Agencies
  - (103 Water, 37 Sanitation, 34 Fire, 27 Transportation)

# Financial Reporting

- CERBT provides audited and compliant GASB 75 report in a Schedule of Changes in Fiduciary Net Position (FNP)
  - Published in January each year

| CERBT FNP Fiscal Year | Availability |
|---|---|
| 2020-21<br>2021-22<br>2022-23 | Available at https://www.calpers.ca.gov/cerbt |

# Questions? Where to Get Trust Fund Information?

| Name | Title | E-mail | Desk | Mobile |
|---|---|---|---|---|
| Darren Lathrop | Outreach & Support Manager | Darren.Lathrop@calpers.ca.gov | (916) 795-0751 | (916) 291-0391 |
| Lee Lo | Outreach & Support Analyst | Lee.Lo@calpers.ca.gov | (916) 795-4034 | (916) 612-4128 |
| Therese Luo | Outreach & Support Analyst | Therese.Luo@calpers.ca.gov | (916) 795-2983 | (916) 213-2879 |
| Danny Kaufman | Outreach & Support Analyst | Daniel.Kaufman@calpers.ca.gov. | (916) 795-8278 | (916) 440-3821 |
| Colleen Cain-Herrback | Administration & Reporting Program Manager | Colleen.Cain-Herrback@calpers.ca.gov | (916) 795-2474 | (916) 505-2506 |
| Vic Anderson | Administration & Reporting Manager | Victor.Anderson@calpers.ca.gov | (916) 795-3739 | (916) 281-8214 |
| Robert Sharp | Assistant Division Chief | Robert.Sharp@calpers.ca.gov | (916) 795-3878 | (916) 397-0756 |

| Program E-mail Addresses | Prefunding Programs Webpages |
|---|---|
| CEPPT4U@calpers.ca.gov – Questions & Document Submittal | www.calpers.ca.gov/CEPPT |
| CERBT4U@calpers.ca.gov – Questions & Document Submittal | www.calpers.ca.gov/CERBT |
| CERBTACCOUNT@calpers.ca.gov – Online Record Keeping System | www.your-fundaccount.com/calpers |

**AGENDA ITEM NO. 4.F**

**DATE:** June 4, 2024

**TO:** Board of Directors

**FROM:** Facilities and Operations

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**SUBJECT: End of Emergency Declaration for Valley Circle Water Main Break and Continuation of Emergency Declaration for Parkmor Road Water Main Break**

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## SUMMARY:

On Thursday, January 18, 2024, a 30-inch water main break occurred on Valley Circle Boulevard between Stonegate Drive and Stagg Street in West Hills. The break occurred downstream of the LV-1 interconnection with Metropolitan Water District of Southern California (MWD), which feeds the Conduit Pump Station. Approximately 500 feet of highline was installed from the Conduit Pump Station to a nearby fire hydrant to maintain continuous water service to existing customers. The water main break caused extensive damages to the sidewalk and northbound traffic lanes along Valley Circle Boulevard.

Concurrently, a 12-inch water main break occurred at 5745 Parkmor Road in the City of Calabasas that required restoration of site features within private property.

On February 6, 2024, the Board adopted Resolution No. 2634, declaring an emergency due to the 12-inch water main break at 5745 Parkmor Road in the City of Calabasas and the 30-inch water main break along Valley Circle Boulevard near Dorie Drive in West Hills to ensure the work could be completed expeditiously. Since all work associated with the water main break along Valley Circle Boulevard has been completed, it is appropriate to declare an end of emergency for the 30-inch main break repair, and ratify the summary of costs, in the amount of $186,077.21, for the work.

The repair and restoration work is on-going for the 12-inch water main break at 5745 Parkmor Road. Staff recommends continuation of the emergency declaration for the incident to ensure the necessary repair and restoration work can be completed expeditiously.

## RECOMMENDATION(S):

Ratify the summary of emergency repair costs, in the amount of $186,077.21, for the 30-inch water main break along Valley Circle Boulevard; and pass, approve, and adopt proposed Resolution No. 2640, continuing a declaration of emergency for a 12-inch water main break located at 5745 Parkmor Drive in the City of Calabasas and ending the emergency for the water main break along Valley Circle Boulevard.

**RESOLUTION NO. 2640**

**A RESOLUTION OF THE BOARD OF DIRECTORS OF LAS VIRGENES MUNICIPAL WATER DISTRICT FINDING THAT AN EMERGENCY WILL NOT PERMIT A DELAY RESULTING FROM A COMPETITIVE SOLICITATION FOR REPAIR OF A 12-INCH WATER MAIN LOCATED AT 5745 PARKMOR DRIVE IN THE CITY OF CALABASAS AND END THE EMERGENCY DECLARATION FOR A 30-INCH WATER MAIN LOCATED ON VALLEY CIRCLE BOULEVARD**

(Reference is hereby made to Resolution 2640 on file in the District's Resolution book and by this reference the same is incorporated herein.)

**FISCAL IMPACT:**

Yes

**ITEM BUDGETED:**

Yes

**FINANCIAL IMPACT:**

The cost of the emergency work for the Valley Circle Boulevard main break was $186,077.21. Sufficient funds for the work are available in the Fiscal Year 2023-24 Budget.

**DISCUSSION:**

On Thursday, January 18, 2024, a 30-inch water main break occurred on Valley Circle Boulevard between Stonegate Drive and Stagg Street in West Hills. The break occurred downstream of the LV-1 interconnection with Metropolitan Water District of Southern California (MWD), which feeds the Conduit Pump Station. Approximately 500 feet of highline was installed from the Conduit Pump Station to a nearby fire hydrant to maintain continuous water service to the existing customers. The water main break caused extensive damages to the sidewalk and northbound traffic lanes along Valley Circle Boulevard. Staff worked with Toro Construction to expedite the repair work at a total cost of $186,077.21.

Concurrently, a 12-inch water main break occurred at 5745 Parkmor Road in the City of Calabasas that required restoration of site features within private property.

On February 6, 2024, the Board adopted Resolution No. 2634, declaring an emergency for both main breaks to ensure the work could be completed expeditiously. Since all work has been completed for the Valley Circle Boulevard water main break, staff recommends declaring an end of the emergency for the 30-inch water main break. The total costs associated with the Valley Circle Boulevard water main break repair totaled $186,077.21.

Since the work for the 12-inch water main break repair on 5745 Parkmor Drive is still on-going, staff recommends adoption of Resolution No. 2640, continuing a declaration of emergency for the 12-inch water main break located at 5745 Parkmor Drive.

**GOALS:**

Construct, Manage and Maintain all Facilities and Provide Services to Assure System Reliability and Environmental Compatibility

Prepared by: Darrell Johnson, Water Systems Manager

**ATTACHMENTS:**
Proposed Resolution No. 2640

**RESOLUTION NO. 2640**

**A RESOLUTION OF THE BOARD OF DIRECTORS OF LAS VIRGENES MUNICIPAL WATER DISTRICT FINDING THAT AN EMERGENCY WILL NOT PERMIT A DELAY RESULTING FROM A COMPETITIVE SOLICITATION FOR REPAIR OF A 12-INCH WATER MAIN LOCATED AT 5745 PARKMOR DRIVE IN THE CITY OF CALABASAS AND END THE EMERGENCY DECLARATION FOR A 30-INCH WATER MAIN LOCATED ON VALLEY CIRCLE BOULEVARD**

WHEREAS, on January 13, 2024, a 12-inch water main broke that is located in the backyard of the property located at 5745 Parkmor Drive in the City of Calabasas ("Property");

WHEREAS, as a result of the main break, extensive damage was caused to the Property and vehicles parked along Thousand Oaks Boulevard;

WHEREAS, the main break caused lower water pressure to 19 service customers.

WHEREAS, staff is exploring a number options to restore normal service to the area while limiting the liability to the District;

WHEREAS, on February 6, 2024, the Board of Directors at its regular meeting authorized Resolution No. 2634 and declared an emergency to not permit a delay resulting from a competitive solicitation for repair of a 12-inch water main located at 5745 Parkmor Road in the City of Calabasas and a 30-inch water main located on Valley Circle Boulevard.

WHEREAS, on February 20, 2024, the Board of Directors at its regular meeting authorized the continuation of the declaration of emergency for the repair of a 12-inch water main located at 5745 Parkmor Road in the City of Calabasas and a 30-inch water main located on Valley Circle Boulevard.

WHEREAS, on March 5, 2024, the Board of Directors at its regular meeting authorized the continuation of the declaration of emergency for the repair of a 12-inch water main located at 5745 Parkmor Road in the City of Calabasas and a 30-inch water main located on Valley Circle Boulevard.

WHEREAS, on March 19, 2024, the Board of Directors at its regular meeting authorized the continuation of the declaration of emergency for the repair of a 12-inch water main located at 5745 Parkmor Road in the City of Calabasas and a 30-inch water main located on Valley Circle Boulevard.

WHEREAS, on April 2, 2024, the Board of Directors at its regular meeting authorized the continuation of the declaration of emergency for the repair of a 12-inch water main located at 5745 Parkmor Road in the City of Calabasas and a 30-inch water main located on Valley Circle Boulevard.

WHEREAS, on April 16, 2024, the Board of Directors at its regular meeting authorized the continuation of the declaration of emergency for the repair of a 12-inch water main located at 5745 Parkmor Road in the City of Calabasas and a 30-inch water main located on Valley Circle Boulevard.

WHEREAS, on May 21, 2024, the Board of Directors at its regular meeting authorized the

continuation of the declaration of emergency for the repair of a 12-inch water main located at 5745 Parkmor Road in the City of Calabasas and a 12-inch water main located at 5745 Parkmor Road in the City of Calabasas.

WHEREAS, the District recommends the continuance of an emergency declaration to complete the necessary work required to repair the 12-inch water main located at 5745 Parkmor Road in the City of Calabasas and restore normal service to the area, and end the emergency declaration for the 30-inch water main located on Valley Circle Boulevard;

WHEREAS, a competitive bidding process is normally required for construction projects involving an amount of $35,000 or more pursuant to California Public Contract Code §20642;

WHEREAS, one exception to the requirement to give notice for bids to let such contracts is in the case of emergency;

WHEREAS, "emergency" means a sudden, unexpected occurrence that poses a clear and imminent danger, requiring immediate action to prevent or mitigate the loss or impairment of life, health, property, or essential public services (California Public Contract Code §1102);

WHEREAS, in an emergency, the District may, pursuant to California Public Contract Code §22050, repair or replace a public facility, take any directly related and immediate action required, and procure the necessary equipment, services, and supplies for those purposes without engaging in the competitive bidding process; and

WHEREAS, a four fifths (4/5) vote of the Board is required to approve an emergency declaration and to waive formal bidding of contracts.

WHEREAS, consistent with the provisions set forth in the District's Administrative Code at sections 2-6.401 and 2-6.402, staff recommends the continuance of an emergency declaration to perform emergency repairs of a 12-inch water main to maintain adequate and reliable water service to the area and end the emergency declaration for the 30-inch water main.

NOW, THEREFORE, BE IT RESOLVED BY THE GOVERNING BOARD OF DIRECTORS OF THE LAS VIRGENES MUNICIPAL WATER DISTRICT AS FOLLOWS:

1. The recitals set forth above are incorporated herein as if set forth in full.

2. Substantial evidence supports a finding that the above-described circumstances constitute an emergency that will not permit a delay resulting from a competitive solicitation for bids and the above-described actions are necessary to respond to this emergency.

3. The Board authorizes the General Manager to proceed with the above-described actions in response to this emergency.

4. The Board shall review these emergency actions at a future Board meeting and, if those actions continue, shall terminate those actions at the earliest possible date that conditions warrant.

**PASSED, APPROVED, AND ADOPTED** this 4th day of June 2024.

_____
Jay Lewitt, President

ATTEST:

_____
Gary Burns, Secretary

APPROVED AS TO FORM:

_____
W. Keith Lemieux, District Counsel

# State Water Project Resources

2024 SWP Table A – 40% - 764,600 AF

# WATER SUPPLY CONDITIONS REPORT

Water Year
2023-2024
As of: May 22, 2024

AGENDA ITEM NO. 5A

# Colorado River Resources

Projected 2024 CRA Diversions – 959,000 AF

## Metropolitan Resources

93%
(% of normal)
8-Station

99%
(% of normal)
Sacramento River Runoff

86%
(% of normal)
5-Station

102%
(% of normal)
Owens River Basin Runoff (Apr-Sep)

100%
Oroville
3.52 MAF

62%
San Luis
Total: 1.27 MAF
SWP: 471 TAF

152%
(% of normal)
Los Angeles

117%
(% of normal)
San Diego

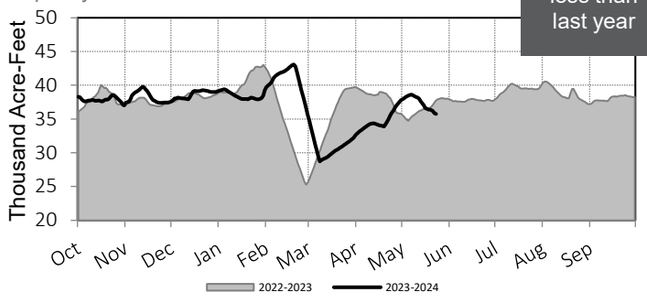
89%
Castaic
290 TAF

90%
Diamond Valley
729 TAF

### Lake Skinner Storage

Capacity: 44 TAF

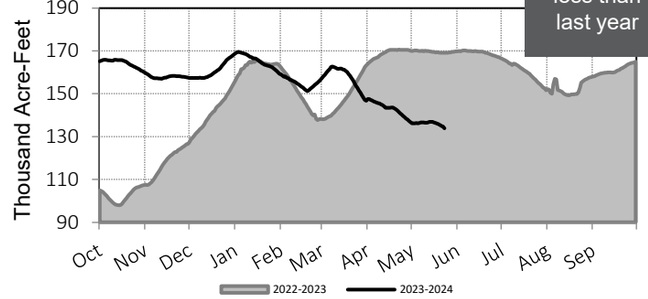
1.7 TAF less than last year




### Lake Mathews Storage

Capacity: 182 TAF

35.3 TAF less than last year




### MWD WSDM Storage

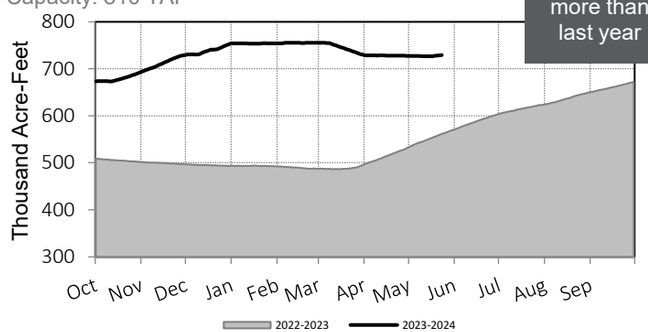
Calendar Year 2024

| | Put Capacity (2024) |
|---|---|
| Lake Mead ICS | 78,000 acre-feet |
| State Water Project System | 302,000 acre-feet |
| In-Region Supplies and WSDM Actions | 109,000 acre-feet |

### Diamond Valley Lake Storage

Capacity: 810 TAF

169 TAF more than last year




## Highlights

Learn more about imported supplies:

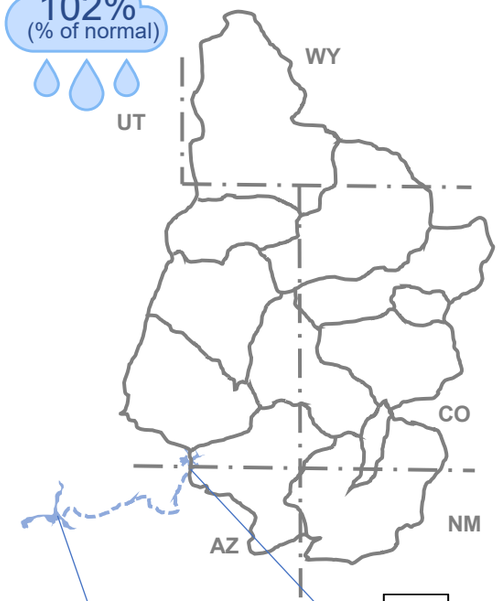
State Water Project: https://www.mwdh2o.com/state-water-project-map/
Colorado River Aqueduct: https://www.mwdh2o.com/colorado-river-aqueduct-map/



https://www.mwdh2o.com/WSCR

81%
(% of normal)
Upper Colorado River Basin Runoff

102%
(% of normal)




35%
Mead
9.09 MAF
1,068.56 ft

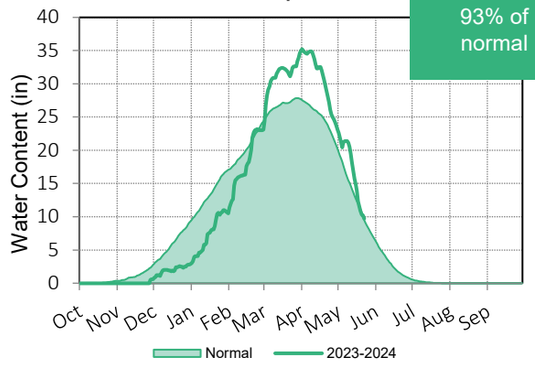
33%
Powell
8.06 MAF
3,563.74 ft

# State Water Project Resources

As of: 05/22/2024

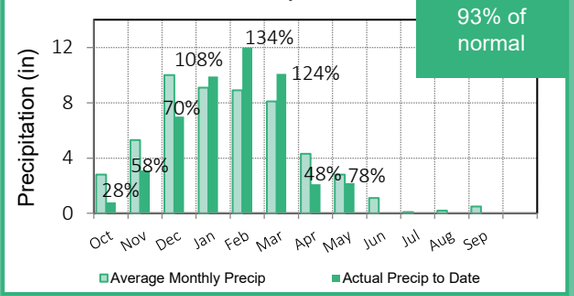
## Northern Sierra Snowpack

9.7 in
93% of
normal



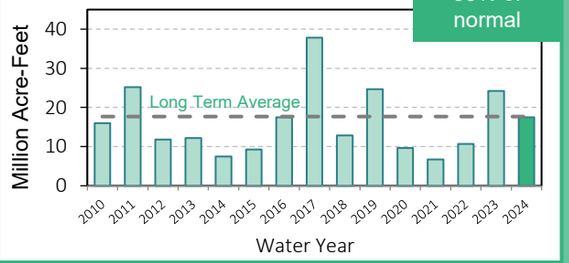

## 8 Station Index Precipitation

47.2 in
93% of
normal




## Sacramento River Runoff

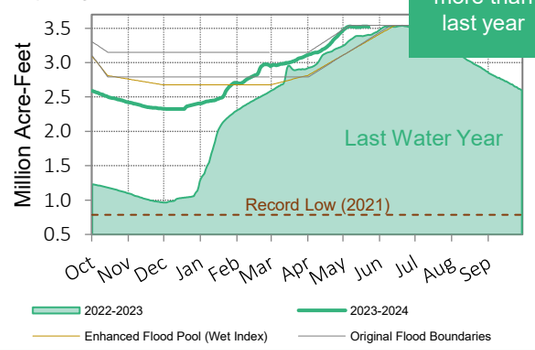
Forecast:
99% of
normal




## Oroville Reservoir Storage

Capacity: 3.54 MAF

112 TAF
more than
last year




## Other SWP Supplies - Carryover

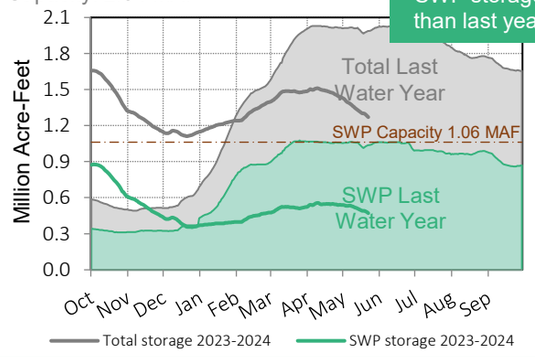
Calendar Year 2024

| | |
|---|---|
| Article 56c | 200,000 acre-feet |
| Article 12e | 8,400 acre-feet |
| Article 14b | 19,500 acre-feet |

## San Luis Reservoir Storage

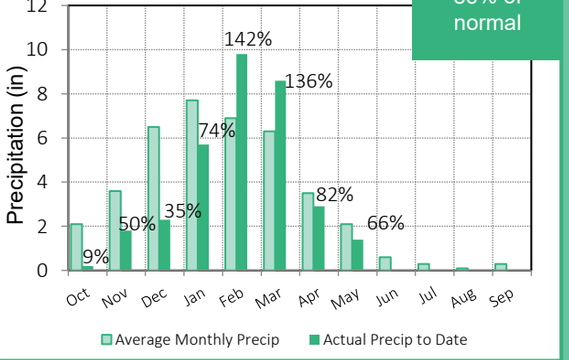
Capacity: 2.04 MAF

566 TAF less
SWP storage
than last year




## 5 Station Index Precipitation

32.7 in
86% of
normal



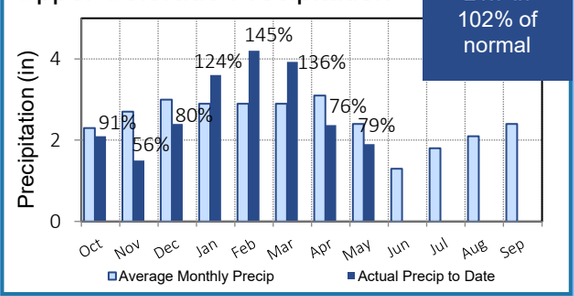

https://www.mwdh2o.com/WSCR

# Colorado River Resources

As of: 05/22/2024

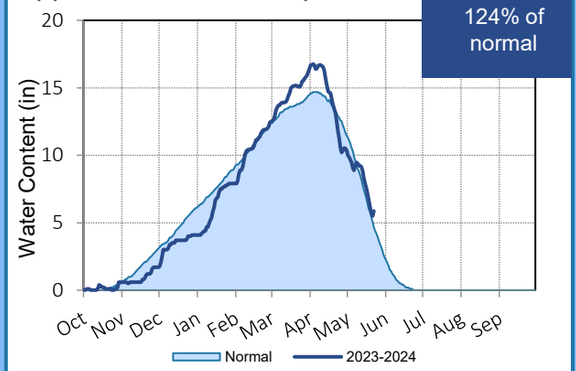
## Upper Colorado Precipitation

21.7 in
102% of
normal



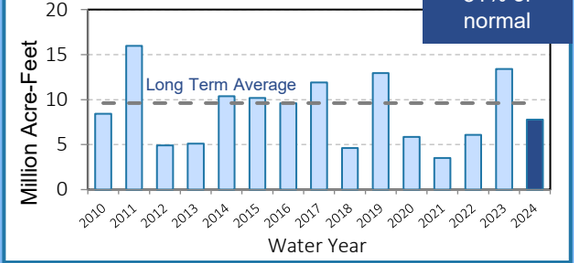

## Upper Colorado Snowpack

5.9 in
124% of
normal




## Powell Unregulated Inflow

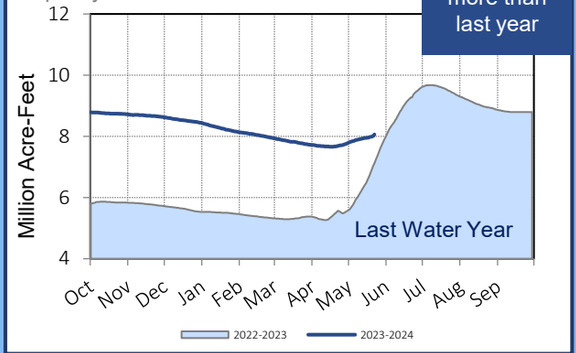
Forecast:
81% of
normal




## Lake Powell Storage

Capacity: 24.3 MAF

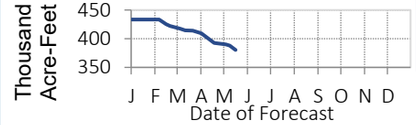
925 TAF
more than
last year




## PVID/Yuma Agricultural Use

Annual Forecasted for 2024

Forecasted
Use for 2024:
380 TAF




## Projected Lake Mead ICS

Calendar Year 2024

Put (+) / Take (-)
-65,000

## Lake Mead Surplus/Shortage Outlook

| | 2024 | 2025 | 2026 |
|---|---|---|---|
| Surplus | 0% | 0% | 0% |
| Shortage | 100% | 90% | 83% |
| Metropolitan DCP* | | | 10%<br>195 TAF |

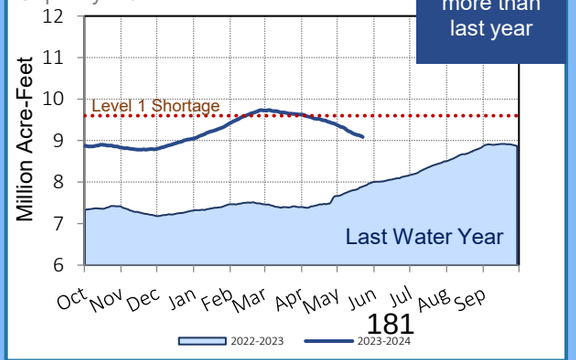
Likelihood based on results from the January 2024 CRMMS in Ensemble Model/CRSS model run. Includes DCP Contributions.

* Chance of required DCP contribution by Metropolitan. Volume is average contribution when needed.

## Lake Mead Storage

Capacity: 26.1 MAF

1.19 MAF
more than
last year



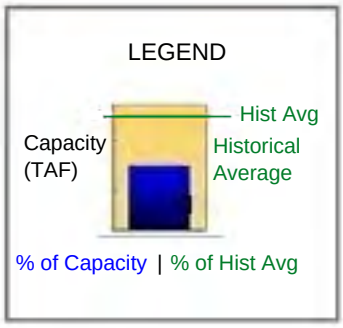


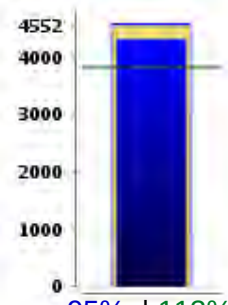

https://www.mwdh2o.com/WSCR


# CALIFORNIA MAJOR WATER SUPPLY RESERVOIRS

CURRENT CONDITIONS

Midnight - May 29, 2024

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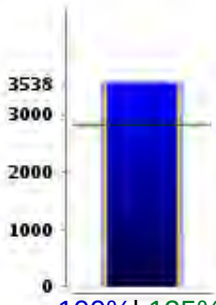


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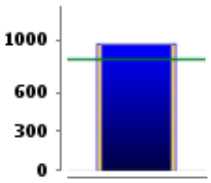


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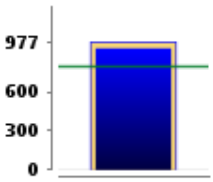


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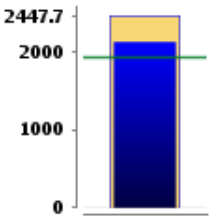


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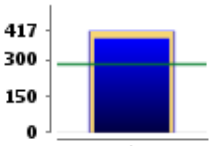


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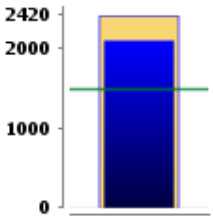


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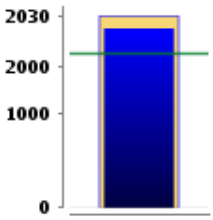


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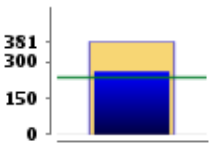


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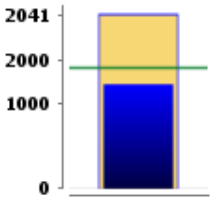


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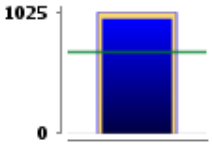


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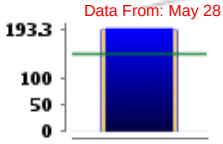
Data From: May 28

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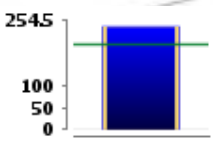


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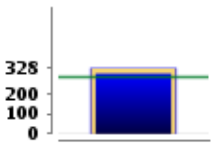


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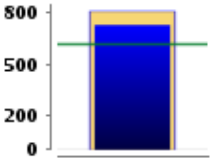


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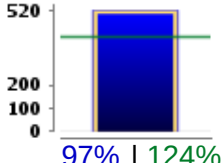


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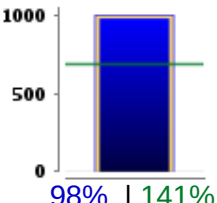


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Pine Flat

Updated 05/30/2024 08:48 AM

**AGENDA ITEM NO. 7.A**

**DATE:** June 4, 2024

**TO:** Board of Directors

**FROM:** General Manager

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**SUBJECT: Appointment of District's MWD Representative**

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**SUMMARY:**

The Board appoints a representative to serve on the Board of the Metropolitan Water District of Southern California (MWD). The individual can be selected from the District's Board or can be a qualified member of the public. The proposed process to select the MWD Representative is intended to mirror the two-step process for election of the Board Officers, which involves nominations at one meeting and elections at the subsequent meeting, or as soon thereafter as may be convenient. On May 21, 2024, the Board opened nominations for the MWD Representative, and Board President Jay Lewitt was nominated for the role. Additional nominations may be accepted at the June 4, 2024 Board meeting prior to close of the nomination period and selection of the MWD Representative.

**RECOMMENDATION(S):**

Close nominations and select the individual to serve as the District's MWD Representative on the Board of the Metropolitan Water District of Southern California; and pass, approve, and adopt proposed Resolution No. 2641, appointing the District's Representative to serve on the Board of Directors of the Metropolitan Water District of Southern California.

**RESOLUTION NO. 2641**

**A RESOLUTION OF THE BOARD OF DIRECTORS APPOINTING THE DISTRICT'S REPRESENTATIVE TO SERVE ON THE BOARD OF DIRECTORS OF THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA**

(Reference is hereby made to Resolution No. 2641 on file in the District's Resolution Book, and by this reference the same is incorporated herein.)

**ITEM BUDGETED:**

Yes

**FINANCIAL IMPACT:**

There is no financial impact associated with this action.

**DISCUSSION:**

Glen Peterson has served as the District's MWD Representative since 1993, and he announced his retirement from the MWD Board of Directors, effective June 10, 2024. The District is entitled to one representative to serve on MWD's Board of Directors. Typically, the MWD Representative is selected from amongst the Member Agency's Board of Directors; however, it is not mandatory that the MWD Representative be a Member Agency director.

The District's voting entitlement for its MWD Representative is small relative to other Member Agencies. However, the District's influence in shaping policy at MWD is not limited to its voting entitlement. The District's MWD Representative can influence important MWD policy by persuading fellow Board Members and MWD staff. To effectively persuade others, an MWD Representative must have strong working relationships with fellow Board Members and staff, and a thorough understanding of the potential impacts of policy decisions.

The MWD Representative is eligible for compensation in the amount of $245 for each day's attendance at meetings of the MWD Board or its Committees, and for each day of service rendered as the District's Representative, not to exceed a total of ten days in any calendar month. For a District Director serving in the role, the compensation allows for a maximum of 20 days of service per month (10 for MWD and 10 for LVMWD). However, only a single per diem can be claimed when meetings for MWD and LVMWD fall on the same day.

On May 21, 2024, the Board opened nominations for MWD Representative, and Board President Jay Lewitt was nominated for the role. Additional nominations may be taken at the June 4, 2024 Board Meeting prior to close of the nomination period and selection of the MWD Representative. MWD requires that the Board adopt and submit a resolution appointing the MWD Representative. The District's new MWD Representative will take office on June 11, 2024.

**GOALS:**

Provide Safe and Quality Water with Reliable Services

Prepared by: David Pedersen, General Manager

**ATTACHMENTS:**
Proposed Resolution No. 2641

**RESOLUTION NO. 2641**

**A RESOLUTION OF THE BOARD OF DIRECTORS OF LAS VIRGENES MUNICIPAL WATER DISTRICT APPOINTING THE DISTRICT'S REPRESENTATIVE TO SERVE ON THE BOARD OF DIRECTORS OF THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA**

BE IT RESOLVED BY THE BOARD OF DIRECTORS OF LAS VIRGENES MUNICIPAL WATER DISTRICT as follows:

Section 1. Purpose

This Resolution appoints _____ to serve as a member of the Board of Directors of the Metropolitan Water District of Southern California, representing Las Virgenes Municipal Water District, effective June 4, 2024.

Section 2 Tenure

The District's representative shall serve during an indefinite term until replaced by majority vote of the Board of Directors of the District.

Section 3. Transmittal

The Secretary shall transmit a certified copy of this resolution to the Clerk of the Metropolitan Water District of Southern California Board of Directors.

**PASSED, APPROVED AND ADOPTED** this 4th day of June, 2024, by the following vote:

AYES: Director(s):

NOES: Director(s):

ABSTAIN: Director(s):

ABSENT: Director(s):

_____
Jay Lewitt, President

ATTEST:

_____
Gary Burns, Secretary

APPROVED AS TO FORM:

_____
W. Keith Lemieux
District Counsel

**AGENDA ITEM NO. 8.A**

**DATE:** June 4, 2024

**TO:** Board of Directors

**FROM:** Facilities and Operations

---

**SUBJECT: Purchase of Chemical Dosing Trailer and Two Water Quality Analyzers: Authorization**

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**SUMMARY:**

Staff is responsible for operation of the potable and recycled water distribution systems, and utilizes many different specialized tools to provide safe and reliable water service to customers. Due to the impacts of the Woolsey Fire and water conservation measures, detention times (water age) in the potable water system have increased significantly. Longer detention times can degrade disinfectant residuals and lead to nitrification in the District's storage tanks. Nitrification is a microbial process where ammonia is converted to nitrite and nitrate, resulting in the undesirable loss of disinfectant residual.

The purchase of a residual control station (RCS) trailer will assist to achieve and maintain chloramine residuals in the District's water storage tanks. The RCS trailer would allow staff to continually monitor and maintain the chloramine residual in the storage tanks and, when necessary, raise disinfectant residual levels to meet State Water Resources Control Board, Division of Drinking Water (DDW) requirements. The trailer houses a custom-built system with patents for proprietary software to meet DDW and District specifications. Staff recommends authorizing the purchase of a Monoclor RCS trailer, in the amount of $155,300.

Additionally, staff recommends the purchase of two water quality station analyzers for the Latigo and Saddle Peak Tanks to transmit live data of chloramine levels to the District's Supervisory Control and Data Acquisition (SCADA) system. The total cost for two water quality station analyzers is $33,000.

**RECOMMENDATION(S):**

Waive the competitive bidding requirements and authorize the General Manager to issue a purchase order to PSI Water Technologies, Inc., in the total amount of $188,300, consisting of $155,300 for one Monoclor Residual Control Station Trailer and $33,000 for two water quality station analyzers.

**FISCAL IMPACT:**

Yes

**ITEM BUDGETED:**

Yes

**FINANCIAL IMPACT:**

The total cost of this action is $188,300. Sufficient funds are available in the adopted Fiscal Year 2023-24 Budget.

**DISCUSSION:**

The goal for purchasing the Monoclor RCS trailer is to maintain proper disinfectant residual levels in storage tanks for the Latigo and Saddle Peak sub-systems. Due to lower water usage resulting from conservation and delays in rebuilding homes that burned in the Woolsey Fire, longer detention times have led to the degradation of chloramine residual and nitrification in the District's water storage tanks. The Monoclor RCS trailer would allow staff to continuously monitor chloramine levels and automatically adjust chemical feed to maintain a 5:1 ratio of chlorine to ammonia. The Monoclor RCS trailer would raise and maintain disinfectant residual levels in storage tanks to meet DDW requirements. Staff would also have the ability to move the trailer to different locations, as necessary.

In addition to the Monoclor RCS trailer, staff is recommending the purchase of two water quality stations to transmit real-time data of chloramine residuals through SCADA so levels can be monitored remotely by staff. The water quality station analyzers would be located at Latigo and Saddle Peak Tanks.

Staff researched multiple options to purchase the trailer and identified two vendors that could meet the District's specifications. Staff requested quotes from the two companies. The other quote received was from D & H Water Systems, in the amount of $148,900.

The Monoclor RCS algorithm precisely detects the position on the breakpoint curve based on the rate of change of chlorine residual and the oxidation reduction potential (ORP), and assesses the presence or absence of free ammonia in the water. The algorithm uses that information to adjust the ammonia feed rate automatically depending on whether the parameters place the disinfectant levels on the left or right-side of the breakpoint curve. When no excess of ammonia is detected, the ammonia pump is engaged automatically to produce a 5:1 chlorine to ammonia ratio. Additionally, the Monoclor RCS trailer from PSI carries three patents for its proprietary program.

Both quotes for the RCS trailers were competitive in nature; however, due to the proprietary features and added benefits the Monoclor trailer provides, staff recommends authorizing the purchase of one Monoclor RCS trailer, in the amount of $155,300, from PSI Water Technologies, Inc. Staff also recommends authorizing the purchase of two water quality station analyzers from PSI Water Technologies, Inc., in the amount of $33,000.

**GOALS:**

Construct, Manage and Maintain all Facilities and Provide Services to Assure System Reliability and Environmental Compatibility

Prepared by:  Brett Vollmar, Senior Water Distribution Operator

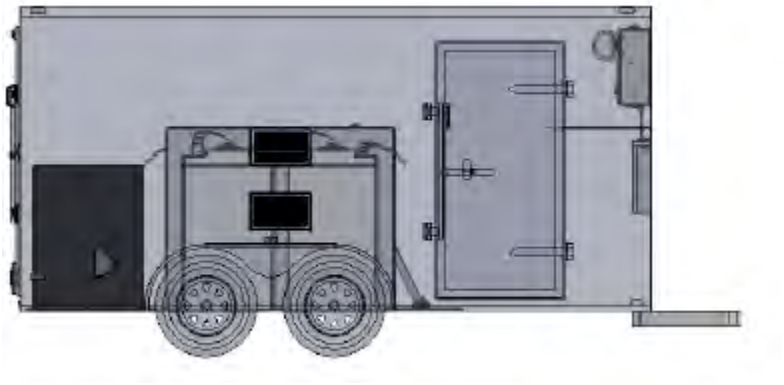
**ATTACHMENTS:**
Monoclor Residual Control Station Trailer Quote
Water Quality Analyzers Quote
D&H Chloramine Boosting System Trailer Quote

# PSI WATER TECHNOLOGIES

A cleanwater1 Company

## FIRM TRAILER PROPOSAL

# MONOCLOR
# RESIDUAL CONTROL SYSTEM TRAILER
# FOR
# Las Virgenes MWD, CA
# 1.5MG Latigo Tank



PSI Water Technologies, Inc. File No.: P23-6000( R1)

*CA Contractor's License: #877235*

Prepared on: May 14, 2024


SALES REPRESENTATIVE

cleanwater1
Kevin Sanner
550 Sycamore Drive
Milpitas, CA 93505
T: (917) 501-7358
Email: ksanner@cleanwater1.com

## TABLE OF CONTENTS



***IMPORTANT NOTICE:*** *All the information in this Proposal is confidential and has been prepared for Buyer's use solely in considering the purchase of the Equipment described. Transmission of all or any part of this Proposal to others or use by Buyer for other purposes is unauthorized without Seller's advance written consent.*

# PSI WATER TECHNOLOGIES

A cleanwater1 Company

May 14, 2024

Re: Monoclor® RCS Trailer for Las Virgenes MWD, CA.
PSI Water Technologies, Inc. File No.: P23-6000 (R1)

Brett Vollmar,

Thank you for your interest in PSI Water Technologies Inc., a cleanwater1 company. We have prepared this proposal for providing a Monoclor® RCS Trailer for Las Virgenes MWD, CA. Our proposal is based on the following design criteria:

| | |
|---|---|
| Tank Size | 1.5 MG |
| Turnover | 0.2 MG / day |
| Power | 240V / 60Hz / 1 PH |

A detailed scope of supply and price for the system is listed in Section 1 of this proposal. All pricing is based on our standard system, as outlined in our equipment specifications (available upon request).

Our scope of supply follows in Section 1, our Proposal Acceptance in Section 2, and Terms and Conditions in Section 3.

We look forward to working with you on this project. If we can be of any further assistance, please do not hesitate to contact me at (310) 957-9719.

Sincerely,

Kevin Sanner
Regional Sales Manager

Cc: Ray Kaesbauer, PSI Water Technologies, Inc.

PSI WATER TECHNOLOGIES

A cleanwater1 Company

## SECTION 1

## SCOPE OF SUPPLY

A. Scope of Supply by PSI

B. Scope of Work by Others

C. Clarifications

D. Payment Terms

E. Delivery

# PSI WATER TECHNOLOGIES

A cleanwater1 Company

## A. SCOPE OF SUPPLY – MONOCLOR RCS® TRAILER - BULK HYPO

| No | Item Description | Qty. |
|---|---|---|
| 1. | **Trailer,** including:<br>▪ Power Input<br>o 120/240 VAC, 1-Phase Load Panel<br>▪ Dimensions: 14'L x 7'-0"W x 7'-6"H<br>▪ Exterior Electrical and Plumbing Connection Points<br>▪ Roof Vent / HVAC<br>▪ Double Bottle Eye/Face Wash Station<br>▪ Intrusion Alarms (available SCADA Communications)<br>▪ Side Man Door & Rear Ramp Door<br>▪ LED Light<br>***Note: Items 2-8 to be Pre-Plumbed, Wired, and Installed in the Trailer.*** | 1 |
| 2. | **Smart Control Center, SCC1000**<br>▪ Allen-Bradley MicroLogix 1400 Programmable Logic Controller (PLC)<br>▪ Magelis DT351 7.4" HMI: Color LCD touch screen<br>▪ Communication: Ethernet based access to HMI software from computer or smartphone within same network<br>▪ Remote Monitoring Telemetry<br>▪ Water Quality Station Communication: Two wire twisted cable<br>▪ Chemical Dosing Controller: RS-485 port for chemical feed system communications<br>▪ SCADA: Modbus TCP/IP standard, analog output available if necessary<br>▪ Enclosure: Equal to or greater than Type 4 rating | 1 |
| 3. | **Water Quality Station, WQS1000**<br>▪ Water Connection: 3/8" Push-connect<br>▪ Sampling Flow Rate: 10 GPH<br>▪ Connectivity: Modbus RS485 Connection<br>▪ Data Logging: Real-time DAQ on USB flash drive<br>▪ Measurement - Total Chlorine: Dual Amperometric reagent less online sensor, 0-10 PPM measuring range, 0.01 PPM resolution<br>▪ Measurement – ORP Sensor (Platinum Extended Tip)<br>▪ Measurement - pH: 0-14 measuring range, 0.01 resolution<br>▪ Measurement - Water Level (optional): pressure transducer, resolution of 1% maximum scale<br>▪ Enclosure: Equal to or greater than Type 3R rating | 1 |
| 4. | **Hypochlorite Storage Tank,** including: | 1 |

- Double Wall HDLPE Construction
- 120 Gallon Capacity
- Radar Level Transmitter
- Tank Fittings

| | | |
|---|---|---|
| **5.** | **Chemical Feed System – Chlorine**<br>▪ Skid: Black polypropylene<br>▪ Pump: (Watson Marlow Qdos 30 Pump)<br>▪ Piping: PVC schedule 80<br>▪ Controller - Input/Output: 4 digital inputs, 2 digital outputs, 2 analog inputs, 1 analog output<br>▪ Communication: Modbus RS-485 with Smart Control Center<br>▪ Pump Control Option: Digital relay, analog (4-20 mA), power switch<br>▪ Accessories:<br>o Calibration Column<br>o Wye Strainer<br>o Pressure Relief Valve<br>o Pressure Transmitter | 1 |
| **6.** | **Liquid Ammonium Sulfate (LAS) Storage Tank,** including:<br>▪ Double Wall HDLPE Construction<br>▪ 65 Gallon Capacity<br>▪ Radar Level Transmitter | 1 |
| **7.** | **Chemical Feed System - Ammonia**<br>▪ Skid: Black polypropylene<br>▪ Pump: Peristaltic (Watson Marlow Qdos 30)<br>▪ Controller Input/Output: 4 digital inputs, 2 digital outputs, 2 analog inputs, 1 analog output<br>▪ Communication: Modbus RS-485 with Smart Control Center<br>▪ Pump Control Option: Digital relay, analog (4-20 mA), power switch<br>▪ Accessories:<br>o Calibration Column<br>o Pressure Relief Valve<br>o Wye Strainer<br>o Pressure Transmitter | 1 |
| **8.** | **Sample Pump** | 1 |
| **9.** | **Hanging Dosing Assembly** | 1 |

| | | |
|---|---|---|
| **10.** | **Manufacturer's Services for Installation Inspection, System Start-Up, and Operator Training** | 1 |
| **11.** | **Submittal and Operation & Maintenance Manual as Follows**<br>▪ Submittal: Sent Electronically<br>▪ O&M Manual: Sent Electronically | 1 |
| **12.** | **FOB Factory, Milpitas, CA with Full Freight Allowed to Jobsite Las Virgenes, CA.** | 1 |
| | **PRICE [ITEMS 1-12]** | **$155,300.00** |

## B. SCOPE OF WORK BY OTHERS

1. Mixer and Control Unit Assembly (Pre-installed at site)
2. Sample tap.
3. Sodium Hypochlorite & Liquid Ammonium Sulfate supply.
4. **Equipment unloading and installation**.
5. All civil works and concrete pad for equipment.
6. Any underground or structural work.
7. Design and supply of anchor bolts and seismic restraints
8. PVC secondary containments (Qty. 2) for chemical & sample lines from trailer to tank hatch (1-1/2" PVC Schedule 80).
9. Electrical conduit run from trailer to reservoir hatch (for PAX Mixers)
10. Tank mounted junction boxes for chemical and sample lines.
11. Electrical power input to trailer
    - (240VAC/1Φ/60Hz at 60 Amps Service).
12. Multiconductor cable (if desired) from customer PLC to trailer.
13. Ethernet/CAT5 cable (if desired) from customer PLC to trailer.
14. Electrical conduit from power source/communication link/external PLC to trailer.
15. Pipe strut, supports and clamps for safe installation of PVC pipe between power source/communication link/external PLC and trailer.
16. Pipe strut, supports and clamps for safe installation of PVC pipe between trailer and tank hatch.
17. Hatch penetrations or modifications.
18. Valves, fittings, appurtenances not specifically listed under Scope of Supply by Process Solutions, Inc.
19. All pipe and tubing supports, strut, and clamps.
20. Freeze protection for all tubing and piping external to the reservoir, if required.
21. Hatch penetrations or modifications.
22. Videotaping.
23. All taxes, fees, lien waivers, bonds and licenses.
24. Permitting or regulatory approval.
25. Any items not explicitly listed under Scope of Supply by Process Solutions, Inc.

## C. CLARIFICATIONS

1. Water sampling piping from Mixer to Water Quality Station should not exceed a length of 300 ft. Flow to analyzer is 10 GPH.
2. The water sample after passing the Water Quality Station is assumed to be drained to a nearby drain or returned to reservoir.
3. PSI recommends adding secondary containment to Hypochlorite and Ammonia chemical feed lines. When possible, trenching these lines underground would be optimal.
4. The performance of the Monoclor® RCS design reported in this document is dependent on the tank operations data provided in the design criteria and may vary significantly under different operating conditions and/or scenarios.
5. Do not mix hypochlorite and ammonia as toxic vapors will be produced.

## D. TERMS OF PAYMENT

- Twenty Percent (20%) Payment Invoiced on Approved Submittals
- Seventy Five Percent (75%) Payment Invoiced on Equipment Shipment
- Five Percent (5%) Payment at Startup
- Net 30 Days
- Price Valid for 30 Days

## E. DELIVERY

- Submittal: 8-10 Weeks After Receipt of Fully Executed Order
- Equipment Shipment: 26-32 Weeks After Approval of Submittals

## SECTION 2

## PROPOSAL ACCEPTANCE

# PSI WATER TECHNOLOGIES

A cleanwater1 Company

## Monoclor® Residual Control System Trailer

PSI Water Technologies, Inc. File No.: P23-6000 (R1)

**1)** PSI Water Technologies, Inc. (Seller) proposes to furnish the equipment described in this proposal. Any items not shown above as detailed under "SCOPE OF SUPPLY BY PSI" are EXCLUDED. In addition:
   a. Seller's price will be held valid for a period of 30 days from the date of this proposal ("Proposal Date"). Seller shall have the right to reprice this proposal if the Buyer's order is received more than 30 days beyond the Proposal Date or delivery more than 365 days after commercial agreement.
   b. Prices are in US Dollars.
   c. Local or state taxes are not included in this proposal.

**2)** This proposal by Seller is contingent upon: (i) Seller's written acceptance of the signed proposal, a purchase order, or other document issued by the Buyer in response to this proposal; and (ii) Buyer's assent to the terms and conditions contained in this proposal, such terms to take precedence in the event of conflict with any other terms or documents incorporated into the contract arising out of this proposal unless otherwise agreed in a writing, signed by Seller; and (iii) satisfactory completion of an anti-corruption due diligence review, if applicable.

**3)** All of the information supplied by Seller in connection with this proposal (including drawings, designs and specifications) (the "Information") is confidential and/or proprietary and has been prepared for Buyer's use solely in evaluating the purchase of the equipment and/or services described herein. Transmission of all or any part of the Information to others, or use by Buyer for any purpose other than such evaluation, is expressly prohibited without Seller's prior written consent.

**4)** Please return a signed copy of this proposal or address and send your purchase order to:

PSI Water Technologies, Inc.
550 Sycamore Drive
Milpitas, CA 95035
Attn: Guy Chadwell
Phone: 408.819.3043
Fax: 408.866.4660
E-mail: orders@cleanwater1.com

Thank you for your interest in PSI Water Technologies, Inc. We are committed to meeting your expectations.

**Proposal Acceptance**

An authorized signature indicates Buyer's acceptance of this proposal, including without limitation Seller's Terms and Conditions below.

| | |
|---|---|
| **Company Name** | **Buyer's Name (printed)** |
| **Date** | **Buyer's Authorized Signature** |
| **Requested Arrival Date** | |

| | |
|---|---|
| **Bill To Name:** | **Ship To Name:** |
| **Bill To Email:** | **Ship To Email:** |
| **Bill To Phone:** | **Ship To Phone:** |
| **Bill to Address:** | **Ship to Address:** |
| **City State Zip** | **City State Zip** |

# PSI WATER TECHNOLOGIES

A cleanwater1 Company

## SECTION 3

## TERMS AND CONDITIONS

## Monoclor® Residual Control System Trailer

**1. Applicable Terms.** PSI Water Technologies, Inc. ("Seller") will sell, and the buyer ("Buyer") will purchase, the products and/or services referred to in Seller's proposal or quotation (collectively, the "Products"), subject to these terms and conditions, including the Warranty Attachments hereto (the "Warranty Attachments", and such Warranty Attachments, together with these Terms and Conditions, being referred to herein as the "Terms"). The front page of Buyer's purchase order (disregarding any reference to terms and conditions and any provisions that conflict with the Terms), if any, together with the description of the Products in Seller's proposal or quotation and the Terms, constitute the complete and exclusive agreement between the parties related to the purchase and sale of the Products (the "Agreement"). All prior communications, documents, negotiations and representations, if any, are merged herein. Whether the Terms are included in an offer or an acceptance by Seller, such offer or acceptance is conditioned on Buyer's assent to the Terms. Any additional, different or conflicting terms contained in Buyer's request for proposal, specifications, purchase order or any other written or oral communication from Buyer shall not be binding in any way on Seller, whether or not they would materially alter this document, and Seller hereby objects thereto. All orders are subject to prior credit approval by Seller.

**2. Pricing.** The prices shall be as stated in Seller's proposal or order acknowledgment.

**3. Payment.** Unless otherwise stated, all payments shall be net 30 days from invoice date payable in United States Dollars. Unless provided otherwise in Seller's proposal, 20% of the purchase price will be invoiced on approved submittals, and 80% will be invoiced on shipment. If Buyer fails to make any payment to Seller when due, Buyer's entire account(s) with Seller will become immediately due and payable without notice or demand. Buyer will pay 1½% interest per month, compounded monthly, on all amounts not received by the due date. Buyer hereby grants Seller a purchase money security interest in the Products until such time as Seller is fully paid. Buyer will assist Seller in taking action to perfect and protect Seller's security interest. Seller may make partial shipments, in which case, Buyer shall pay for each shipment in accordance with the terms hereof.

**4. Taxes, Shipping, Packing** Except to the extent expressly stated otherwise in Seller's proposal, prices do not include any freight, storage, insurance, taxes, excises, fees, duties or other government charges, and Buyer shall pay such amounts or reimburse Seller for any such amounts Seller pays. 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. Prices include the costs of Seller's standard domestic packing only. Any deviation from standard packing (domestic or export) shall result in extra charges. Any and all increases, changes, adjustments, or surcharges (including fuel surcharges) which may arise in connection with the freight charges, rates or classification included as part of the Agreement, shall be for the Buyer's account.

**5. Delivery.** Products shall be delivered F.O.B. Seller's point of shipment. All delivery dates are estimated and are dependent in part upon prompt receipt of all necessary information from Buyer, including submittal approvals, if applicable, and all required commercial documentation. Seller will make a good faith effort to complete delivery of the Products on the date and to the location specified in writing by Buyer, but Seller assumes no liability for loss or damage due to delay or inability to deliver, whether or not such loss or damage was made known to Seller. If Buyer causes or requests a shipment delay, or if Seller ships or delivers the Products erroneously as a result of inaccurate, incomplete or misleading information supplied by Buyer or its agents or representatives, storage and all other additional costs and risks will be borne solely by Buyer. Any claims for Products damaged or lost in transit ("Transit Losses") must be made by Buyer to the carrier and reported to Seller within one business day following delivery to Buyer.

**6. Inspection and Acceptance.** Buyer will have seven days from the date Buyer receives any Products to inspect such Products for defects and nonconformance which are not due to Transit Losses, and to notify Seller, in writing, of any defects, nonconformance or rejection of such Products. After such seven-day period, Buyer will be deemed to have irrevocably accepted the Products, if not previously accepted. After such acceptance, Buyer will have no right to reject or revoke acceptance of the Products for any reason; provided that Buyer retains all rights in respect of the warranties in, or referred to in, Section 9 below.

**7. Returns and Cancellation.** Buyer may not return custom engineered Products. Buyer may return other Products only with Seller's prior written approval, which may be withheld in Seller's sole discretion. Any authorized return will be subject to payment of a restocking charge and will be allowed only if the subject Product: (i) is in new condition, suitable for resale, and (ii) has not been used, installed, modified, altered or damaged. The restocking charge for authorized returns will be no less than (x) 25% of the purchase price, net of any freight charges included in the purchase price, plus (y) 100% of freight costs incurred by Seller. Buyer is responsible for the payment or reimbursement of return freight charges. Returns will be shipped F.O.B. Seller's location. Seller may, but will not be obligated to, treat any cancellation of an accepted order as an authorized return.

**8. Force Majeure.** Seller will have no liability for any breach caused by extreme weather or other act of God, strike or other labor shortage or disturbance, fire, accident, war or civil disturbance, delay of carriers, failure of normal sources of supply, act of government, epidemic or other public health crisis, or any other cause beyond Seller's reasonable control.

**9. Warranty**. If the RCS System being supplied includes a Microclor® system and/or a PAX Mixer, the principal components of the Microclor® system(s) and the PAX Mixer are warranted as set forth in the applicable Warranty Attachment(s) hereto. Seller warrants that all other Products will be free from defects in material and workmanship for 12 months from initial operation or 18 months from shipment, whichever is earlier (the "Warranty Period"). Seller's warranties are conditioned on (i) the Product being stored, installed, started-up, operated and maintained in accordance with Seller's instructions; (ii) no repairs, modifications or alterations being made to the Product other than by Seller or its authorized representatives; (iii) Buyer providing prompt written notice of any warranty claims within the Warranty Period; (iv) Seller's verification of the claimed breach of warranty; and (v) at Seller's discretion, Buyer either removing and shipping the Product or non-conforming part thereof to Seller, at Buyer's expense, or Buyer granting Seller access to the Product at all reasonable times and locations to assess the warranty claims. Seller's warranties do not apply to software and do not cover ordinary wear and tear.

If the claimed breach of warranty is verified by Seller, then, as the sole and exclusive remedy of Buyer or the initial end-user of the Product, Seller will, at Seller's sole option (a) repair the applicable Product or component free of charge, or (b) replace the applicable Product or component free of charge F.O.B. Buyer's facility. The warranty on repaired or replaced Products or component parts is limited to the remainder of the original Warranty Period and otherwise subject to the terms of this warranty. Buyer shall be responsible for (x) any labor required to gain access to the Product or component or so that Seller can assess the available remedies; and (y) all costs of installation of repaired or replacement Products or components.

THE WARRANTIES SET FORTH IN THIS SECTION 9 AND IN THE WARRANTY ATTACHMENT(S) HERETO ARE INTENDED TO BE SELLER'S SOLE AND EXCLUSIVE WARRANTIES AND SELLER'S WARRANTIES ARE SUBJECT TO SECTION 10 BELOW. SELLER MAKES NO OTHER WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR PURPOSE, OR ANY WARRANTIES THAT MIGHT ARISE FROM COURSE OF DEALING OR USAGE OF TRADE. NOTWITHSTANDING THE FOREGOING, IF IT IS ALLEGED OR DETERMINED THAT SELLER HAS MADE ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BY COURSE OF DEALING OR USAGE OF TRADE, SUCH OTHER WARRANTIES SHALL BE SUBJECT TO ALL THE CONDITIONS, LIMITATIONS AND PROCEDURES SET FORTH IN THIS SECTION 9, THE WARRANTY ATTACHMENT(S) HERETO, AND SECTION 10 BELOW.

**10. LIMITATION OF LIABILITY.** NOTWITHSTANDING ANYTHING ELSE TO THE CONTRARY, SELLER WILL 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 PRODUCTS WILL NOT EXCEED THE PURCHASE PRICE PAID FOR THE PRODUCTS. THESE LIMITATIONS APPLY WHETHER THE LIABILITY IS BASED ON CONTRACT, TORT, STRICT LIABILITY OR ANY OTHER THEORY. THE REMEDIES SET FORTH IN THIS AGREEMENT ARE INTENDED TO CONSTITUTE A COMPLETE ALLOCATION OF THE RISKS BETWEEN THE PARTIES, AND BUYER ACKNOWLEDGES THAT IT IS KNOWINGLY LIMITING THE REMEDIES THAT MIGHT OTHERWISE BE AVAILABLE TO BUYER. BECAUSE THIS AGREEMENT AND THE PRICE PAID REFLECT SUCH ALLOCATION, THE REMEDIES PROVIDED TO BUYER HEREUNDER WILL NOT HAVE FAILED OF THEIR ESSENTIAL PURPOSE EVEN IF THEY OPERATE TO BAR RECOVERY FOR CERTAIN DAMAGES THAT BUYER MAY INCUR.

**11. Remedies of Seller.** Any of the following will constitute an event of default which will enable Seller, at its option and without liability to Buyer, to cancel any unexecuted portion of the order that is the subject of this Agreement and to exercise any other right or remedy expressed herein or otherwise available at law or in equity: (i) the failure of Buyer to make any payment required hereunder when due ("Payment Default") or to perform any other term or condition contained herein; (ii) the insolvency of Buyer or its failure to pay its debts as they mature, an assignment by Buyer for the benefit of its creditors, the appointment of a receiver for Buyer or for the materials covered by this Agreement, or the filing of any petition to adjudicate Buyer bankrupt; (iii) a failure by Buyer to provide adequate assurance of performance within ten days after a justified demand by Seller; or (iv) if Seller, in good faith, believes that Buyer's prospect of performance under this Agreement is impaired. Seller's obligations under Section 9 hereof and the Warranty Attachments will be suspended during the pendency of any Payment Default. No such suspension will extend Seller's obligations under Section 9 or the Warranty Attachments beyond the period provided therein. Seller's election of any remedy in the event of a default by Buyer will not preclude Seller from exercising any other remedy available to Seller hereunder or at law or in equity for the same or any other default. In the event it becomes necessary to incur any expense for collection of any overdue account, Seller's collection charges, including attorneys' fees and expenses, will be added to the balance due and Buyer will pay all such charges together with interest thereon from the date incurred in accordance with Section 3.

**12. Equal Employment Opportunity.** Seller is an equal opportunity employer. The parties shall, as applicable, abide by the requirements of 41 CFR 60-1.4(a), 41 CFR 60-300.5(a), 41 CFR 60-741.5(a) and Executive Order 13496 (29 CFR Part 471, Appendix A to Subpart A) (relating to the notice of employee rights under federal labor laws), and these laws are incorporated herein by reference.

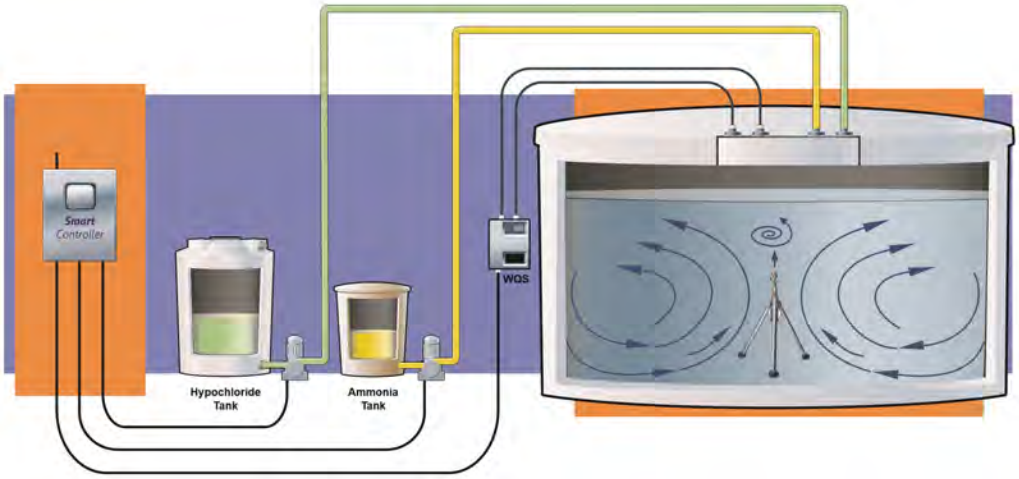
**13. Export Compliance.** Buyer acknowledges that Seller is required to comply with applicable export laws and regulations relating to the sale, exportation, transfer, assignment, disposal, and usage of the Products provided under the Agreement, including any export license requirements. Buyer agrees that such Products 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 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 WILL INDEMNIFY, DEFEND AND HOLD SELLER HARMLESS FROM ANY AND ALL COSTS, LIABILITIES, PENALTIES, SANCTIONS AND FINES RELATED TO NON-COMPLIANCE WITH APPLICABLE EXPORT LAWS AND REGULATIONS.

**14. Miscellaneous.** No part of this Agreement may be changed or cancelled except by a written document signed by Seller and Buyer. As used in this Agreement, "including" and its variants mean "including without limitation" and its variants. No course of dealing or performance, usage of trade, or failure to enforce any term will be used to modify the Agreement. Buyer acknowledges that it has not relied upon any letters of intent, agreements, promises, negotiations, statements or representations other than those expressly set forth in this Agreement and that no such extraneous document or other communication shall be of any force or effect. Buyer agrees and warrants that in entering into this Agreement, Buyer is relying solely upon the information contained in this Agreement and not in reliance upon any other information. If any of the Terms is unenforceable, such Term will be limited only to the

extent necessary to make it enforceable, and all other Terms will remain in full force and effect. Buyer may not assign this Agreement without Seller's prior written consent. This Agreement will be governed by the laws of the State of California without regard to its conflict of laws provisions. The application of the United Nations Convention on Contracts for the International Sale of Goods is excluded. Any bond issued by Seller in connection with the sale of the Products shall remain in effect for a maximum of two (2) years after acceptance of the Products, and the only warranty, guaranty or Product performance obligations covered thereby shall be those at Section 9 above and in the Warranty Attachments. All Product performance obligations of Seller are contingent on the design criteria and the condition of the influent and the raw materials being as specified by Seller and will be considered satisfied and discharged upon successful completion of the initial Product performance testing. EACH OF THE PARTIES IRREVOCABLY AND UNCONDITIONALLY WAIVES ITS RIGHT TO TRIAL BY JURY IN RESPECT OF ANY LEGAL PROCEEDING DIRECTLY OR INDIRECTLY ARISING IN CONNECTION WITH THE TRANSACTION CONTEMPLATED HEREBY.

# REQUEST FOR INFORMATION (RFI) RESPONSE

## MONOCLOR®
## RESIDUAL CONTROL SYSTEM
## FOR
## LAS VIRGENES, CA
## 1.5MG LATIGO TANK




Prepared on: May 14, 2024

SALES REPRESENTATIVE

Cleanwater1, Inc.
Kevin Sanner
550 Sycamore Dr.
Milpitas, CA 95035
Tel: (310) 975-9719
Email: ksanner@cleanwater1.com

## TABLE OF CONTENTS

# PSI WATER TECHNOLOGIES

A cleanwater1 Company

April 4, 2024

Brett Vollmar
Las Virgenes MWD, CA.

Re: Monoclor® Residual Control System for Las Virgenes MWD, CA.

Dear Brett,

Thank you for your interest in PSI Water Technologies, Inc. (PSI), a cleanwater1 company. We have prepared this RFI response regarding our Monoclor® Residual Control System (RCS).

The Monoclor® RCS is an intelligent, automated disinfectant boosting system that gives operators the ability to set and control residual levels in water storage tanks and key locations in the distribution system. The Monoclor® RCS utilizes advanced water quality sensors, powerful active mixing, an automated chemical feed system, and an advanced control algorithm to set and maintain residual levels in water storage tanks and distribution systems. The Monoclor® RCS has been tested and validated through extensive laboratory testing and hundreds of full-scale installations over the last 10 years.

Our Monoclor® RCS consists of all equipment essential for a complete system, including:

1. Accurate chemical dosing at the correct ratio.
2. Proper mixing to ensure a homogenous water body that will not stratify.
3. High energy mixing that ensures instantaneous reaction of introduced chemicals.
4. Real-time monitoring and control logic to maintain or achieve equilibrium by responding to dynamic reservoir conditions.

We look forward to working with you on this project. If we can be of any further assistance, please do not hesitate to contact me on (310) 975-9719.

Sincerely,

Kevin Sanner
Regional Sales Manager

Cc: Solomon Bruce-Oliver, PSI Water Technologies, Inc.
Raymond Kaesbauer, Cleanwater1, Inc.

## SECTION 1

## GENERAL QUESTIONS AND RESPONSES

1. **Will your trailer automatically sample the water from a tank and track the water parameters utilizing an analyzer and automatically maintain a set disinfection level that the district provides without having to operate the system in person. Also, will your trailer transmit the disinfection levels to the district to ensure proper operations and allow for trending of the operation?**

**Yes.** Below is a more precise explanation regarding the Monoclor® RCS.

The Monoclor® RCS equipment set includes a standard sample pump which continuously takes sample water from inside the reservoir and provides it to the Water Quality Station (WQS) to test the disinfectant residual levels present in the water. This water quality data is sent to the Smart Control Center (SCC), where it is compared to the desired user input setpoints and automatically adjusts accordingly using the Monoclor® RCS algorithm.

The Water Quality Station (WQS) is an all-in-one package to monitor all relevant water quality parameters (total chlorine, ORP, pH, temperature). It comes standard with redundant total chlorine probes to ensure reliability of the chlorine measurements. The algorithm uses this water quality data to precisely detect the position on the breakpoint curve based on the rate of change of chlorine residual and ORP and assesses the presence or absence of free ammonia in the water. An alarm is automatically triggered if the difference between the two chlorine sensor readings is above the user set alarm threshold. The WQS controller also performs an internal check continuously to verify performance of each probe and triggers a fault if an anomaly is detected.

All this water quality information is relayed to the SCC, which continuously monitors the water quality data from the WQS, and issues dosing commands to the Chemical Feed Skids (CFS) to maintain residual levels at the predetermined set-points. The SCC follows a fixed set of chlorine residual levels and ratios which will be keyed in during the initialization of the system. These will be the thresholds for the system dosing chemical. The algorithm uses this information to adjust the ammonia feed rate automatically depending on if it is on the left or right side of the breakpoint curve.

The SCC is made up of a control panel with an operator interface terminal (OIT) and PLC that fully supports water quality monitoring, chemical feed skid dosing, and communication with all integrated equipment to precisely add disinfectant chemicals automatically when needed.

The SCC also has the capability to transmit all process variables, status conditions, alarms, and water quality data to the utility via SCADA integration. This means that the monitoring and dosing of chemical disinfectants can be executed remotely.

**2. What is your warranty for the complete trailer?**

Equipment shall be warranted to be substantially free from defects in material and workmanship and conform to the specifications applicable to the product for 12 months from installation (with the completion of an Installation Activity Report completed by an authorized PSI representative) or 18 months from shipment, whichever occurs first.

The warranty for the Monoclor® RCS equipment is one (1) year and the PAX Mixer is five (5) years.

**3. Will your trailer send a notification when the injection product is at low levels?**

**Yes.**

The Monoclor® RCS consists of a built-in Alarm Management System that has the capability to produce an automated alert on the HMI if monitored parameters fall out of range of set-point values and has a shutdown feature that can be configured on the HMI for monitored parameters. If the chemical levels (Hypo and LAS) fall below a certain threshold (low or high level), an alarm will be triggered, and then SCADA will be notified, and the chemical dosing will be shutdown.

**4. Will your trailer send fault notifications?**

**Yes.**

For example. the Alarm Management System has the following notification capabilities:

a. Water sample flow detected through flow verification sensor from the water quality station
b. Low chlorine and ammonia chemical levels
c. Chlorine and ammonia pump failure
d. Mixer not running
e. System shutdown on the percent deviation of the total chlorine probes (2)
f. System shutdown on exceedance of high total chlorine residual
g. System shutdown on total chlorine hysteresis

All alarm statuses are available from the local HMI as well as from SCADA integration.
If cellular modem is connected to the SCC, then any alarm occurrence can be sent to the operator via email.

**5. Does your trailer have an intruder alarm or notifications?**

**Yes.**

The standard Monoclor® RCS trailer is equipped with intruder alarms for the side entry door as well as the rear ramp door, with alert or alarm notifications transmittable via SCADA communications.

**6. On average, how much time per week would need to be physically spent at the trailer making adjustments?**

Typically, weekly routine checks of the system are recommended. The routine checks generally include grabbing manual samples to confirm that the water chemistry is under control and to perform quick chlorine analyzer calibrations if necessary. This should take between fifteen (15) to thirty (30) minutes on average.

## SECTION 2

## PATENTS INFORMATION

### Monoclor® Residual Control System

The Monoclor® RCS manufactured by PSI Water Technologies (PSI), is the leading technology on the market for automated in-tank residual control. With over 100 installations and 200 years of cumulative operating time, the Monoclor® RCS has the largest install base in the U.S as well as in Southern California. The proven technology is backed by several patented and proprietary IP developed over the years by both PSI and PAX Water Technologies (PAX) engineering teams.

The patented control algorithm used by the Monoclor® RCS's enables full automated residual control to maintain desired disinfection concentration and composition despite variations in the incoming water chemistry over time due to seasonal changes or other uncontrollable factors.

The Monoclor® RCS algorithm precisely detect the position on the breakpoint curve based on the rate of change of chlorine residual and ORPs and assesses the presence or absence of free ammonia in the water. The algorithm uses that information to adjust the ammonia feed rate automatically depending if it is on the left- or right-side of the breakpoint curve. When no excess of ammonia is detected, the ammonia pump is engaged automatically at a 5:1 chlorine to ammonia ratio.

The Water Quality Station (WQS) is an all-in-one package to monitor all relevant water quality parameters (total chlorine, ORP, pH, temperature). It comes standard with redundant total chlorine probes to ensure reliability of the chlorine measurements. An alarm is automatically triggered if the difference between the two chlorine sensors readings is above a preset threshold. The WQS controller also performs an internal check continuously to verify performance of each probe and triggers a fault if an anomaly is detected.

The Chemical Feed Skid systems are designed, assembled, and tested at the PSI factory. The skids have all the required instrumentations, such as pressure gauges, chemical level sensors, calibration columns and pressure relief valves.

The various sub-systems (WQS, Chemical Feed Skids (CFS), and mixer) communicate directly with the Smart Control Center via a single serial cable. No additional wiring is involved during the installation.

**Alarms and safeguards of the Monoclor RCS® system**

The Smart Control Center (SCC) has an extensive built-in alarm management system. It automatically shuts down the dosing pump(s) when critical alarms occur. An operator can configure alarm thresholds and acknowledge alarms directly via the HMI screen on the SCC. Alarm notifications by email or SMS are also available with the optional telemetry package.

In addition to the alarm management system, the SCC has multiple fail-safe in place. The WQS uses redundant chlorine sensors to ensure reliability of the chlorine measurements used by the Monoclor® RCS. This allows operators to set up an alarm tracking the difference between the two sensor measurements.

The SCC also continuously monitors the status of the active mixer and stops the dosing pump immediately if the mixer is turned off. Internal communication errors with sub- systems will also stop the dosing pumps until the error is resolved.

**PAX Mixer - built-in mixer safeguards and/or protection.**

The mixer Control Center is installed with a safety disconnect switch. The VFD monitors the mixer operation and triggers a fault if abnormal conditions are detected. For instance, the Control Center will shut down the mixer automatically when the water level is too low, and the mixer is spinning in air rather than water. This automatic shutdown prevents damage to the motor, which is designed to be submerged in water.

The Smart Control Center monitors the mixer status continuously to make sure the mixer is properly running when chemical dosing pumps are engaged. In the case of a mixer failure to run or if there is an internal fault with the mixer, the Smart Control Center will also trigger an alarm to the operator.

PAX Mixers are also equipped with the following:

- GFCI-Protection:115/230VAC, single-phase, with a 300 mA trip level GFCI
- Branch Circuit Protection: Panel equipped with a 115/230VAC 20-Amp main breaker

# PSI WATER TECHNOLOGIES

A cleanwater1 Company

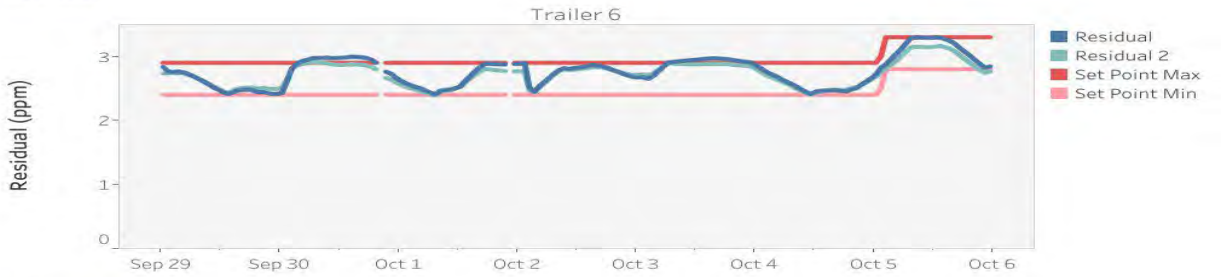
## MONOCLOR RCS® DAILY REPORT EXAMPLE

(Last 24 hours) 10/5/2020 7 AM to 10/6/2020 6 AM

| | Residual Control | Sample flow | Mixer | Telemetry | Chemical usage (gallons) Chlorine | Ammonia |
|---|---|---|---|---|---|---|
| Trailer 6 | ✓ | ✓ 8.6 gph | ✓ | ✓ | 9.9 | 2.4 |

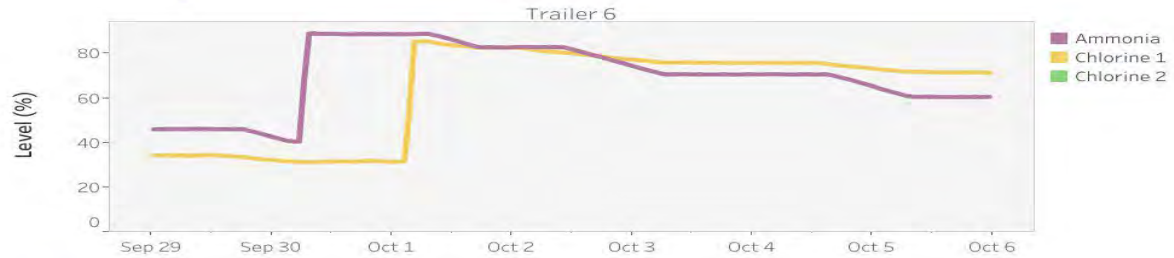
(Last 7 days) 9/29/2020 7 AM to 10/6/2020 6 AM

Residual




Chemical Feed

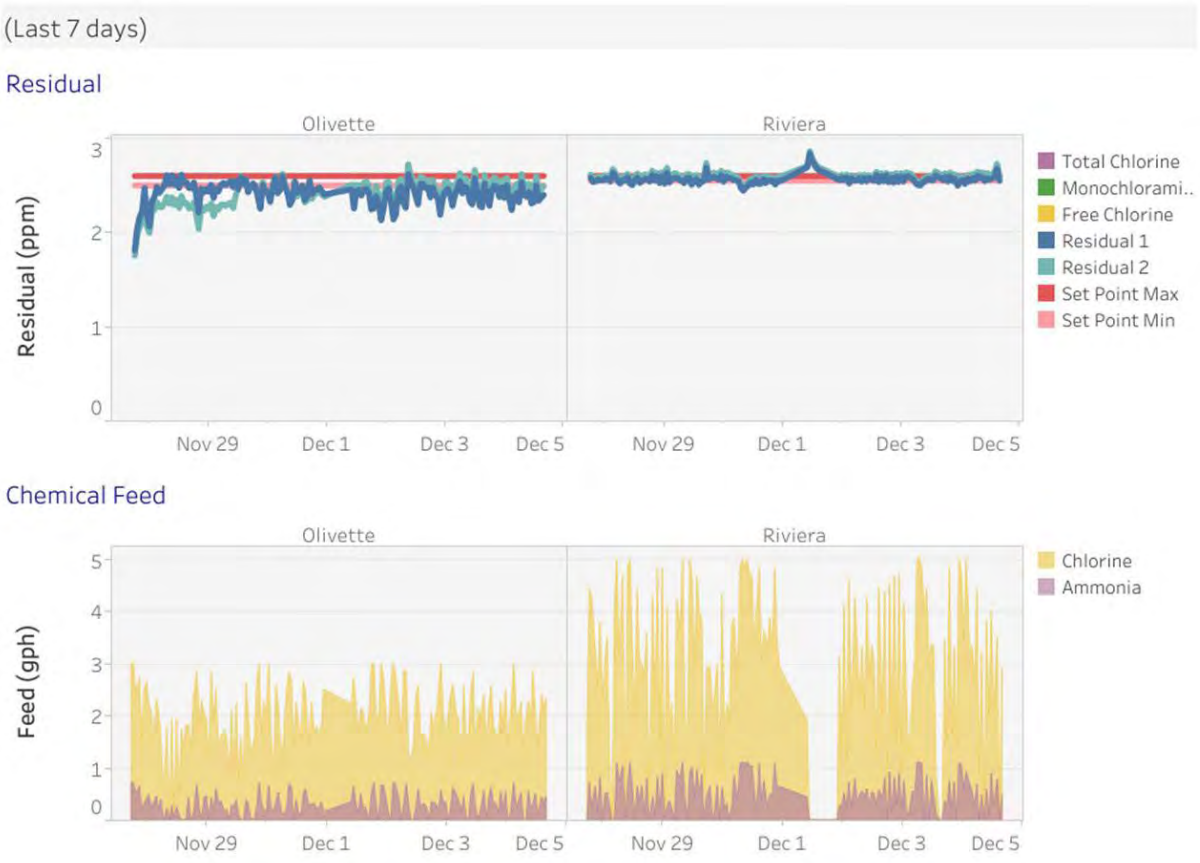

Chemical Storage




ORP/pH


Chemical Usage

| | Trailer 6 |
|---|---|
| Chlorine | 77.8 gallons |
| Ammonia | 16.2 gallons |
| Pump Usage (%) | 44% |




**MONOCLOR RCS® PATENTS:**

PSI has patented three different control algorithms for use in our residual control technology. The decision as to which algorithm to use is based on the specific water quality requirements of a given application. The patented control algorithms used by the Monoclor® RCS enables fully automated residual control to maintain desired disinfection concentration and composition despite variations in the incoming water chemistry over time, whether due to seasonal changes or other uncontrollable factors.

The Monoclor® RCS algorithm we most commonly employ precisely determines the water quality in the tank and then automatically and continually determines the position of the residual on the breakpoint curve based on the average rate of change in chlorine residual and average rate of change in oxidation-reduction potential (ORP), which effectively assesses the presence or absence of free ammonia in the water. The algorithm uses that information to determine whether and which chemicals need to be injected into the water and then automatically adjusts the feed rate depending on whether the chlorine residual is on the left- or right-side of the breakpoint curve. The algorithm may dose chlorine only, or chlorine and ammonia at a 5:1 chlorine to ammonia ratio. By basing the dosing regimen on the average rate of change in chlorine and ORP, the algorithm minimizes the fluctuations in the residual around the targeted set point.

As noted above, PSI has patents on three different control algorithms, including the algorithm described above. To assist with your understanding of our control logic, I have included a description of all three patents below:

• U.S. Patent No. 10,766,796 – provides a system and method for automatically controlling chloramine concentrations in a water storage tank by dosing chlorine or both chlorine and ammonia into the tank based upon the chloramine concentration level in the tank after initially dosing only chlorine or both chlorine and ammonia.

• U.S. Patent No. 10,800,685 – provides a system and method for automatically controlling chloramine concentrations in a water storage tank by dosing chlorine or both chlorine and ammonia into the tank based upon the average rate of change in chloramine concentration after initially dosing only chlorine or both chlorine and ammonia into the tank.

• U.S. Patent No. 10,836,659 – provides a system and method for automatically controlling chloramine concentrations in a water storage tank by dosing chlorine or both chlorine and ammonia into the tank based upon the average rate of change in ORP after initially dosing only chlorine or both chlorine and ammonia into the tank. It also provides a system and a method for automatically controlling chloramine concentrations in a water storage tank by dosing chlorine or both chlorine and ammonia into the tank based on an average rate of change in total chlorine concentration and/or an average rate of change in ORP, as determined from two or more water samples taken from the tank at different times.

## SECTION 3

## PROCESS DESCRIPTION

## Monoclor® Residual Control System

A. Process Description
B. Major System Components
C. Mixing Philosophy

## A. BACKGROUND

Chloramines were initially used in water treatment for taste and odor control. However, it was soon recognized that chloramines were also more stable than free chlorine in the distribution system and consequently were found to be effective for controlling bacterial regrowth. In distribution systems, the disinfectant level against pathogens, or residual life, with chloramines was longer than that with chlorine. This reduced the need for chlorine booster additions in extended systems.

Due to concern over chlorinated organics (e.g., THM and HAA) in water treatment and distribution systems, many water utilities are converting to use of chloramines for disinfection in their distribution networks. Formation of these disinfection byproducts (DBP) occurs less frequently with chloramines, which is a weak oxidizer, than with a stronger oxidizer like free chlorine.

As with any chemical reaction, four fundamental criteria must be met for proper control of chloramines. Accurate dosing is necessary to ensure that the reactants, in this case ammonia and chlorine, are maintained at the correct ratio. Complete mixing keeps the reactor, or body of water, homogeneous and eliminates any stratification. High-energy mixing is used to instantaneously react chemicals upon introduction. Real-time monitoring and control logic sustains or achieves equilibrium by responding to dynamic environmental (e.g. reservoir) conditions. It is for this last reason that optimal chloramine management is challenging.

The ratio of 5:1 $Cl_2$ to $NH_3$-N is ideal for the formation of *mono*-chloramine, the only chloramine compound which is desirable in water treatment systems. A lack of available chlorine will cause excess ammonia, resulting in nitrification complications as ammonia is a nutrient. Dosing excess chlorine will result in formation of the d*i*-chloramine and *tri*-chloramine variants, which can cause significant taste and odor issues. The chloramine breakpoint curve shown in Figure 1 illustrates this relationship between the mono-chloramine concentration and the $Cl_2$ to $NH_3$-N dosing ratio.

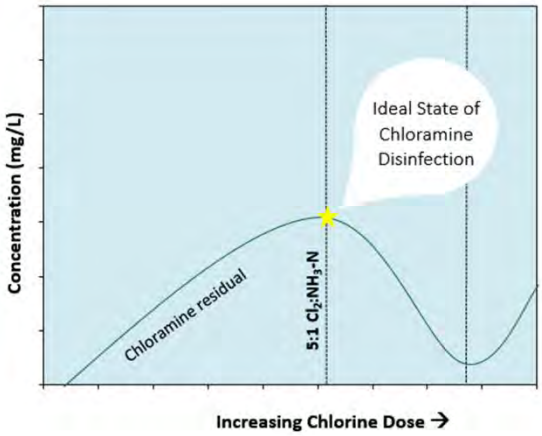


**Figure.** The chloramine breakpoint curves shows that with very low chlorine residuals, nitrification issues will occur, and with very high chlorine residual, *di-* and *tri*-chloramines are formed, resulting in a lower concentration of the desirable *mono*-chloramine.

Control of chloramines is further complicated by environmental factors including pH and temperature. Designed for control, monitoring, and sampling to provide optimum *mono*-chloramine levels, the Monoclor® RCS removes the guesswork and adds ease to disinfectant residual management.

## B. PROCESS DESCRIPTION

The Monoclor® RCS is an automated system for controlling disinfectant residual in finished drinking water storage tanks and reservoirs. The system can work for both chlorinated and chloraminated water systems. The Monoclor® RCS is designed to continuously monitor the disinfectant level and precisely dose chemicals (such as chlorine and ammonia) in order to achieve a process objective, such as to control and maintain a disinfectant concentration target.

The Monoclor® RCS delivers increased stability and control of residual disinfectant by combining the powerful mixing action of the PAX mixer and an advanced control algorithm to monitor and automatically dose an appropriate amount of disinfectant. The combination of a powerful mixer, are the proprietary control algorithm developed and extensively validated in the PAX Water R&D Laboratory, together with results from full-scale installations, ensure reliable and consistent performance of the disinfectant control system.

Figure 2 shows a general layout of the Monoclor® RCS process for a drinking water storage tank. The Monoclor® RCS process is accomplished by:

1. Real-time monitoring of multiple water quality parameters, such as disinfectant level
2. Computing chemical dosage and pumping requirements to achieve process objective(s)
3. Chemical dosing using pump and injection systems

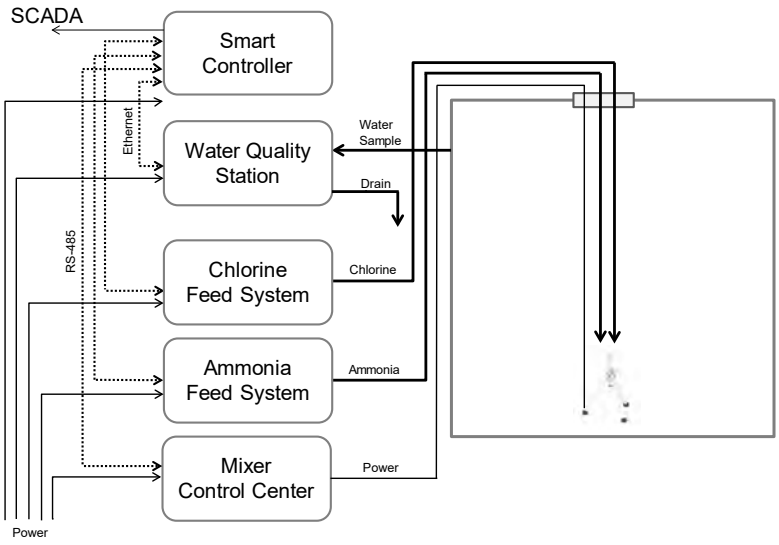



**Figure 2.** Monoclor® RCS Process Schematic for Chloraminated Water

## C. MAJOR SYSTEM COMPONENTS

### 1. Water Quality Station™

The Water Quality Station™ (WQS) is an advanced water chemistry measurement system that precisely and continuously samples and measures the disinfectant chemistry inside a water tank or pipe. The WQS utilizes a set of sensors that measure the temperature, pH, Oxidation-Reduction Potential (ORP), total chlorine and, if the WQS is used for a storage tank, the water level. These measurements are displayed in real time on the Human-Machine Interface (HMI) display and are continuously logged onto a USB flash drive for analysis.

### 2. Smart Control Center

The Smart Control Center (SCC) is the "brain" of the Monoclor® RCS. The SCC is a controller, monitor and data acquisition system all in one. By having an intuitive and user-friendly interface, the SCC menu allows the operator to program a set point for the disinfection level (monochloramine or free chlorine) and continuously monitors the water quality data from the WQS. When disinfectant levels fall below the set point, the SCC commands the chemical feed skids to precisely add disinfectant to maintain uniform and consistent water quality inside the tank.

As the WQS is continuously monitoring water quality and providing real-time feedback to the SCC, the SCC is not only displaying the feedback for anyone to observe, but also logging data from up to 24 operator-chosen outputs to an SD card inside the controller. This allows water system operators and managers to collect data on the quality of the

water within the system for any duration of time from minutes to years. These data sets will allow utilities to evaluate day to day operations, react to unexpected changes in water chemistry and observe the effects of treatment plant changes on distribution system water quality. The system also has an extensive Alarm Management System built into the software that will alert the user of irregularities within the system and produce an automated response, from an alert on the screen to system shut down, in order to ensure safe operating conditions.

## 3. Chemical Feed System

The Chemical Feed System is designed with the necessary components to safely and precisely inject disinfectant (ammonia and/or chlorine) into potable water. The Chemical Feed System provides power connections to the chemical dosing pump via an analog and/or digital signal or a direct 110V outlet activated by the Smart Control Center. The Chemical Feed System also monitors the pump and provides feedback to the Smart Control Center. Based on this feedback, the Smart Control Center can activate any alarms and system response that are included in the extensive Alarm Management System.

## 4. PWM400 Mixing System

The PWM400 Mixer is an active, submersible mixing system for cost effective management of drinking water quality in storage tanks and reservoirs. The PSI Water Mixer rapidly and completely mixes disinfectant chemicals into the entire volume of water in the tank, enabling rapid homogenization and maximum water quality stability and reliability. Efficient and effective mixing of large volumes is made possible by the patented geometry which establishes a stable flow structure throughout the storage volume.

## 5. Chemical Storage Tanks

Hypochlorite and liquid ammonium sulfate storage tanks are sized for project requirements. An ultrasonic level transmitter or pressure transducer continuously monitors the liquid level in the hypochlorite tank, Fill, supply, drain, overflow, and vent piping connections are typically included in the hypochlorite tank design. The liquid ammonium sulfate tank design includes supply and drain connections. Top access is provided to facilitate inspection of both tanks.

## D. MIXING PHILOSOPHY

### 1. Improved Water Quality Without Pumps, within the Reservoir

The deployment of the PAX mixer is inherent to the Monoclor® Residual Control System. The upward rotational flow characteristics produced by the mixing system improve several water attributes. Complete mixing of the reservoir removes any isolation sections that could be subject to freezing. Moving cold water from the bottom of the reservoir upward to blend with the warm water at the top eliminates thermal stratification.

### 2. Safe and Simple Installation

Deploying a PAX mixer can easily be done in a few hours. The simple construction minimizes the amount of on-site assembly required. After the tubing and tether connections are made, the unit is lowered into the reservoir through the hatch without the use of boats, divers, or confined space entry. By running the tubing up the hatch for connection to the supply lines, the need for making any penetrations in the reservoir wall is eliminated.

### 3. Minimum Installation Cost and Time

Most parts for the Monoclor® RCS are inventoried at the factory or can be quickly shipped by our vendors, reducing lead times. The design of the integrated Monoclor® RCS and PAX mixer systems allows for quick and straightforward installation, with minimum time and cost. Hypochlorite, ammonia, sampling, and electrical connections are all predetermined and are clearly indicated.

## SECTION 4

### O&M MANUALS

### Monoclor® Residual Control System

1. Smart Control Center (SCC) SCADA Integration Manual
2. SCC O&M Manual
3. WQS O&M Manual
4. Chemical Feed Skids O&M Manual
5. Mixer O&M Manual

PSI Water Technologies
A UGSI SOLUTIONS COMPANY

# Monoclor® Residual Control System (RCS)

## Smart Control Center (SCC)

SCADA Integration via Modbus

# Contents

# 1. Monoclor® RCS Overview

The Monoclor® Residual Control System (RCS) is a smart and automated disinfectant residual boosting system for drinking water storage tanks and key locations in the water distribution system. Using advanced water quality sensors, powerful active mixing and an automated chemical feed system, RCS continuously monitors disinfectant levels and precisely doses secondary disinfectant chemicals (chlorine and/or ammonia) to achieve a process objective. RCS can be utilized for chlorinated and chlorinated water systems.

Example of typical components of RCS are shown in Figures 1-2.

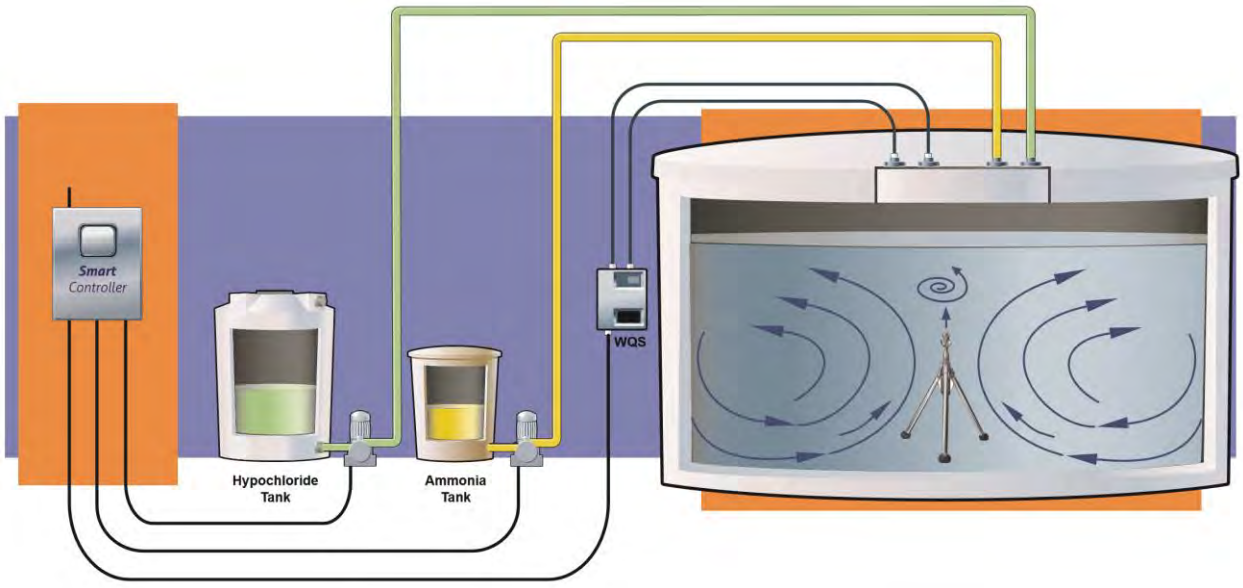



Figure 1 : Reservoir Control System (Monoclor® RCS)

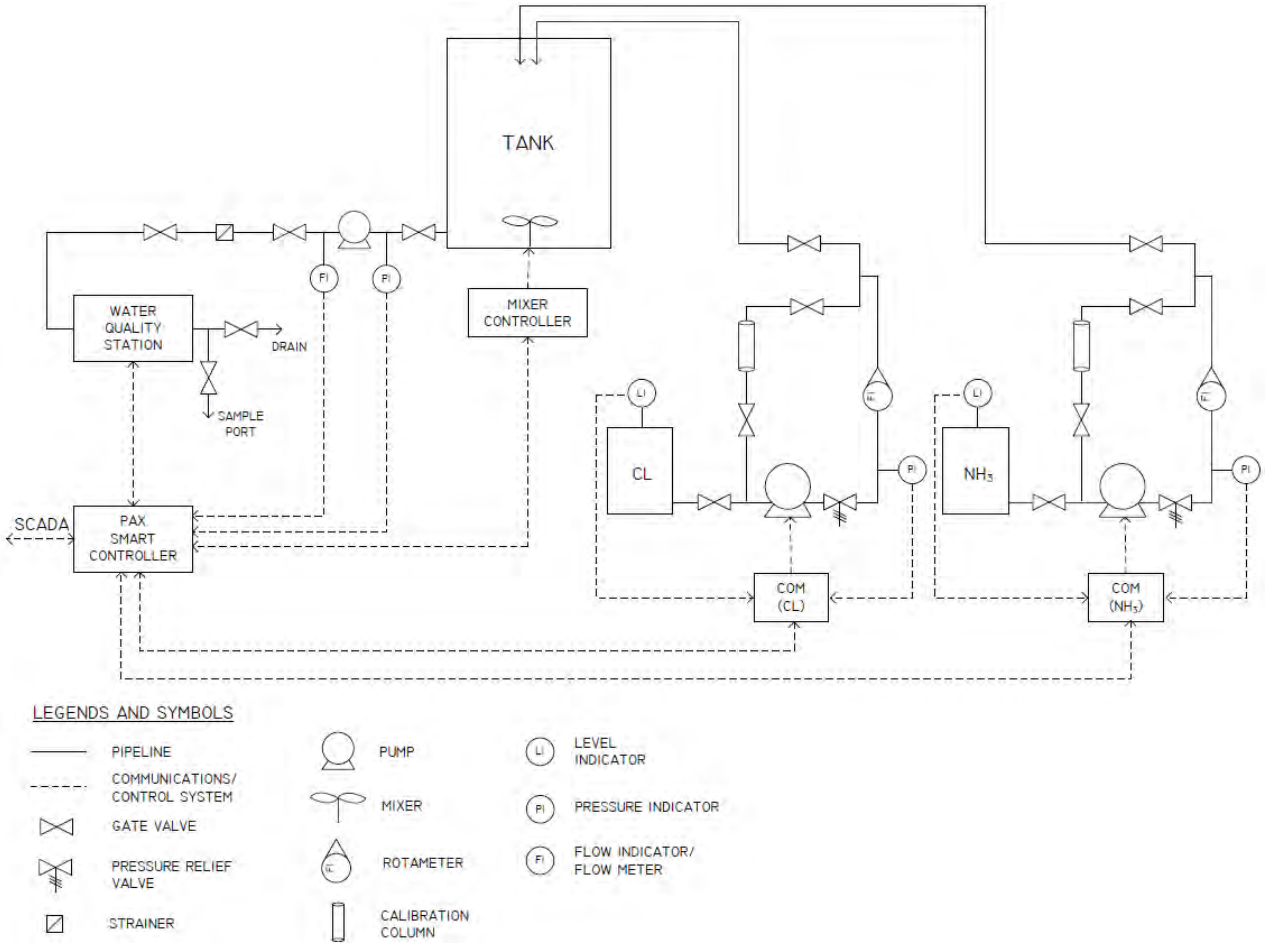



**Figure 2: Example of typical P&ID**

# 2. Modbus Communication

The Smart Control Center (SCC) comes with Modbus Client that enables a Modbus Server to read and write multiple data registers “from” and “to” the SCC. It can transmit process variables, process states and alarms to a SCADA system. It can also receive commands to change parameters, such as set-point, directly from the SCADA system.

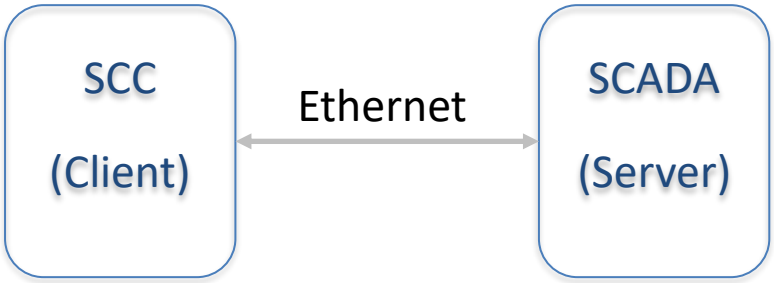



Figure 2: SCC Modbus communication with SCADA

### 2.1.1 TCP/IP Communication settings

The SCC uses the local host port “502” to communicate to the Modbus Server over TCP/IP.

### 2.1.2 IP address

The RCS requires provision for up to 4 IP addresses. The default IP addresses shown in the table below can be changed to match the local network subnet where it is installed.

| Equipment | Default IP address |
|---|---|
| **Programable Logic Controller (PLC)** | 10.25.248.100 |
| **Human Machine Interface (HMI)** | 10.25.248.101 |
| **Water Quality Station (WQS)** | 10.25.248.102 |
| **Default Gateway (Modem)** | 10.25.248.10 |
| **Subnet Mask** | 255.255.255.0 |

# 3. Variable Tables

This section *summarizes* the variables available to the SCADA system via the Modbus Server communication. The detail description of each variable is presented in the next section.

## 3.1 Process Variables (Integer, Read)

| Variables | Units | Modbus Address | Data Address Value Ranges (implied decimal place) |
|---|---|---|---|
| Free running counter to SCADA | ~ | 40140 | 0-9999 |
| Reservoir Total Chlorine 1 | ppm (x100) | 40141 | 0-2000 (0-20.00) |
| Reservoir Total Chlorine 2 | ppm (x100) | 40142 | 0-2000 (0-20.00) |
| Reservoir ORP | mV (x1) | 40143 | 0-9999 (0-9999) |
| Reservoir pH | ~ (x100) | 40144 | 0-1400 (0-14.00) |
| Sample Temperature | °F (x100) | 40145 | 3300-11300 (33.00 - 113.00) |
| Sample Flow | gal/hr (x10) | 40146 | 0-390 (0-39.0) |
| Hypo Tank Level | % (x10) | 40147 | 0-1000 (0-100.0) |
| Hypo Pump 1 Pressure | psi (x10) | 40148 | 0-1000 (0-100.0) |
| Hypo Pump 2 Pressure | psi (x10) | 40149 | 0-1000 (0-100.0) |
| NH3 Tank Level | % (x10) | 40150 | 0-1000 (0-100.0) |
| NH3 Pump 1 Pressure | psi (x10) | 40151 | 0-1000 (0-100.0) |
| NH3 Pump 2 Pressure | psi (x10) | 40152 | 0-1000 (0-100.0) |
| Tank Shark 1 Flow | gpm (x10) | 40153 | 0-1250 (0-125.0) |
| Tank Shark 1 Pressure | psi (x10) | 40154 | 0-1000 (0-100.0) |
| Tank Shark 2 Flow | gpm (x10) | 40155 | 0-1250 (0-125.0) |
| Tank Shark 2 Pressure | psi (x10) | 40156 | 0-1000 (0-100.0) |
| Mixer 1 Speed | RPM (x1) | 40157 | 0-3450 |
| Mixer 1 Current | A (x100) | 40158 | 0-9999 (0-99.99) |
| Mixer 2 Speed | RPM (x1) | 40159 | 0-3450 |
| Mixer 2 Current | A (x100) | 40160 | 0-9999 (0-99.99) |
| PowerVent 1 Speed | RPM (x1) | 40161 | 0-3450 |
| PowerVent 1 Current | A (x100) | 40162 | 0-9999 (0-99.99) |
| PowerVent 2 Speed | RPM (x1) | 40163 | 0-3450 |
| PowerVent 2 Current | A (x100) | 40164 | 0-9999 (0-99.99) |
| Chlorine Residual Setpoint Min | ppm (x100) | 40165 | 0-500 (0-5.00) |
| Chlorine Residual Setpoint Max | ppm (x100) | 40166 | 0-500 (0-5.00) |
| Chlorine to Ammonia Ratio Mono | ~ (x100) | 40167 | 0-2000 (0-20.00) |
| Chlorine to Ammonia Ratio Di | ~ (x100) | 40168 | 0-2000 (0-20.00) |
| Chlorine Feed Rate Regular SP | gal/hr (x100) | 40169 | 0-99999 (0-999.99) |
| Chlorine Feed Rate Fast SP | gal/hr (x100) | 40170 | 0-99999 (0-999.99) |
| Hypo Pump 1 Feed Rate | gal/hr (x100) | 40171 | 0-99999 (0-999.99) |
| Hypo Pump 1 Speed | % (x10) | 40172 | 0-1000 (0-100.0) |
| NH3 Pump 1 Feed Rate | gal/hr (x100) | 40173 | 0-99999 (0-999.99) |
| NH3 Pump 1 Speed | % (x10) | 40174 | 0-1000 (0-100.0) |

| | | | |
|---|---|---|---|
| Hypo Pump 2 Feed Rate | gal/hr (x100) | 40175 | 0-99999 (0-999.99) |
| Hypo Pump 2 Speed | % (x10) | 40176 | 0-1000 (0-100.0) |
| NH3 Pump 2 Feed Rate | gal/hr (x100) | 40177 | 0-99999 (0-999.99) |
| NH3 Pump 2 Speed | % (x10) | 40178 | 0-1000 (0-100.0) |

## 3.2 Process States (Integer, Read)

| Variables | Modbus Address | Notes |
|---|---|---|
| Dosing Mode | 40180 | 0=Disabled, 1=Basic, 2=Basic+ |
| Free or Monochloramine | 40181 | 0=Monochloramine, 1=Free Chlorine |
| NHS Dosing Mode | 40182 | 0=No NH3 (Cl Only), 1=NH3 Dichloramine, 2=NH3 All Regimes |
| Regime | 40183 | 0=Monochloramine, 1=Dichloramine, 2=Free Chlorine |
| Hypo Pump 1 Status | 40184 | 0=Stopped, 1=Running, 2=Failed |
| Hypo Pump 1 HOA | 40185 | 0=Off, 1=Hand, 2=Auto |
| Hypo Pump 2 Status | 40186 | 0=Stopped, 1=Running, 2=Failed |
| Hypo Pump 2 HOA | 40187 | 0=Off, 1=Hand, 2=Auto |
| NH3 Pump 1 Status | 40188 | 0=Stopped, 1=Running, 2=Failed |
| NH3 Pump 1 HOA | 40189 | 0=Off, 1=Hand, 2=Auto |
| NH3 Pump 2 Status | 40190 | 0=Stopped, 1=Running, 2=Failed |
| NH3 Pump 2 HOA | 40191 | 0=Off, 1=Hand, 2=Auto |
| Tank Shark 1 Status | 40192 | 0=Stopped, 1=Running, 2=Failed |
| Tank Shark 1 HOA | 40193 | 0=Off, 1=Hand, 2=Auto |
| Tank Shark 2 Status | 40194 | 0=Stopped, 1=Running, 2=Failed |
| Tank Shark 2 HOA | 40195 | 0=Off, 1=Hand, 2=Auto |
| Mixer 1 Status | 40196 | 0=Stopped, 1=Running, 2=Failed |
| Mixer 1 HOA | 40197 | 0=Off, 1=Hand, 2=Auto |
| Mixer 2 Status | 40198 | 0=Stopped, 1=Running, 2=Failed |
| Mixer 2 HOA | 40199 | 0=Off, 1=Hand, 2=Auto |
| PowerVent 1 Status | 40200 | 0=Stopped, 1=Running, 2=Failed |
| PowerVent 1 HOA | 40201 | 0=Off, 1=Hand, 2=Auto |
| PowerVent 2 Status | 40202 | 0=Stopped, 1=Running, 2=Failed |
| PowerVent 2 HOA | 40203 | 0=Off, 1=Hand, 2=Auto |

## 3.3 Digital Input States (Bool, Read)

| Variables | Modbus Address | Notes |
|---|---|---|
| not used | 40204.00 | |
| Hypo Tank Leak Sensor | 40204.01 | |
| Hypo Pump 1 Leak Sensor | 40204.02 | |
| Hypo Pump 1 Flow Switch | 40204.03 | |
| Hypo Pump 1 Running | 40204.04 | |
| Hypo Pump 1 Faulted | 40204.05 | |
| Hypo Pump 2 Leak Sensor | 40204.06 | |
| Hypo Pump 2 Flow Switch | 40204.07 | |
| Hypo Pump 2 Running | 40204.08 | |
| Hypo Pump 2 Faulted | 40204.09 | |
| NH3 Tank Leak Sensor | 40204.10 | |
| NH3 Pump 1 Leak Sensor | 40204.11 | |
| NH3 Pump 1 Flow Switch | 40204.12 | |
| NH3 Pump 1 Running | 40204.13 | |
| NH3 Pump 1 Faulted | 40204.14 | |
| NH3 Pump 2 Leak Sensor | 40204.15 | |
| NH3 Pump 2 Flow Switch | 40205.00 | |
| NH3 Pump 2 Running | 40205.01 | |
| NH3 Pump 2 Faulted | 40205.02 | |
| Mixer 1 Running | 40205.03 | |
| Mixer 1 Faulted | 40205.04 | |
| Mixer 2 Running | 40205.05 | |
| Mixer 2 Faulted | 40205.06 | |
| Booster Pump 1 Running | 40205.07 | |
| Booster Pump 1 Faulted | 40205.08 | |
| Booster Pump 2 Running | 40205.09 | |
| Booster Pump 2 Faulted | 40205.10 | |
| PowerVent 1 Running | 40205.11 | |
| PowerVent 1 Faulted | 40205.12 | |
| PowerVent 2 Running | 40205.13 | |
| PowerVent 2 Faulted | 40205.14 | |
| Tank/Reservoir General Leak Sensor | 40205.15 | |
| Total Cl2 1 Fault | 40206.00 | |
| Total Cl2 2 Fault | 40206.01 | |

## 3.4 Digital Output States (Bool, Read)

| Variables | Modbus Address | Notes |
|---|---|---|
| not used | 40207.00 | |
| Hypo Pump 1 Run Command | 40207.01 | |
| Hypo Pump 2 Run Command | 40207.02 | |
| LAS Pump 1 Run Command | 40207.03 | |
| LAS Pump 2 Run Command | 40207.04 | |
| Mixer 1 Run Command | 40207.05 | |
| Mixer 2 Run Command | 40207.06 | |
| Booster Pump 1 Run Command | 40207.07 | |
| Booster Pump 2 Run Command | 40207.08 | |
| PowerVent 1 Run Command | 40207.09 | |
| PowerVent 2 Run Command | 40207.10 | |
| Sample Pump Run Command | 40207.11 | |

## 3.5 Remote Control (Bool/Integer, Write)

| Variables | Units | Modbus Address | Data Address Value Ranges (implied decimal place) |
|---|---|---|---|
| Remote Alarm Reset | ~ | 40135.00 | 0-1 |
| System Enable/Disable | ~ | 40135.01 | 0-1 |
| Chlorine Residual Setpoint Min | ppm (x100) | 40136 | 0-500 (0-5.00) |
| Chlorine Residual Setpoint Max | ppm (x100) | 40137 | 0-500 (0-5.00) |
| Spare | ~ | 40138 | |
| Free running counter from SCADA | ~ | 40139 | 0-9999 |

## 3.6 Alarms (Boolean, Read)

### 3.6.1 General status

| General Alarms | Modbus Address | Notes |
|---|---|---|
| System Shutdown | 40208.00 | |
| Water Quality Station Comm Fail | 40208.01 | |
| SCADA Comm Fail | 40208.02 | |
| SCADA Dosing Control "Enable/Disable", Locally Bypassed | 40208.03 | 1=Dosing Control Via SCADA, 0=Dosing Control Via Local HMI |
| SCADA Controls Dosing Min/Max Setpoints | 40208.04 | 1=SCADA Min/Max Setpoints, 0=Local HMI Min/Max Setpoints |
| Dosing in "Priming Mode" | 40208.05 | 1=Priming Mode Active, 0=Priming Mode Not Active |

### 3.6.2 General alarms

| General Alarms | Modbus Address | Notes |
|---|---|---|
| Alm: Hypo Pump 1 Comm Error | 40209.00 | |
| Alm: NH3 Pump 1 Comm Error | 40209.01 | |
| Alm: Hypo Pump 2 Comm Error | 40209.02 | |
| Alm: NH3 Pump 2 Comm Error | 40209.03 | |
| Alm: Remote IO Combo #1 Comm Error | 40209.04 | |
| Alm: Remote IO Combo #2 Comm Error | 40209.05 | |
| Alm: Remote IO Analog Input Comm Error | 40209.06 | |
| Alm: Remote IO Analog Output Comm Error | 40209.07 | |
| Alm: Remote IO Comm Error | 40209.08 | |
| Alm: Remote IO Comm Error | 40209.09 | |

### 3.6.3 Storage tank alarms

| Storage Tank Alarms | Modbus Address |
|---|---|
| Alm: Hypo Tank Level Hysteresis | 40210.06 |
| Alm: Hypo Tank Leak Sensor | 40210.07 |
| Alm: Hypo Tank Low Low | 40210.12 |
| Wrn: Hypo Tank Low | 40210.13 |
| Wrn: Hypo Tank High | 40210.14 |
| Alm: Hypo Tank High High | 40210.15 |
| Alm: NH3 Tank Level Hysteresis | 40211.06 |
| Alm: NH3 Tank Leak Sensor | 40211.07 |
| Alm: NH3 Tank Low Low | 40211.12 |
| Wrn: NH3 Tank Low | 40211.13 |
| Wrn: NH3 Tank High | 40211.14 |
| Alm: NH3 Tank High High | 40211.15 |

### 3.6.4 Diagnostic alarms

| Diagnostic Alarms | Modbus Address |
|---|---|
| Alm: Hypo Pump 1 Analog Input 1 Open Circuit | 40212.00 |
| Alm: Hypo Pump 1 Analog Input 2 Open Circuit | 40212.01 |
| Alm: NH3 Pump 1 Analog Input 1 Open Circuit | 40212.02 |
| Alm: NH3 Pump 1 Analog Input 2 Open Circuit | 40212.03 |
| Alm: Hypo Pump 2 Analog Input 1 Open Circuit | 40212.04 |
| Alm: Hypo Pump 2 Analog Input 2 Open Circuit | 40212.05 |
| Alm: NH3 Pump 2 Analog Input 1 Open Circuit | 40212.06 |
| Alm: NH3 Pump 2 Analog Input 2 Open Circuit | 40212.07 |
| Alm: IO Combo #1 Analog Input 1 Open Circuit | 40213.00 |
| Alm: IO Combo #1 Analog Input 2 Open Circuit | 40213.01 |
| Alm: IO Combo #2 Analog Input 1 Open Circuit | 40213.02 |
| Alm: IO Combo #2 Analog Input 2 Open Circuit | 40213.03 |
| Alm: Remote Analog IO Input 1 Open Circuit | 40213.04 |
| Alm: Remote Analog IO Input 2 Open Circuit | 40213.05 |
| Alm: Remote Analog IO Input 3 Open Circuit | 40213.06 |
| Alm: Remote Analog IO Input 4 Open Circuit | 40213.07 |
| Alm: Remote Analog IO Input 5 Open Circuit | 40213.08 |
| Alm: Remote Analog IO Input 6 Open Circuit | 40213.09 |
| Alm: Remote Analog IO Input 7 Open Circuit | 40213.10 |
| Alm: Remote Analog IO Input 8 Open Circuit | 40213.11 |
| Alm: IO Combo #3 Analog Input 1 Open Circuit | 40213.12 |
| Alm: IO Combo #3 Analog Input 2 Open Circuit | 40213.13 |
| Alm: IO Combo #4 Analog Input 1 Open Circuit | 40213.14 |
| Alm: IO Combo #4 Analog Input 2 Open Circuit | 40213.15 |
| Alm: PLC Analog Input 0 Open Circuit | 40214.04 |
| Alm: PLC Analog Input 1 Open Circuit | 40214.05 |
| Alm: PLC Analog Input 2 Open Circuit | 40214.06 |
| Alm: PLC Analog Input 3 Open Circuit | 40214.07 |

### 3.6.5 Dosing Pump alarms

| Dosing Pump Alarms | Modbus Address |
|---|---|
| Alm: Hypo Pump 1 Failed to Run | 40215.00 |
| Alm: Hypo Pump 1 Faulted | 40215.01 |
| Alm: Hypo Pump 1 Leak Sensor | 40215.02 |
| Alm: Hypo Pump 1 Flow Switch | 40215.03 |
| Alm: Hypo Pump 1 Pressure High High | 40215.04 |
| Wrn: Hypo Pump 1 Pressure High | 40215.05 |
| Wrn: Hypo Pump 1 Pressure Low | 40215.06 |
| Alm: Hypo Pump 1 Pressure Low Low | 40215.07 |
| Alm: NH3 Pump 1 Failed to Run | 40216.00 |
| Alm: NH3 Pump 1 Faulted | 40216.01 |
| Alm: NH3 Pump 1 Leak Sensor | 40216.02 |
| Alm: NH3 Pump 1 Flow Switch | 40216.03 |
| Alm: NH3 Pump 1 Pressure High High | 40216.04 |
| Wrn: NH3 Pump 1 Pressure High | 40216.05 |
| Wrn: NH3 Pump 1 Pressure Low | 40216.06 |
| Alm: NH3 Pump 1 Pressure Low Low | 40216.07 |
| Alm: Hypo Pump 2 Failed to Run | 40217.00 |
| Alm: Hypo Pump 2 Faulted | 40217.01 |
| Alm: Hypo Pump 2 Leak Sensor | 40217.02 |
| Alm: Hypo Pump 2 Flow Switch | 40217.03 |
| Alm: Hypo Pump 2 Pressure High High | 40217.04 |
| Wrn: Hypo Pump 2 Pressure High | 40217.05 |
| Wrn: Hypo Pump 2 Pressure Low | 40217.06 |
| Alm: Hypo Pump 2 Pressure Low Low | 40217.07 |
| Alm: NH3 Pump 2 Failed to Run | 40218.00 |
| Alm: NH3 Pump 2 Faulted | 40218.01 |
| Alm: NH3 Pump 2 Leak Sensor | 40218.02 |
| Alm: NH3 Pump 2 Flow Switch | 40218.03 |
| Alm: NH3 Pump 2 Pressure High High | 40218.04 |
| Wrn: NH3 Pump 2 Pressure High | 40218.05 |
| Wrn: NH3 Pump 2 Pressure Low | 40218.06 |
| Alm: NH3 Pump 2 Pressure Low Low | 40218.07 |

### 3.6.6 Tank Shark® alarms

| Tank Shark Alarms | Modbus Address |
|---|---|
| Alm: Booster Pump 1 Failed to Run | 40219.00 |
| Alm: Booster Pump 1 Faulted | 40219.01 |
| Alm: Tank Shark 1 Pressure High High | 40219.02 |
| Wrn: Tank Shark 1 Pressure High | 40219.03 |
| Wrn: Tank Shark 1 Pressure Low | 40219.04 |
| Alm: Tank Shark 1 Pressure Low Low | 40219.05 |
| Alm: Tank Shark 1 Flow High High | 40219.06 |
| Wrn: Tank Shark 1 Flow High | 40219.07 |
| Wrn: Tank Shark 1 Flow Low | 40219.08 |
| Alm: Tank Shark 1 Flow Low Low | 40219.09 |
| Alm: Booster Pump 2 Failed to Run | 40220.00 |
| Alm: Booster Pump 2 Faulted | 40220.01 |
| Alm: Tank Shark 2 Pressure High High | 40220.02 |
| Wrn: Tank Shark 2 Pressure High | 40220.03 |
| Wrn: Tank Shark 2 Pressure Low | 40220.04 |
| Alm: Tank Shark 2 Pressure Low Low | 40220.05 |
| Alm: Tank Shark 2 Flow High High | 40220.06 |
| Wrn: Tank Shark 2 Flow High | 40220.07 |
| Wrn: Tank Shark 2 Flow Low | 40220.08 |
| Alm: Tank Shark 2 Flow Low Low | 40220.09 |

### 3.6.7 PAX Mixer alarms

| PAX Mixer Alarms | Modbus Address |
|---|---|
| Alm: Mixer 1 Failed to Run | 40221.00 |
| Alm: Mixer 1 Faulted | 40221.01 |
| Alm: Mixer 1 Comm Fault | 40221.02 |
| Alm: Mixer 1 Current High High | 40221.03 |
| Wrn: Mixer 1 Current High | 40221.04 |
| Wrn: Mixer 1 Current Low | 40221.05 |
| Alm: Mixer 1 Current Low Low | 40221.06 |
| Alm: Mixer 2 Failed to Run | 40222.00 |
| Alm: Mixer 2 Faulted | 40222.01 |
| Alm: Mixer 2 Comm Fault | 40222.02 |
| Alm: Mixer 2 Current High High | 40222.03 |
| Wrn: Mixer 2 Current High | 40222.04 |
| Wrn: Mixer 2 Current Low | 40222.05 |
| Alm: Mixer 2 Current Low Low | 40222.06 |

### 3.6.8 PowerVent alarms

| PowerVent Alarms | Modbus Address |
|---|---|
| Alm: PowerVent 1 Failed to Run | 40223.00 |
| Alm: PowerVent 1 Faulted | 40223.01 |
| Alm: PowerVent 1 Comm Fault | 40223.02 |
| Alm: PowerVent 1 Current High High | 40223.03 |
| Wrn: PowerVent 1 Current High | 40223.04 |
| Wrn: PowerVent 1 Current Low | 40223.05 |
| Alm: PowerVent 1 Current Low Low | 40223.06 |
| Alm: PowerVent 2 Failed to Run | 40224.00 |
| Alm: PowerVent 2 Faulted | 40224.01 |
| Alm: PowerVent 2 Comm Fault | 40224.02 |
| Alm: PowerVent 2 Current High High | 40224.03 |
| Wrn: PowerVent 2 Current High | 40224.04 |
| Wrn: PowerVent 2 Current Low | 40224.05 |
| Alm: PowerVent 2 Current Low Low | 40224.06 |

### 3.6.9 Sensor Hysteresis alarms

| Sensor Hysteresis Alarms | Modbus Address |
|---|---|
| Alm: Hypo Pump 1 Pressure Hysteresis | 40225.00 |
| Alm: NH3 Pump 1 Pressure Hysteresis | 40225.01 |
| Alm: Hypo Pump 2 Pressure Hysteresis | 40225.02 |
| Alm: NH3 Pump 2 Pressure Hysteresis | 40225.03 |
| Alm: TankShark 1 Pressure Hysteresis | 40225.08 |
| Alm: TankShark 1 Pressure Hysteresis | 40225.09 |
| Alm: Mixer 1 Current Hysteresis | 40225.12 |
| Alm: Mixer 2 Current Hysteresis | 40225.13 |
| Alm: PowerVent 1 Current Hysteresis | 40226.00 |
| Alm: PowerVent 2 Current Hysteresis | 40226.01 |
| Alm: TankShark 1 Flow Hysteresis | 40226.12 |
| Alm: TankShark 1 Flow Hysteresis | 40226.13 |

### 3.6.10 Flow Switch alarms

| Flow Switch Diagnostic Alarms | Modbus Address |
|---|---|
| Alm: Hypo Pump 1 Flow Switch Failed to Reset | 40227.00 |
| Alm: NH3 Pump 1 Flow Switch Failed to Reset | 40227.01 |
| Alm: Hypo Pump 2 Flow Switch Failed to Reset | 40227.02 |
| Alm: NH3 Pump 2 Flow Switch Failed to Reset | 40227.03 |

### 3.6.11 WQS or Analyzer alarms

| Alarm | Modbus Address |
|---|---|
| Alm: Total Cl2 1 High High | 40228.00 |
| Wrn: Total Cl2 1 High | 40228.01 |
| Wrn: Total Cl2 1 Low | 40228.02 |
| Alm: Total Cl2 1 Low Low | 40228.03 |
| Alm: Total Cl2 2 High High | 40228.04 |
| Wrn: Total Cl2 2 High | 40228.05 |
| Wrn: Total Cl2 2 Low | 40228.06 |
| Alm: Total Cl2 2 Low Low | 40228.07 |
| Alm: pH High High | 40228.08 |
| Wrn: pHHigh | 40228.09 |
| Wrn: pH Low | 40228.10 |
| Alm: pH Low Low | 40228.11 |
| Alm: ORP High High | 40228.12 |
| Wrn: ORP High | 40228.13 |
| Wrn: ORP Low | 40228.14 |
| Alm: ORP Low Low | 40228.15 |
| Alm: Total Cl2 1 Hysteresis | 40229.00 |
| Alm: Total Cl2 2 Hysteresis | 40229.01 |
| Alm: pH Hysteresis | 40229.02 |
| Alm: ORP Hysteresis | 40229.03 |
| Alm: WQS Sample Flow Hysteresis | 40229.04 |
| Alm: WQS Level Hysteresis | 40229.05 |
| Alm: WQS Level Low Low | 40229.06 |
| Wrn: WQS Level Low | 40229.07 |
| Wrn: WQS Level High | 40229.08 |
| Alm: WQS Level High High | 40229.09 |
| Alm: Total Cl2 High High Deviation | 40229.10 |
| Wrn: Total Cl2 High Deviation | 40229.11 |
| Alm: Leak Sensor | 40229.12 |
| Alm: Total Cl2 1 Fault | 40230.00 |
| Alm: Total Cl2 2 Fault | 40230.01 |
| Alm: pH Fault | 40230.02 |
| Alm: ORP Fault | 40230.03 |
| Alm: WQS Sample Flow High High | 40231.00 |
| Wrn: WQS Sample Flow High | 40231.01 |
| Wrn: WQS Sample Flow Low | 40231.02 |
| Wrn: WQS Sample Flow Low Low | 40231.03 |

# Residual Control System (RCS)

## Smart Control Center (SCC)

### Operations & Maintenance Manual


PSI Water Technologies
A UGSI SOLUTIONS COMPANY

## Notices



**WARNING:** It is important that this manual be read in full prior to installation or maintenance of the Smart Control Center. No part of this manual may be reproduced in any form or by any means (including electronic storage and retrieval or translation into a foreign language) without prior agreement and written consent from PSI Water Technologies, Inc. as governed by the United States and international copyright laws.

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(408) 370-6540

### Warranty

The material contained in this Installation/Operation Manual is provided “AS IS” and “WITH ALL FAULTS” and the user understands and agrees that all express and implied warranties, including those warranties implied by the Uniform Commercial Code as enacted in the state of California, United States or such other forum as may be agreed upon by PSI and the user, are excluded with regard to this manual and any information contained herein; and PSI and the user further exclude all other implied warranties of merchantability and fitness for a particular purpose with respect to this manual. The material provided in this manual is subject to change in future editions without notice to the user.

## CONTENTS

# 1 BEFORE YOU START

## 1.1 SAFETY INFORMATION

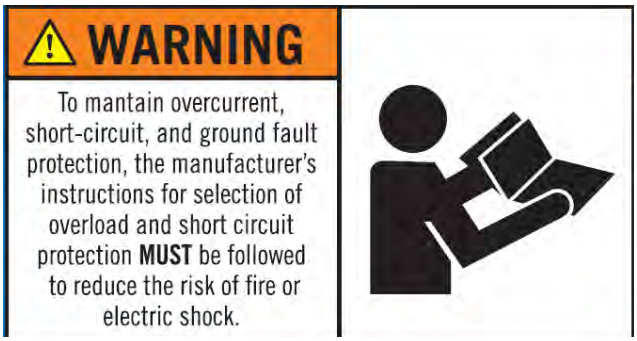
Please read and understand the following instructions and all labels fixed to the instrument before performing any procedure with this product. Failure to follow these instructions may result in death or serious injury.

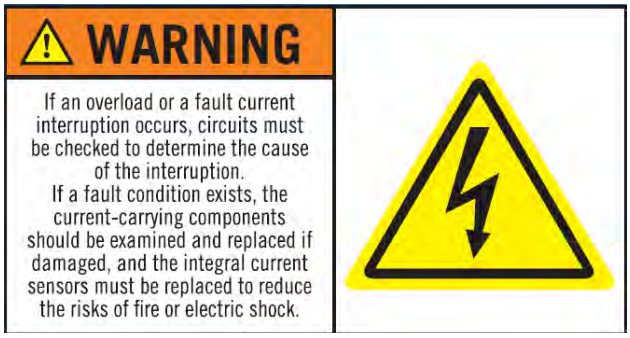
### 1.1.1 Hazard Information

**CAUTION** indicates a hazardous situation, which if not avoided, can result in minor or moderate property/equipment injury.

**WARNING** indicates an imminently hazardous situation, which if not avoided, can result in death, serious injury or equipment damage.

### 1.1.2 Precautionary Labels




## 1.2 INSTALLATION, OPERATION AND MAINTENANCE


**HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH**

- Installation, adjustment, repair and maintenance must be performed by qualified personnel.
- The user is responsible for compliance with all international and national electrical code requirements with respect to grounding of all equipment.
- Many parts of the Smart Control Center operate at the line voltage. DO NOT TOUCH. Only use

electrically insulated tools.

- DO NOT touch unshielded components or terminal strip screw connections with voltage present.
- DO NOT short across terminals.

## WARNING

**FALL**

- Fall protection is a safety requirement for work performed on water tanks. Please refer to OSHA's website for fall protection safety requirements: **http://www.osha.gov** or your relevant local authority.

## WARNING

**GENERAL DANGER**

- A confined space entry plan and operational procedures must be used for every reservoir entry. Refer to OSHA confined space requirements at their website: **http://www.osha.gov** or your relevant local authority.
- Lifting tools and equipment are required during installation. Refer to OSHA's website for more information: **http://www.osha.gov** or your relevant local authority.
- Installations performed by a diver require a dive plan that specifies equipment, procedures and safety measures used.
- Avoid dropping construction materials or tools into water tanks to prevent damage to the tank's interior coating.

### 1.3 BEFORE SERVICING THE SMART CONTROL CENTER


**HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH**

- Disconnect all power, including external control power that may be present.
- Place a “DO NOT TURN ON” label on all power disconnects.
- Lock all power disconnects in the open position.

### 1.4 UNINTENDED EQUIPMENT OPERATION

- No responsibility is assumed by PSI Water Technologies, Inc. for any consequences arising out of the use of this product.
- Do not operate or install any drive or drive accessory that appears damaged. Contact your PSI representative to resolve any damage issues.

## 2 GENERAL INFORMATION

### 2.1 PRODUCT INTRODUCTION

The Smart Control Center is the "brain" of the Residual Control System (RCS). The Smart Control Center is a microcontroller (MC), a human machine interface (HMI) monitor and data acquisition system all in one. By having an intuitive and user-friendly interface, the Smart Control Center Home screen allows the operator to program a set point for the disinfection level (monochloramine or free chlorine) and continuously monitors the water quality data from the Water Quality Station (WQS).
An integrated USB feature allows water system operators and managers to collect data on the quality of the water within the system for any duration of time from minutes to years. The Smart Control Center is SCADA integration ready.

### 2.2 INTENDED PURPOSE

The Smart Control Center is primarily intended for use in potable water. Industrial and wastewater applications use must be approved by PSI Water Technologies, Inc. before installation.

The Smart Control Center enclosure is NEMA Type 4 rated for indoor use.

The Smart Control Center must be used under the operating conditions described in this manual and is not designed or approved for any other application than what is described in this manual. In order to be in compliance with the intended use for this product, the end user must read the operation and maintenance manual and adhere to all instructions provided.

## 2.3 THEORY OF OPERATION

The Smart Control Center (SCC) monitors the operation of the Mixer, Chemical Feed Skid (CFS) and Water Quality Station (WQS). When disinfectant levels fall below the set-point, the SCC engages the CFS to precisely add disinfectant to maintain uniform and consistent residual levels inside the tank. The SCC continuously receives data from the WQS and logs it to USB storage and SCADA if integrated. These data sets allow utilities to evaluate day to day operations and react to changes in water chemistry. The system also has an Alarm Management System built into the software that will alert the user of any irregularities within the system and produce an automated response from an alert on the screen to system shut down to ensure safe operating conditions. The Alarms are also logged to a USB storage device.

## 2.4 QUALITY CONTROL STATEMENT

PSI is dedicated to supplying high-quality products that meet or exceed the needs of water customers. PSI's strict quality control and continuous improvement programs ensure the best value to customers. PSI manages its business to the highest environmental and ethical standards.

## 2.5 SPECIFICATIONS

| SMART CONTROL CENTER SPECIFICATIONS | |
|---|---|
| **HMI** | 7" LCD Touch screen |
| **Water Quality Station Communication** | RS-485 2 conductor cable (Plug and Play) |
| **CFS Controller Communication** | Quick disconnect RS-485 cable with RJ-45 Connector (Plug and Play) |
| **PAX Mixer Control Center Communication** | Single Digital/Analog Cable or quick disconnect RS-485 cable with RJ-45 Connector (Plug and Play) |
| **Data-logging** | USB flash drive |
| **Remote Monitoring System (RMS)** | RMS sends e-mail to transmit alarm and/or performance to PSI's secure server (optional) |
| **SCADA** | 2 Analog Output (0-10 V)<br>6 Digital Outputs ("Dry-Contact") |
| **Power** | Standard 100-120 VAC<br>10 Amp circuit breaker |
| **Communication** | Ethernet and Modbus TCP/IP |
| **Operating Temperature** | 35-113°F (2-45°C) |
| **Enclosure** | 24"H x 20"W x 10"D (61 cm x 51 cm x 25 cm), powder-coated carbon steel<br>Equal to or greater than Type 4R |
| **PLC** | Allen Bradley MicroLogix 1400<br>1766L32BWAA |
| **I/O** | 10 Digital Inputs,<br>6 Digital Outputs<br>4 Analog Inputs (4-20 mA)<br>2 Analog Outputs (0-10 VDC) |
| **Cell Modem** | Digi TransPort WR31 4G LTE |

# 3 UNPACKING AND INSTALLATION

Unpack the contents of your carton and verify that all the components have been received. Refer to the packing list shown in 3.1. If any items are missing or damaged, contact PSI Service Department at (888) 774-4536 or your local sales representative immediately.

## 3.1 PACKING LIST

The Smart Control Center is delivered preassembled. See table below to verify the assembly parts of the Smart Control Center.

| SMART CONTROL CENTER ASSEMBLY PARTS | |
|---|---|
| **DESCRIPTION** | **QUANTITY** |
| 1. Assembly, SCC Enclosure | 1 |
| 2. Assembly, SCC Back Plate | 1 |
| 3. Assembly, SCC Door with HMI | 1 |
| 4. HMI | 1 |
| 5. Antenna | 2 |

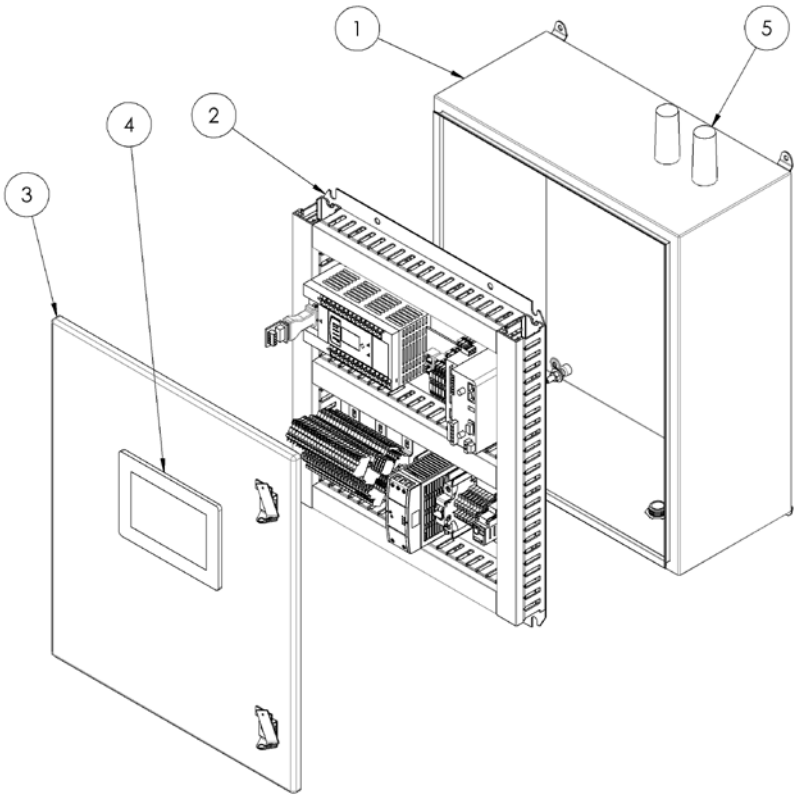



Figure 1: Smart Control Center Parts

## 3.2 INTERNAL ELECTRICAL ASSEMBLY PARTS LIST

The Smart Control Center is delivered preassembled. The following parts are included with Smart Control Center's internal electrical assembly.

| SMART CONTROL CENTER ELECTRICAL COMPONENTS | | |
|---|---|---|
| **ITEM NO.** | **DESCRIPTION** | **QTY.** |
| 1 | PLC Module | 1 |
| 2 | Terminal Break Out Board | 1 |
| 3 | Network Switch | 1 |
| 4 | Cellular Modem | 1 |
| 5 | Power Supply | 1 |
| 6 | Circuit Breaker, DC | 1 |
| 7 | Circuit Breaker, AC | 1 |
| 8 | Relay | 1 |
| 9 | RS-485/RS232 Converter | 1 |

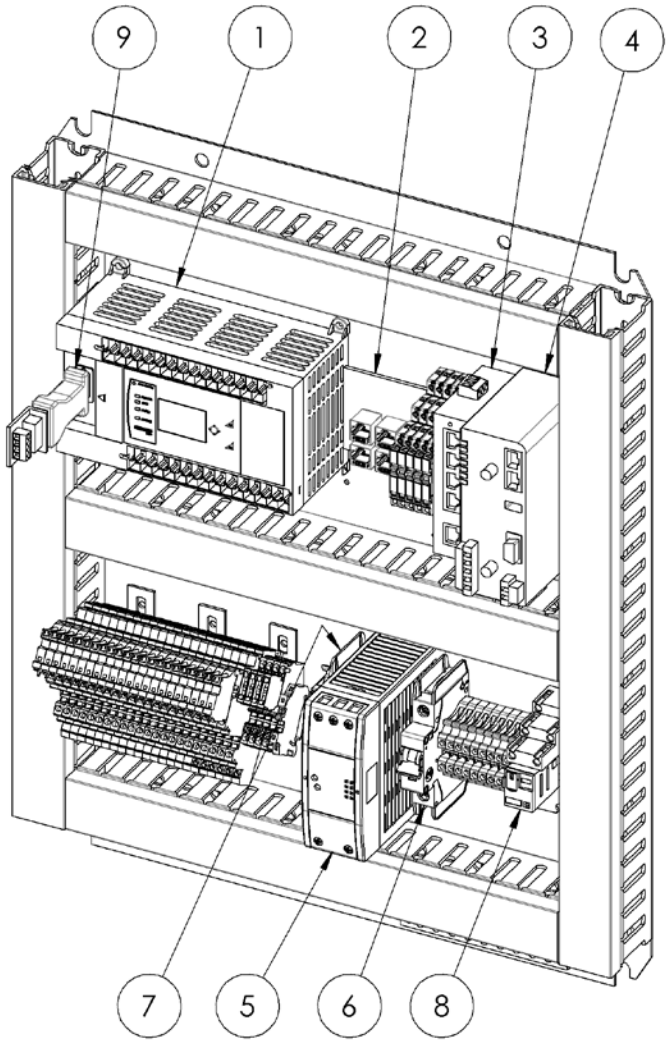



Figure 2: Smart Control Center Electrical Components

## 3.3 RECOMMENDED INSTALLATION TOOLS AND EQUIPMENT

1. Slot Head Screwdriver, 6” (5.2 cm) and 12” (30.5 cm)
2. Slot Head Screwdriver, Small Technical
3. Wire Stripper/Crimper
4. Pliers, 6” (5.2 cm)
5. Diagonal Cutter 6” (5.2 cm)
6. Multimeter (Fluke #179 or equivalent)
7. RJ 45 Crimp Tool

## 3.4 FACILITIES REQUIREMENTS

The following requirements must be provided at the installation site. This manual is not intended to cover the set-up of these facilities.

**NOTE:** Install the following items in accordance with all electrical codes, state, local and OSHA requirements.

| SMART CONTROL CENTER FACILITY REQUIREMENTS | |
|---|---|
| **REQUIREMENT** | **DESCRIPTION** |
| Line Power | 100-120 VAC, 120 Watts |
| Electrical Conduit | Use Electrical Conduit (0.75” or 20 mm) |

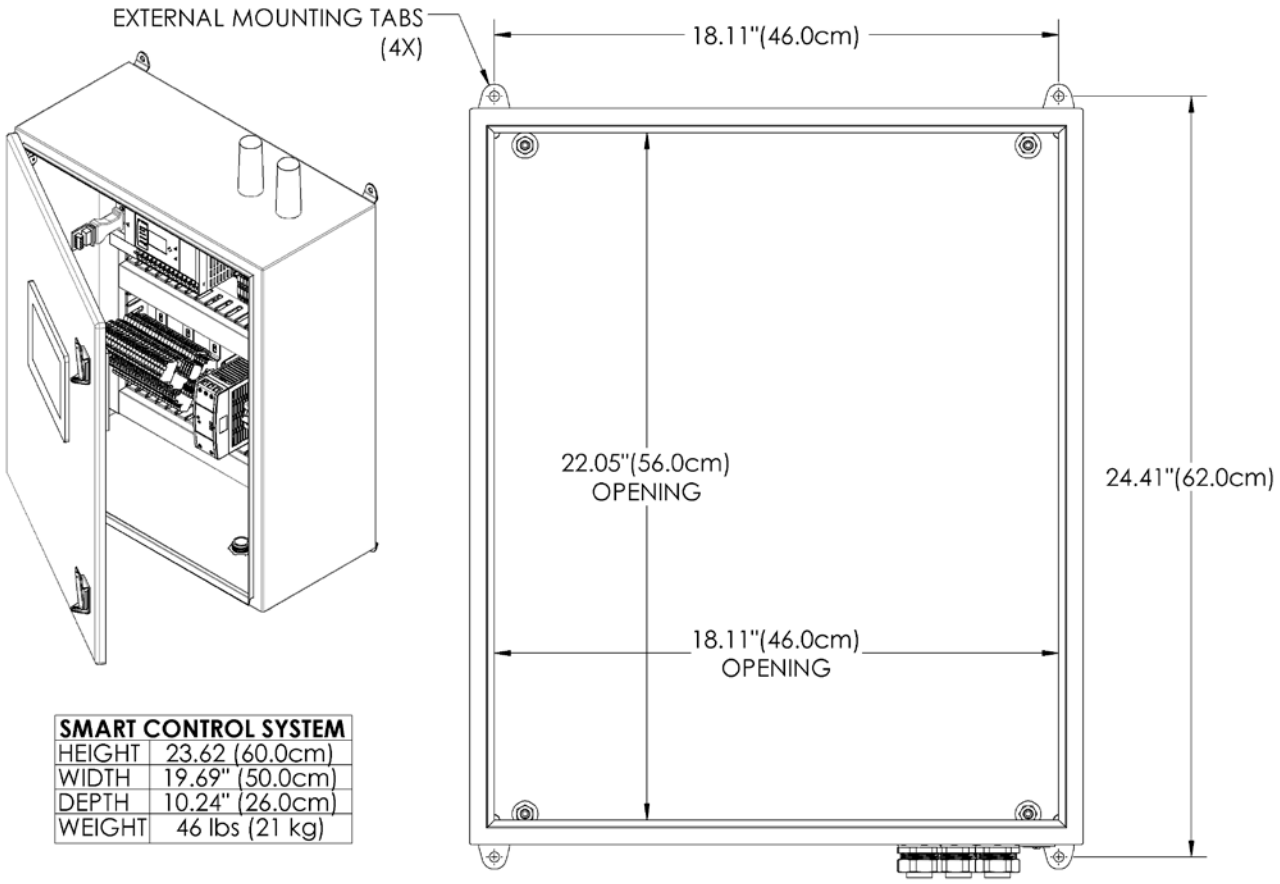
## 3.5 MOUNTING THE SMART CONTROL CENTER


**HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH**

The Smart Control Center (SCC) is supplied with mounting tabs on the enclosure. It is recommended that the SCC is installed indoors. If outdoor installation is required, please contact your sales representative. The preferred mounting surface for the SCC is a wall mount, but pole or beam mounting are acceptable if they can fully support the load of the SCC. Before beginning any portion of the install, verify the following:

1) INCOMING POWER HAS BEEN SHUT OFF.
2) The conduit for the line power and the conduits for connectivity to the Water Quality Station and Chemical Feed Skids and mixer have been sized properly.
3) The mounting location is secure from vandalism or theft, preferably inside a locked building or gated facility. The recommended side clearance is 6” (15 cm). The recommended distance from floor to bottom of the Smart Control Center is 48” (121 cm).
4) The mounting location will accept the Smart Control Center mounting hardware, such as a stud in a wall mount, a pole mount or a beam mount. A wall mount is preferable as it is the most secure.
5) The mounting location should allow access to the internal components and opening clearance for the Smart Control Center door.
6) Mount the Smart Control Center on a wall, pole or Unistrut back frame using mounting hardware. (For mounting dimensions, see Figure 3)

**NOTE:** Mounting location and hardware must be able to support 75 lbs. (34 kg) under exposed conditions.




| SMART CONTROL SYSTEM | |
|---|---|
| HEIGHT | 23.62 (60.0cm) |
| WIDTH | 19.69" (50.0cm) |
| DEPTH | 10.24" (26.0cm) |
| WEIGHT | 46 lbs (21 kg) |

Figure 3: Smart Control Center Dimensions

## 3.6 CONNECTING POWER TO THE SMART CONTROL CENTER

After mounting the Smart Control Center, connect the power by completing the steps below.

**WARNING** Make sure that all electrical and conduit connections are secure and correctly routed in accordance with all local electrical code requirements.

1) Open the Smart Control Center door.
2) Connect AC Power to Terminal Block(s)
   a. TB1 - Ground
   b. TB2 - Line 120 VAC
   c. TB3 – Neutral

**NOTE:** Install items in accordance with all electrical codes, state, local and OSHA requirements.

**NOTE:** As soon as there is power to the Smart Control Center, the HMI display will power on, displaying the home screen.

## 3.7 CONNECTING SMART CONTROL CENTER (SCC) WITH WATER QUALITY STATION (WQS) AND CHEMICAL FEED SKIDS (CFS)

### 3.7.1 Connecting the Smart Control Center to the Water Quality Station

1) Pull a 16-gauge (or smaller) twisted pair through the Electrical Conduit (0.75" or 20 mm) between the Smart Control Center (SCC) and Water Quality Station (WQS) panels.
2) Connect one end of the twisted pair to the RS-485/232 Converter on the SCC shown in Figure 4. RS-485 (MODBUS) Connection to Water Quality Station
    a. Terminate the pair on T/R+ and T/R-
3) Connect the other end of the twisted pair on the WQS Sensor PCB inside the WQS Electronic Enclosure shown in Figure 4.
    a. Terminate the pair on SDA and SDB of the available RS-485 connector

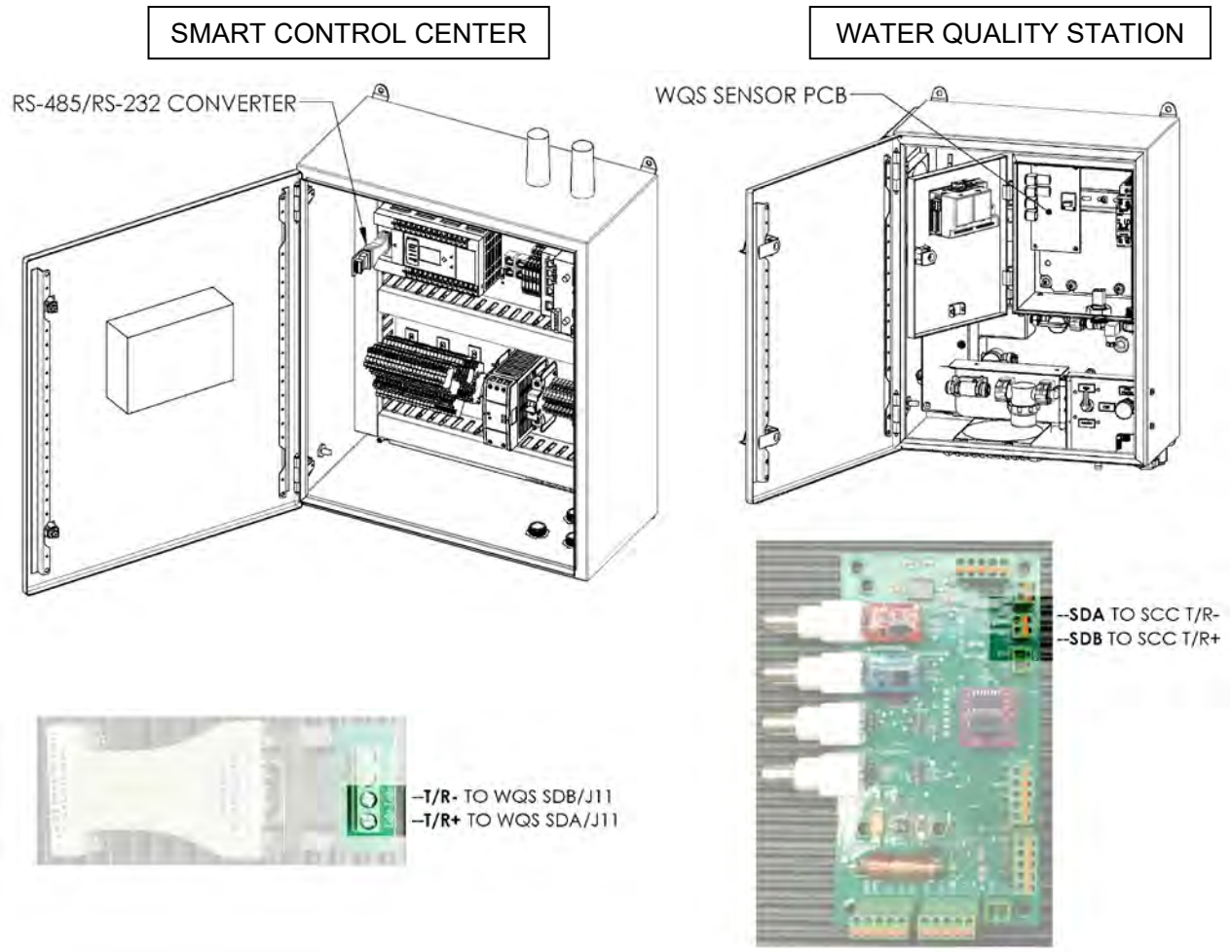



Figure 4. RS-485 (MODBUS) Connection to Water Quality Station

### 3.7.2 Connecting the Smart Control Center to the Chemical Feed Skid

1) Install electrical conduit from the Smart Control Center to a location near the Chemical Feed skid (i.e. wall) See Figure 5.
2) Pull the CAT5e cable to the Skid Modbus Controller through the electrical conduit between the SCC and the CFS.
    a. Section of Ethernet cable between the cord grip exiting the conduit and CFS will be free air (see Figure 5.)
3) Install the wash down connector and RJ-45 plug on end of CAT5e cable. Plug into Skid Modbus Controller and tighten down wash down connector
4) Crimp a RJ-45 plug onto the other end of the CAT5e cable and connect it to the Terminal Breakout Board in the SCC, shown in Figure 2.

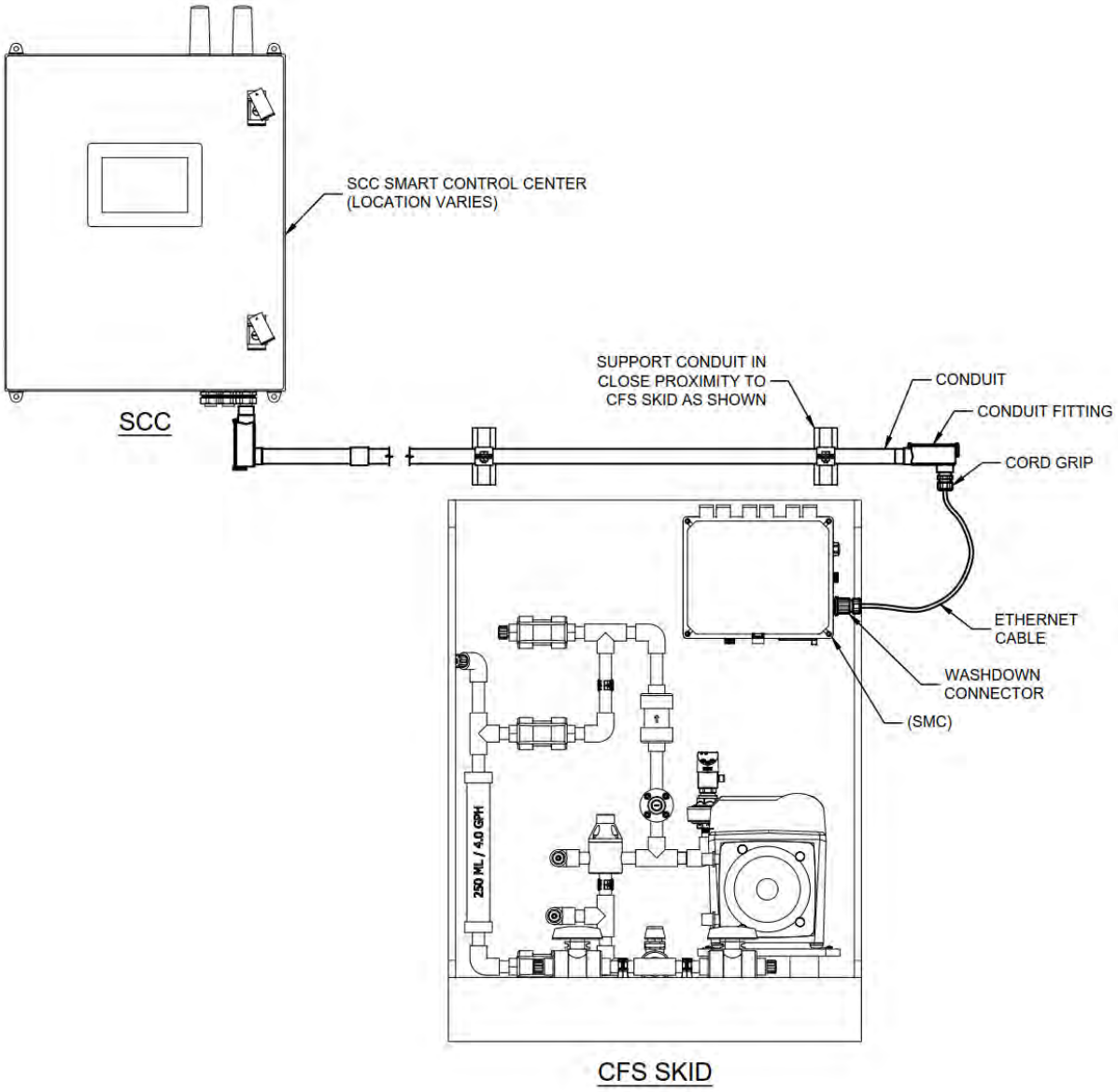
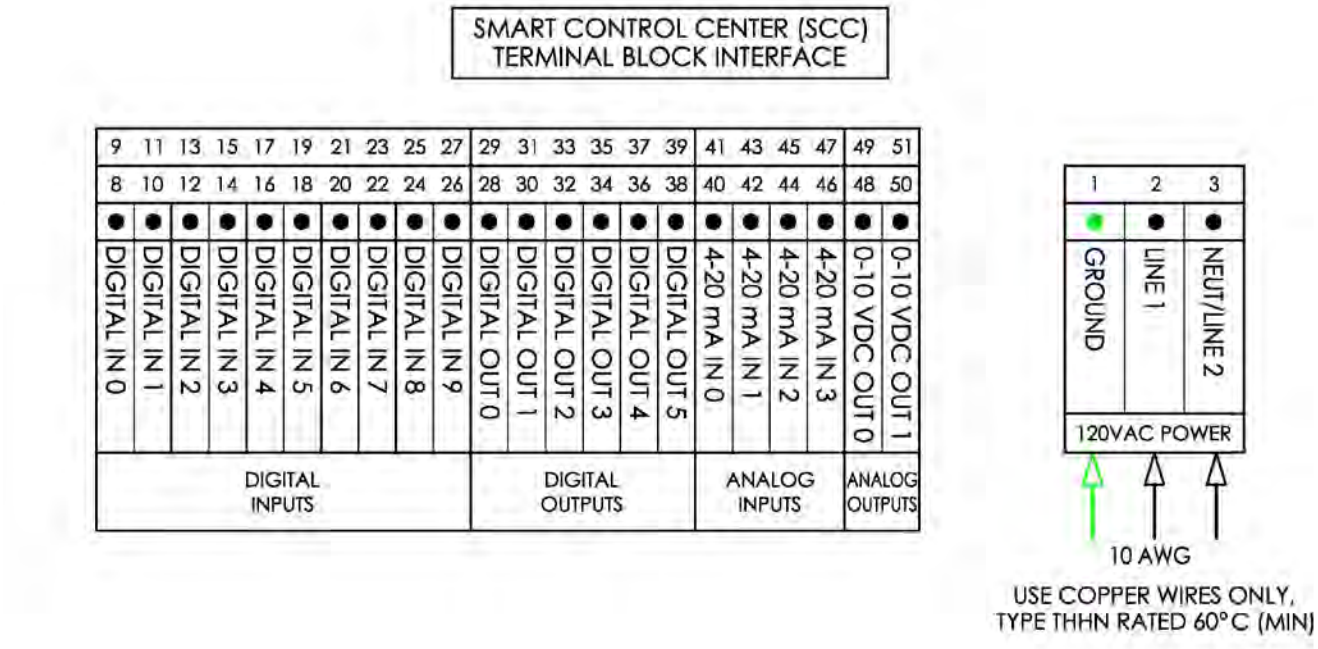



Figure 5. Smart Control Center to Chemical Feed Skid Connection

## 3.8 ADDITIONAL CONNECTIONS TO SMART CONTROL CENTER I/O

The I/O terminal block of the SCC is available for project specific conditions that require more sensors than are built into the Water Quality Station or Chemical Feed Skids (i.e. leak detects, Tank Shark mixer water flow meters, pressure sensors, etc.). Some applications may require connecting existing equipment like the PAX mixer or PowerVent. User terminals are located at the bottom of the SCC panel for connecting additional field I/O. For a full list of I/O connections, please reference sections 3.4 and 3.5 of the SCADA Integration via Modbus user manual.




### 3.8.1 Digital Inputs

Digital inputs are available from terminals 8 through 27. Please refer to the electrical schematic in Appendix A for proper connections to field devices. The digital inputs support dry contact relays or 3-wire devices. Please refer to the Smart Control Center Software O&M Manual for configuring digital inputs.

### 3.8.2 Digital Outputs

Digital outputs 0 through 4, terminals 28 through 36, are dry contact relays rated at 6 A. These can be used as run command signals for Tank Shark mixer VFDs, PAX mixers, dosing pumps, or a Shutdown Alarm output.

Digital output 5, terminals 38 through 39, is a dry contact relay rated at 15 A. If using a DC powered sample pump, it is advised to use this relay.

### 3.8.3 Analog Inputs

Analog inputs are available from terminals 40 through 47. These inputs provide loop power and support 4-20 mA signals from external devices.

### 3.8.4 Analog Outputs

Analog outputs are available from terminals 48 through 51. These outputs range from 0 to 10 VDC and can be used as a speed reference for pumps or VFDs.

# 4 RECOMMENDED PREVENTATIVE MAINTENANCE

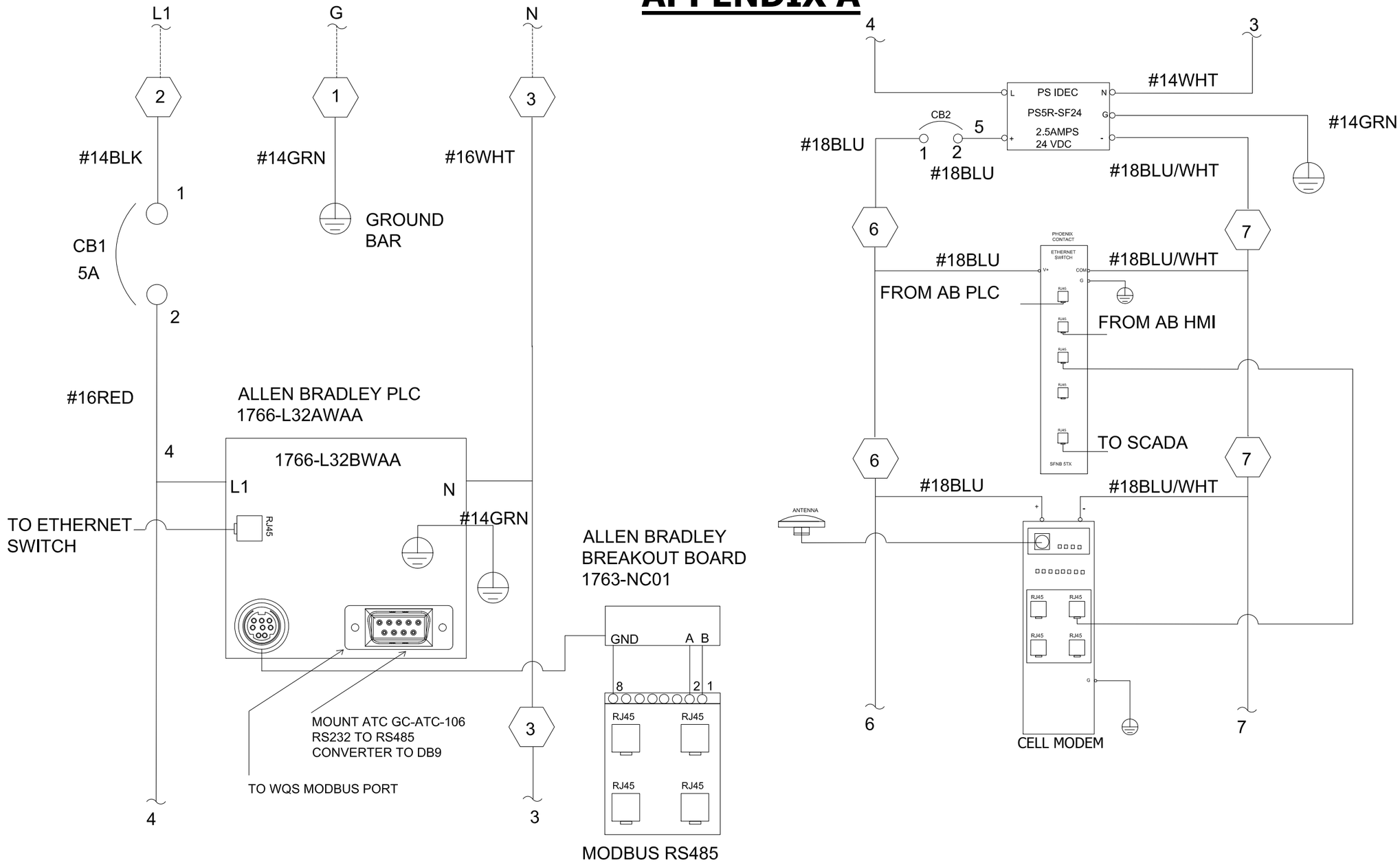
**CAUTION**: Personal injury hazard. Only qualified personnel should conduct the tasks described in this section of the manual.

**WARNING**: Multiple hazards. Do not dissassemble the instrument for maintenance or service. If the internal components must be cleaned or repaired, contact the manufacturer.

## 4.1 CHECKING THE FOLLOWING REGULARLY

1) The condition and tightness of connections.
2) Ensure that the temperature around the Smart Control Center remains between 2-45°C (35-113°F) and that ventilation is effective.
3) Remove any dust from inside the Smart Control Center.
4) Physical damage to the Smart Control Center.

# APPENDIX A

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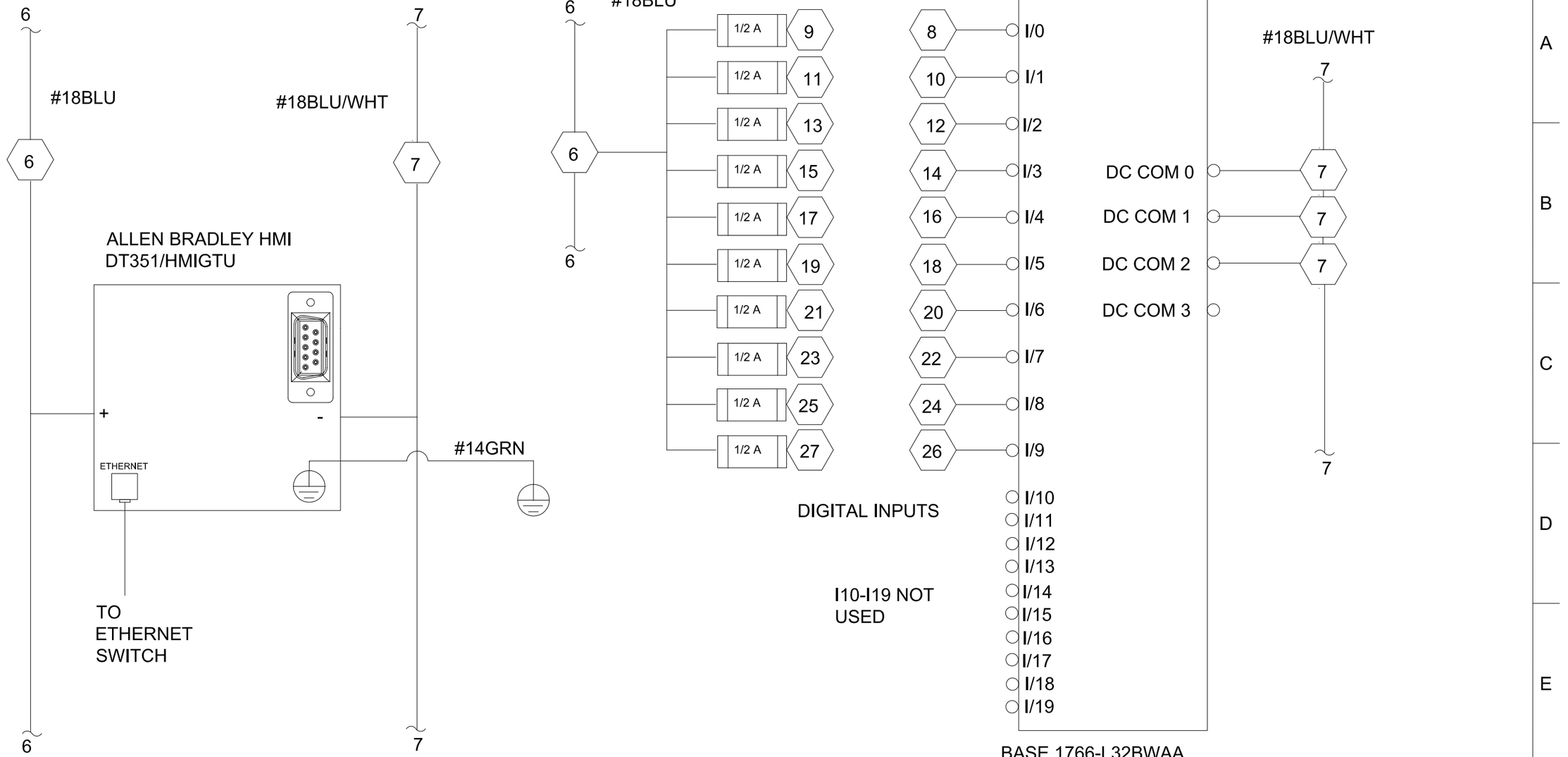
| CHECKED BY: | DATE: |
| SCALE: N/A | SIZE: D |

PROJECT:
PSI WATER TECHNOLOGIES, INC.
STANDARD DRAWING

SUBJECT:
MONOCLOR
SMART CONTROLLER (SCC1000)
ELECTRICAL

DWG #: 000000-MN0000-EL | SHEET 4 OF 4 | REV. A

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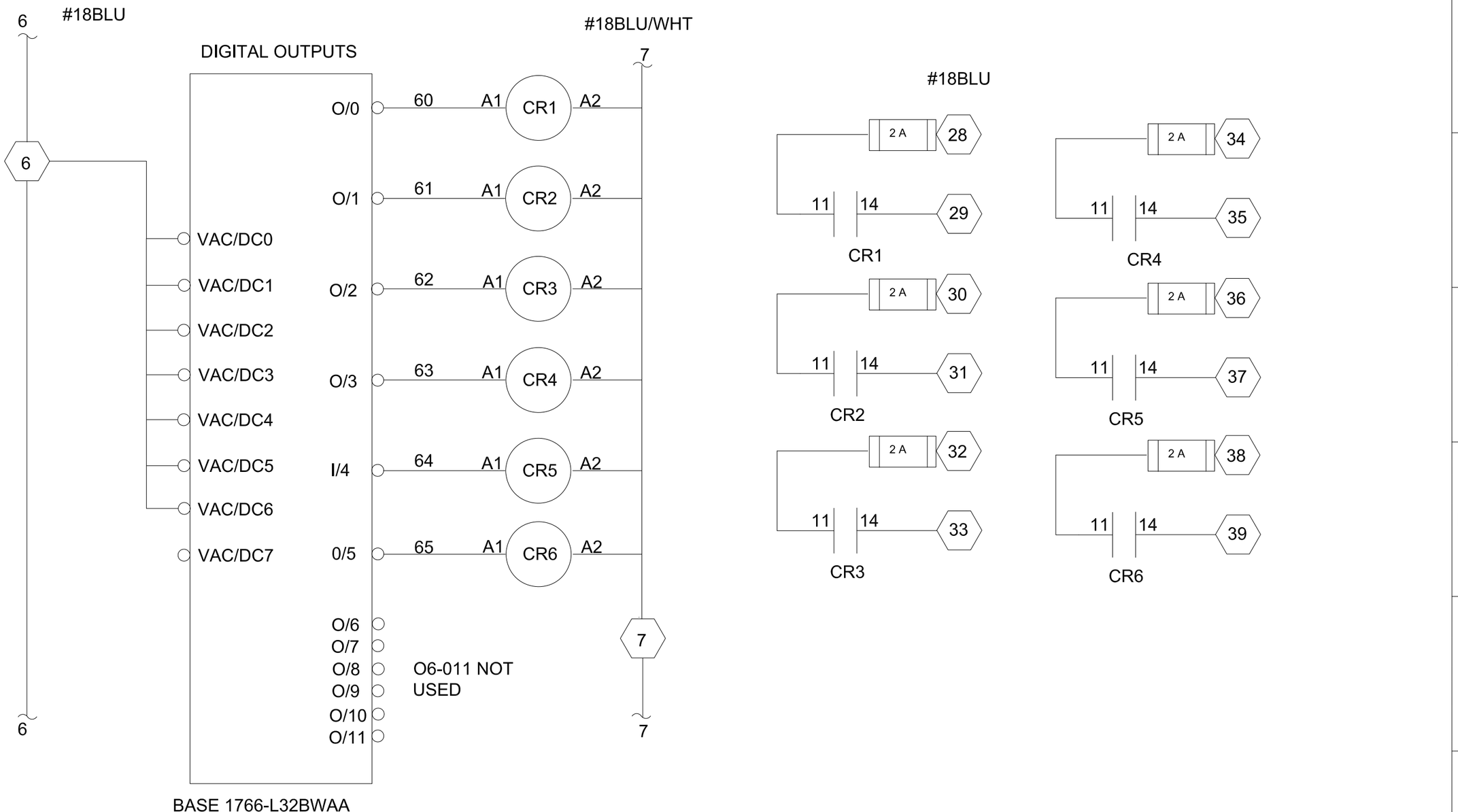


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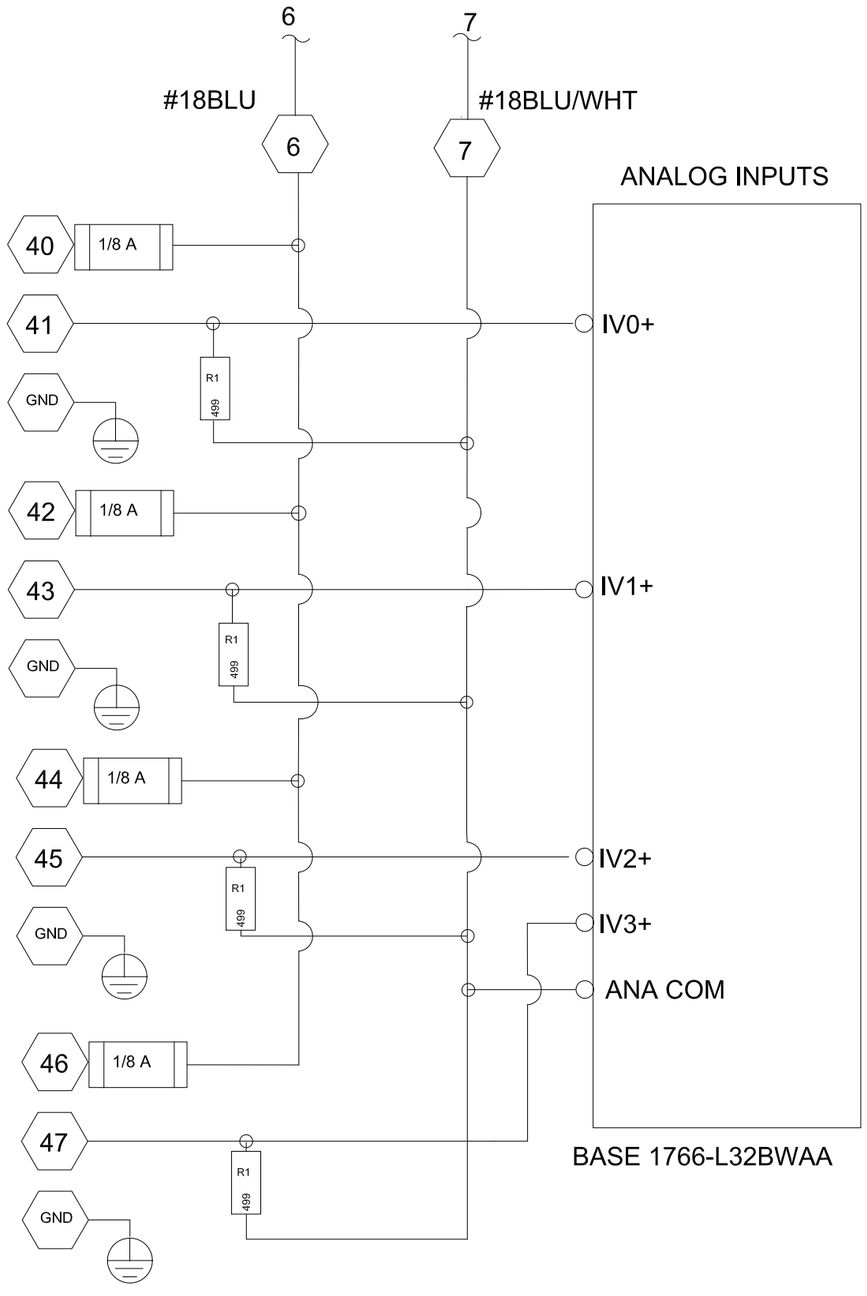
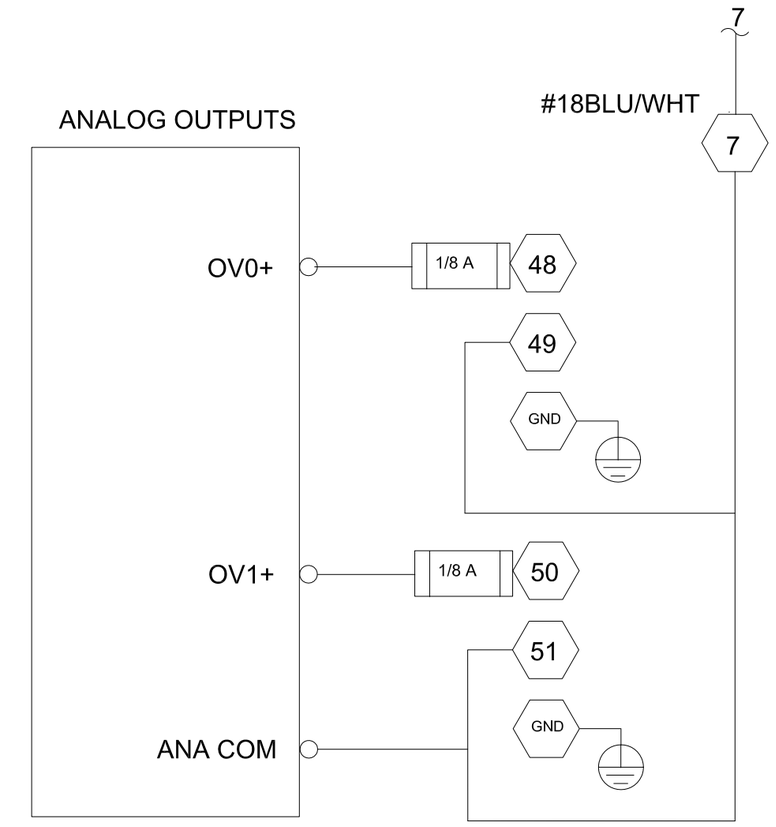
STANDARD DRAWING

SUBJECT:
MONOCLOR
SMART CONTROLLER (SCC1000)
ELECTRICAL

DWG #: 000000-MN0000-EL | SHEET 2 OF 4 | REV. A

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PROJECT:
PSI WATER TECHNOLOGIES, INC.
STANDARD DRAWING

SUBJECT:
MONOCLOR
SMART CONTROLLER (SCC1000)
ELECTRICAL

DWG #: 000000-MN0000-EL | SHEET 4 OF 4 | REV. A

PSI Water Technologies, Inc.
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Email: service@ugsicorp.com
www.4psi.net

PSI Water Technologies
A UGSI SOLUTIONS COMPANY

# Residual Control System (RCS)

## Water Quality Station™ (WQS)

### Operations & Maintenance Manual


PSI Water Technologies
A UGSI SOLUTIONS COMPANY

**Notices**



**WARNING:** It is important that this manual be read in full prior to installation or maintenance of the Water Quality Station™. No part of this manual may be reproduced in any form or by any means (including electronic storage and retrieval or translation into a foreign language) without prior agreement and written consent from PSI Water Technologies, Inc. as governed by the United States and international copyright laws.

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**Warranty**

The material contained in this Installation/Operation Manual is provided “AS IS” and “WITH ALL FAULTS” and the user understands and agrees that all express and implied warranties, including those warranties implied by the Uniform Commercial Code as enacted in the state of California, United States or such other forum as may be agreed upon by PSI and the user, are excluded with regard to this manual and any information contained herein; and PSI and the user further exclude all other implied warranties of merchantability and fitness for a particular purpose and any warranties arising from course of dealing or usage of trade with respect to this manual. The material provided in this manual is subject to change in future editions without notice to the user.

## CONTENTS

# 1. BEFORE YOU START

## 1.1 SAFETY INFORMATION

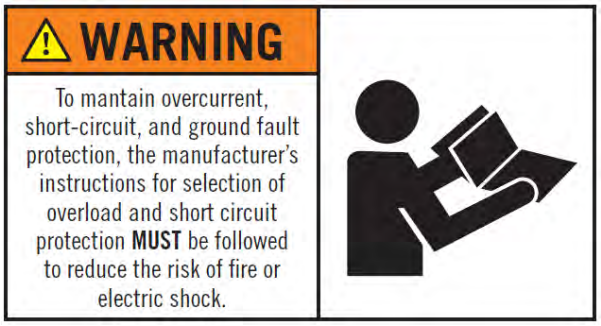
Please read and understand the following instructions and all labels fixed to the instrument before performing any procedure with this product. Failure to follow these instructions may result in death or serious injury.

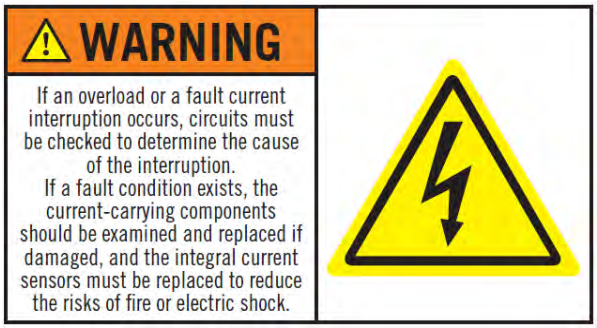
### 1.1.1 HAZARD INFORMATION

**CAUTION:** indicates a hazardous situation, which if not avoided, can result in minor or moderate property/equipment injury.

**WARNING** indicates an imminently hazardous situation, which if not avoided, can result in death, serious injury or equipment damage.

### 1.1.2 PRECAUTIONARY LABELS




## 1.2 INSTALLATION, OPERATION, MAINTENANCE


**HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH**

- Installation, adjustment, repair and maintenance must be performed by qualified personnel.
- The user is responsible for compliance with all international and national electrical code requirements with respect to grounding of all equipment.
- Many parts of the Water Quality Station™, including the printed circuit boards, operate at the line voltage. DO NOT TOUCH. Only use electrically insulated tools.
- DO NOT touch unshielded components or terminal strip screw connections with voltage present.
- DO NOT short across terminals.


**FALL HAZARD**

- Fall protection is a safety requirement for work performed on water tanks. Please refer to OSHA's website for fall protection safety requirements: **http://www.osha.gov** or your relevant local authority.


**GENERAL DANGER**

- A confined space entry plan and operational procedures must be used for every reservoir entry. Refer to OSHA confined space requirements at their website: **http://www.osha.gov** or your relevant local authority.
- Lifting tools and equipment are required during installation. Refer to OSHA's website for more information: **http://www.osha.gov** or your relevant local authority.
- Installations performed by a diver require a dive plan that specifies equipment, procedures and safety measures used.
- Avoid dropping construction materials or tools into water tanks so as to prevent damage to the tank's interior coating.


**HAZARDOUS CHEMICAL DANGER**

- In the event of the unit malfunction, the user of this unit holds all the responsibility to know, accept and bear with the relevant regulations and has satisfactory processes to comply with the regulations, when the unit is used to feed chemical(s) to a system for which monitoring requirements related to the public safety/health, food and/or beverage processing.
- Avoid vapors and direct contact with chemicals.
- Wear protective equipment and consult MSDS for details.

## 1.3 BEFORE SERVICING THE WATER QUALITY STATION™


**HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH**

- Disconnect all power, including external control power that may be present.
- Place a “DO NOT TURN ON” label on all power disconnects.
- Lock all power disconnects in the open position.

## 1.4 UNINTENDED EQUIPMENT OPERATION

- No responsibility is assumed by PSI Water Technologies, Inc. for any consequences arising out of the use of this product.
- Do not operate or install any drive or drive accessory that appears damaged. Contact your PSI representative to resolve any damage issues.

# 2. GENERAL INFORMATION

## 2.1 PRODUCT INTRODUCTION

The Water Quality Station (WQS)™ is an advanced water chemistry measurement system that precisely and continuously samples and measures the disinfectant chemistry inside a water tank or pipe. The WQS™ provides real-time alerts when there are unexpected changes in water quality and can be operated with the Chemlocker™, Monoclor® RCS, or Microclor® systems to constitute a complete residual control solution.

## 2.2 INTENDED PURPOSE

The Water Quality Station (WQS)™ is primarily intended for measuring the chemistry of potable water. All other applications use must be approved by PSI Water Technologies, Inc. before installation.

The standard WQS™ enclosure is a NEMA Type 3 enclosure allowing for use indoors or outdoors by providing protection against rain and ice formation. The enclosure meets rod entry, rain, external icing and rust-resistance design tests.

The WQS™ is intended to run for 24 hours, 7 days per week for continuous monitoring of drinking water levels of chlorine or chloramine with a concentration of 0.2 ppm or greater. The WQS™ must be used under the operating conditions described in this manual and is not designed or approved for any other application than what is described in this manual. In order to be in compliance with the intended use for this product, the end user must read the operation and maintenance manual and adhere to all instructions provided. If the WQS™ is not installed, operated and maintained in accordance with this document, safe and reliable operation cannot be guaranteed.

## 2.3 ANALYSIS METHOD

The WQS™ utilizes a set of sensors that measure the temperature, pH, Oxidation-Reduction Potential (ORP), and total chlorine or free chlorine. The WQS™ also measures the process pressure that represents the water level for storage tank. The WQS™ utilizes amperometric total/free chlorine online analyzers without the use of reagents, which can be used to report chlorine residual for compliance monitoring purposes in accordance with the EPA Method 334.0. It is the responsibility of the user to ensure the correct steps are taken to follow EPA Method 334.0. These measurements are displayed in real time on the Human-Machine Interface (HMI) display and are continuously logged onto a USB flash drive for analysis.

## 2.4 QUALITY CONTROL STATEMENT

PSI Water Technologies, Inc. is dedicated to supplying high-quality products that meet or exceed the needs of drinking water customers. PSI Water Technologies, Inc.'s strict quality control and continuous improvement programs ensure the best value to customers. PSI Water Technologies, Inc. manages its business to the highest environmental and ethical standards.

## 2.5 SPECIFICATION

| WATER QUALITY STATION™ SPECIFICATIONS | | |
|---|---|---|
| **Parameters** | Total/ Free Chlorine Sensor(s) | Amperometric reagentless online sensor<br>Measuring range: 0-20 PPM<br>Resolution: 0.01 PPM<br>1-point calibration<br>Automatic temperature compensation |
| | Temperature | Measuring range: 0-45°C (33-113°F)<br>Resolution: 0.1° |
| | pH | Automatic temperature compensation<br>Measuring range: 0-14<br>Resolution: 0.01<br>3-point calibration |
| | ORP | Measuring range: 0-1000 mV<br>Resolution: 0.1 mV<br>2-point calibration |
| | Pressure/ Water Level | Pressure transducer<br>Measuring range: 0-50 PSI<br>Resolution: 1% of maximum scale |
| **Operating Temperature** | | 0-45°C (33-113°F) |
| **Storage Temperature** | | Panel without Cl Sensor: 0 to 45°C (33 to 113°F)<br>Chlorine Sensor: 5-40°C (41 to 104°F) dry and without electrolyte<br>Electrolyte Gel: 5-25°C (41 to 77°F) |
| **Max Operating Pressure** | | 30 psi (with retaining ring) |
| **Sampling and Discharge Flow Rate** | | Preferred value is 10 GPH (0.17 GPM or 0.63 LPM) Continuous |

| | |
|---|---|
| **Flow Control** | Adjustable regulator valve |
| **Flow Verification** | Flowmeter |
| **Power Requirements** | 100-240 VAC, 50/60 Hz, 15 Watts |
| **Water Connection** | 3/8" Push-connect |
| **Connectivity** | Ethernet connection with Smart Control Center<br>RS-485 connection with Smart Control Center |
| **Weight** | Approximately 45 lbs (20kg) |
| **Enclosure** | 18"H x 16" W x 8" D, powder-coated carbon steel<br>Equal to or greater than NEMA Type 3R |
| **Data Logging** | Real-time data acquisition on USB Flash Drive of process variables every 30 seconds and alarms on occurrence |
| **SCADA (Optional)** | 8 Analog Outputs (4-20 mA or 0-10 V) |

# 3. UNPACKING AND INSTALLATION

Unpack the contents of your carton and verify that all the components have been received. Refer to the packing list shown in Figure 1. If any items are missing or damaged, contact the PSI Service Department at 888-774-4536 or service@ugsicorp.com.

## 3.1 PACKING LIST

| WATER QUALITY STATION (WQS)™ DRY-SIDE ASSEMBLY | |
|---|---|
| **DESCRIPTION** | **QUANTITY** |
| **1. Assembly, WQS™ Enclosure** | 1 |
| **2. Assembly, WQS™ Back Plate** | 1 |
| **3. Assembly, WQS™ Manifold** | 1 |
| **4. Assembly, WQS™ Valves** | 1 |
| **5. Assembly, WQS™ Electronic Enclosure** | 1 |
| **6. Assembly, WQS™ Door** | 1 |
| **7. Assembly, Probes (shipped loose)** | 2 - Chlorine<br>1 - ORP<br>1 - pH<br>1 - Temperature |

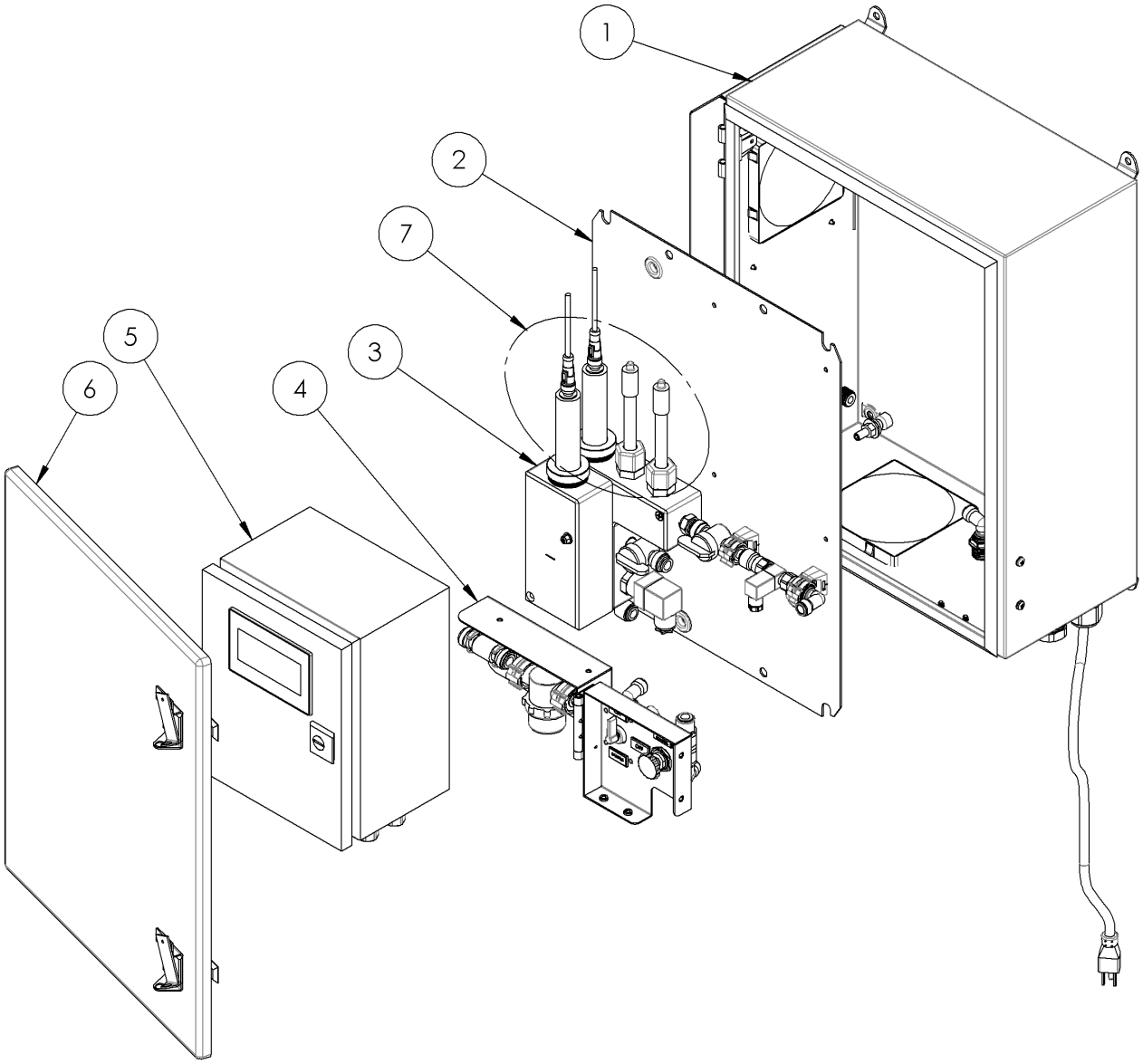



Figure 1: Water Quality Station™ Packing List

## 3.2 OVERVIEW OF INSTALLATION STEPS

1) Section 3.4 – Mounting the Water Quality Station™
2) Section 3.5 – Sensor Setup and Insertion into Water Quality Station™ Flow Cell
3) Section 3.6 – Plumbing the Water Quality Station™
4) Section 3.7 – System Startup
5) Section 3.8 – Using the User Interface

## 3.3 INSTALLATION TOOLS AND TEST EQUIPMENT

1) Phillips Head Screwdriver, 6” (5.2 cm) and 12” (30.5 cm)
2) Slot Head Screwdriver, 6” (5.2 cm) and 12” (30.5 cm)
3) Slot Head Screwdriver, Small Technical
4) Wire Stripper/Crimper
5) Pliers, 6” (5.2 cm)
6) Diagonal Cutter 6” (5.2 cm)
7) Electrical Tape, Black, ½” (1.3 cm) width
8) Multimeter/Amp Meter (Fluke 373 or equivalent)

## 3.4 MOUNTING THE WATER QUALITY STATION™

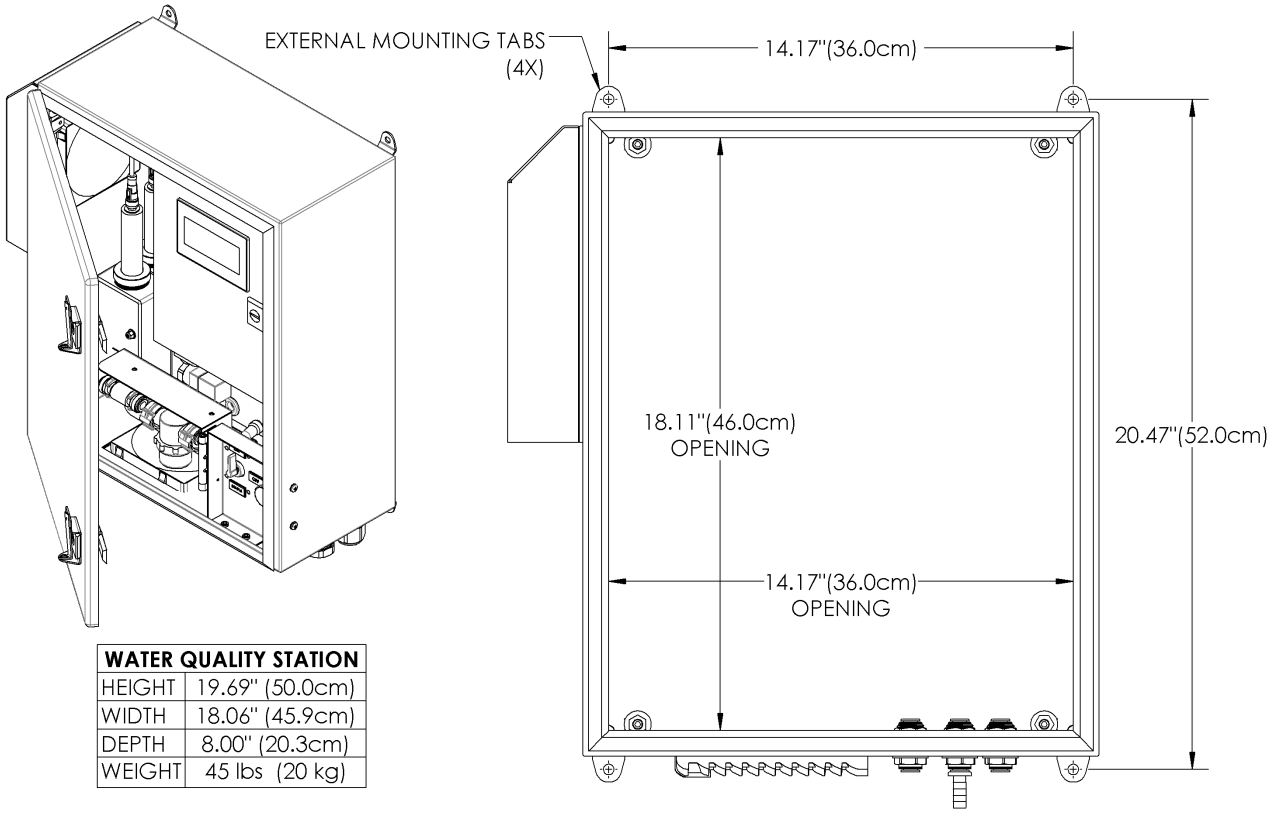

**HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH**

The Water Quality Station™ is supplied with mounting tabs on the enclosure. The preferred mounting surface for the Water Quality Station™ is a wall mount, but pole or beam mounting are acceptable if they can fully support the load of the Water Quality Station™. Before beginning any portion of the installation, verify the following:

1) INCOMING POWER HAS BEEN SHUT OFF.
2) The conduit for the line power and the conduit for the incoming and outgoing water sampling lines have been properly sized.
3) The incoming electrical power to the subpanel and/or a gang box are located within 6’ (1.8 m) of the Water Quality Station™ (if not, a safety disconnect is required).

4) The mounting location should accept the Water Quality Station™ mounting hardware, such as a stud in a wall-mount, a pole-mount or a beam-mount. A wall-mount is preferable as it is most secure.
5) The mounting location should allow access to the internal components and opening clearance for the Water Quality Station™ door.
6) Mount the Water Quality Station™ on a wall, pole or Unistrut® back frame using mounting hardware (mounting hardware not provided, for dimensions, see Figure 2).

**NOTE:** Mounting location and hardware must be able to support 75 lbs. (34 kg) under exposed conditions.




| WATER QUALITY STATION | |
|---|---|
| HEIGHT | 19.69" (50.0cm) |
| WIDTH | 18.06" (45.9cm) |
| DEPTH | 8.00" (20.3cm) |
| WEIGHT | 45 lbs (20 kg) |

Figure 2: Water Quality Station™ Dimensions

## 3.5 SENSOR SETUP AND INSERTION INTO WATER QUALITY STATION™ FLOW CELL

**WARNING:** When the Water Quality Station™ is shipped, the chlorine, pH and ORP sensors are packaged inside protective foam and placed within the enclosure. Remove all sensors from the protective foam before beginning installation. Please read the instructions below before installing probes. Failure to follow these instructions may result in damage to the probe membrane cap and warranties for this device may be voided.

**WARNING:**

- Ensure the chlorine sensor cable Is disconnected prior to powering the unit.
- If the sensor is powered without water present in the unit, damage could result.

### 3.5.1 CHLORINE SENSOR SETUP

**WARNING:** The membrane cap is loosely screwed onto the end of your probe. **DO NOT** remove or tighten this membrane cap until you have read these instructions (See

Figure 3). For further assistance, please contact your PSI Service Center.

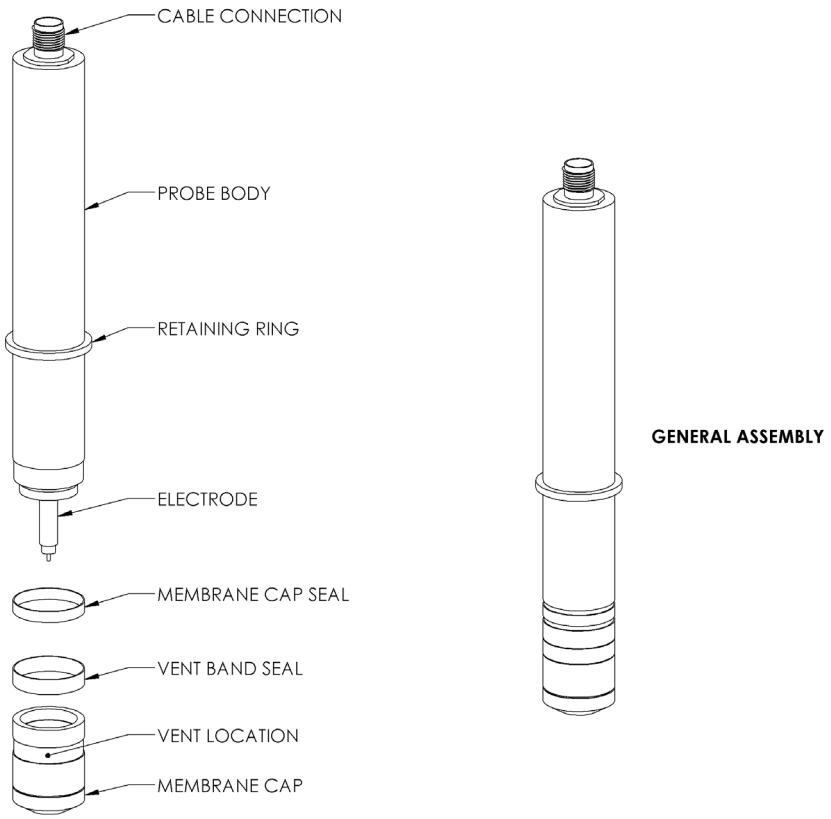



Figure 3: Chlorine Sensor Assembly

1) There is an elastic vent band sealed around the membrane cap (See warning: Prior to servicing the probe, the elastic seal must be slid down to expose this vent hole. **DO NOT** loosen the membrane cap without having the vent hole exposed and unobstructed. Failure to do so will create a vacuum and destroy the membrane.

2) Figure 4), which is used to seal the vent hole on the membrane cap during normal operation.

**WARNING:** Prior to servicing the probe, the elastic seal must be slid down to expose this vent hole. **DO NOT** loosen the membrane cap without having the vent hole exposed and unobstructed. Failure to do so will create a vacuum and destroy the membrane.


Figure 4: Elastic Seal and Vent Hole on the Chlorine Sensor

3) Pull the transparent protection cap off the membrane cap with fingers. The sensor is delivered with the membrane cap loosely screwed on the electrode shaft. Unscrew the membrane cap from the electrode shaft (See Figure 5).

Figure 5: Membrane Cap Attached to the Electrode Shaft

4) Place the membrane cap onto a clean flat surface. Do not shake the gel container. Fill up the membrane cap to the edge with the enclosed electrolyte. When filling the membrane cap, use caution to ensure there are no bubbles in the electrolyte (See Figure 6 and Figure 7).

Figure 6: Membrane Cap and Electrolyte

Figure 7: Electrode with Filled Membrane Cap

5) Hold the electrode shaft upright and put it in the filled membrane cap. Then screw the membrane cap onto the electrode shaft.

6) Turn it counterclockwise until the thread engages, then slowly screw the electrode shaft clockwise by hand onto the membrane cap. Excess electrolyte will escape through the vent in the membrane cap. Do not close or block this vent.


**HAZARDOUS CHEMICAL DANGER**

- Electrolyte may spurt from the vent. Immediately wash off excess electrolyte if it gets on your skin or in your eye. Some electrolytes contain diluted acids. Please refer to the warnings on the electrolyte bottle for further information.

7) Make sure that the membrane cap is tightly fastened to the electrode shaft. The first screw-in resistance comes from the O-ring seal; however, continue until it touches the electrode shaft.

| ✖ Incorrect | ✓ Correct |
|---|---|
|  |  |

8) The elastic vent band seal around the membrane cap should be returned to its initial position covering the vent. Ensure the elastic seal is seated correctly on the membrane cap (See Figure 8).


Figure 8: Elastic Seal Covering the Vent on the Membrane Cap

9) Wash off the excess electrolyte with water.

### 3.5.2 CHLORINE SENSOR INSTALLATION

**WARNING:**

- Ensure the chlorine sensor cable Is disconnected prior to powering the unit.
- If the sensor is powered without water present in the unit, damage could result. Chlorine Sensor

Insert the chlorine sensor into the flow cell (See Figure 9). There must be 0.79" (20mm) of clear space between the membrane tip of the sensor and the conical base of the flow cell. There is an indicator line on exterior of the flow cell as guidance.

Tighten the coupling nut clockwise at top of the Sensor shaft (See Figure 9).

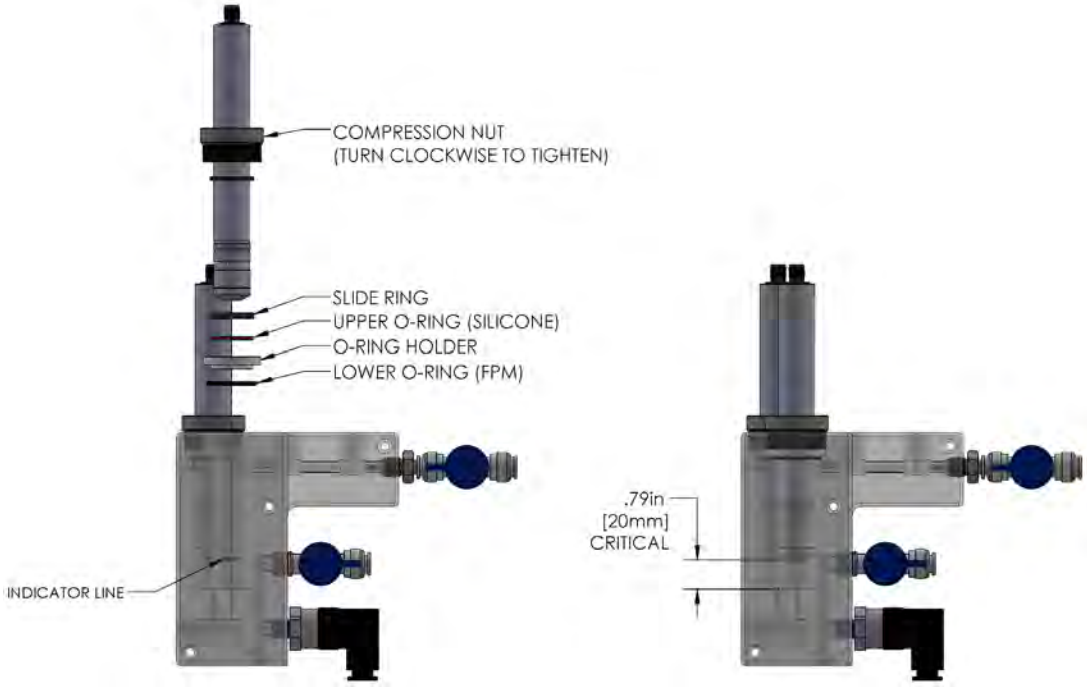



Figure 9: Chlorine Sensor Insertion into Flow Cell

### 3.5.3 CHLORINE SENSOR CALIBRATION

After the chlorine sensor has completely acclimated (from 2-24 hours of water flowing throughout the flow cell and is exposed to the chlorine in the water), calibrate the sensor using a suitable test kit, e.g. DPD (N, N-diethyl-p-phenylenediamine) for $Cl_2$. Refer to Section 5.2 for further instructions on chlorine sensor calibration using the HMI.

### 3.5.4 PH ELECTRODE

**NOTE:** The electrode is shipped in a plastic bottle containing a solution of pH 4 buffer and potassium chloride (See Figure 10). The electrode should remain in the bottle until it is used.

Figure 10: pH Electrode in Solution

### 3.5.5 PH ELECTRODE SETUP

The pH electrode has a blue colored top cover.

1) Take pH electrode out of solution by loosening plastic top on bottle counter clockwise and pulling electrode out. Slide cap and O-ring off electrode and save (See Figure 11).

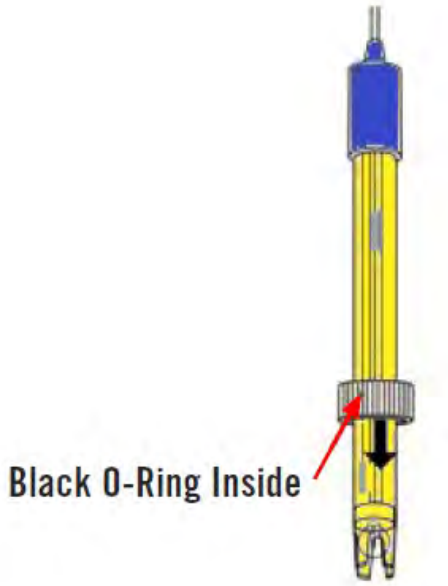



Figure 11: pH Probe Removed from Solution

2) During shipment, the air bubbles in the electrode's stem may move into the bulb area. If bubbles are seen in the bulb area, hold the electrode by its top cap and shake downward as is done with a clinical thermometer (See Figure 12).

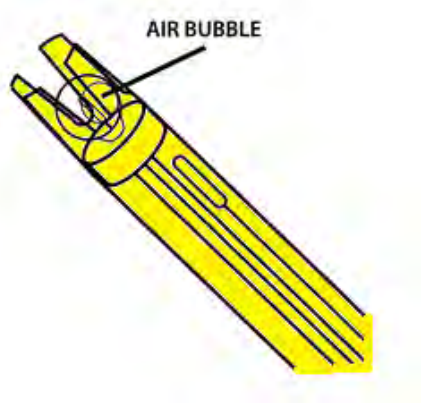



Figure 12: pH Probe Air Bubble

### 3.5.6 PH ELECTRODE INSTALLATION

1) Loosen pH compression fitting (See Figure 13) by rotating the coupling nut in the counter clockwise direction (do not loosen the coupling nut where it becomes unattached from the plastic body of the compression fitting).

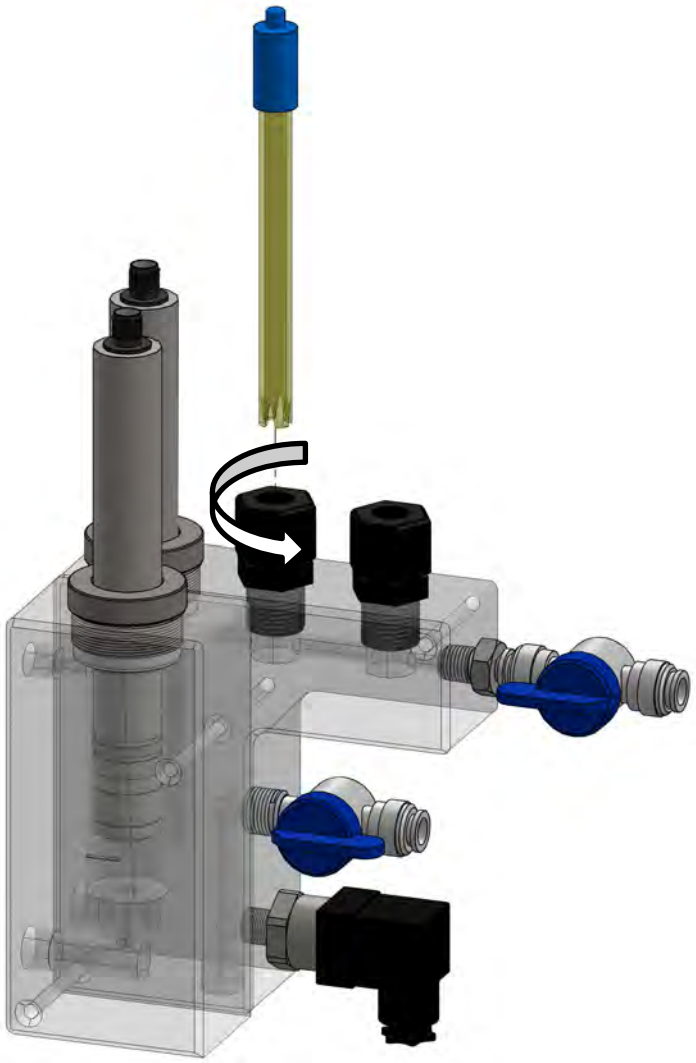


Figure 13: pH Electrode Installation

2) Insert pH electrode into flow cell (See Figure 14).

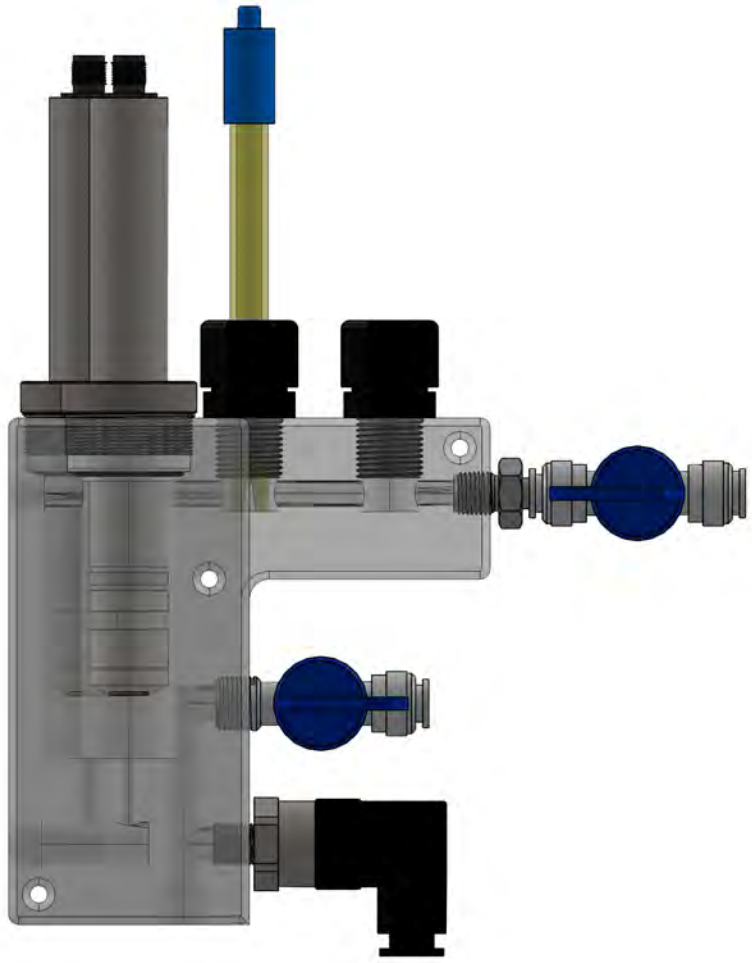


Figure 14: pH Electrode Location

3) Hand tighten pH compression fitting (see Figure 15) by rotating the coupling nut in the clockwise direction.

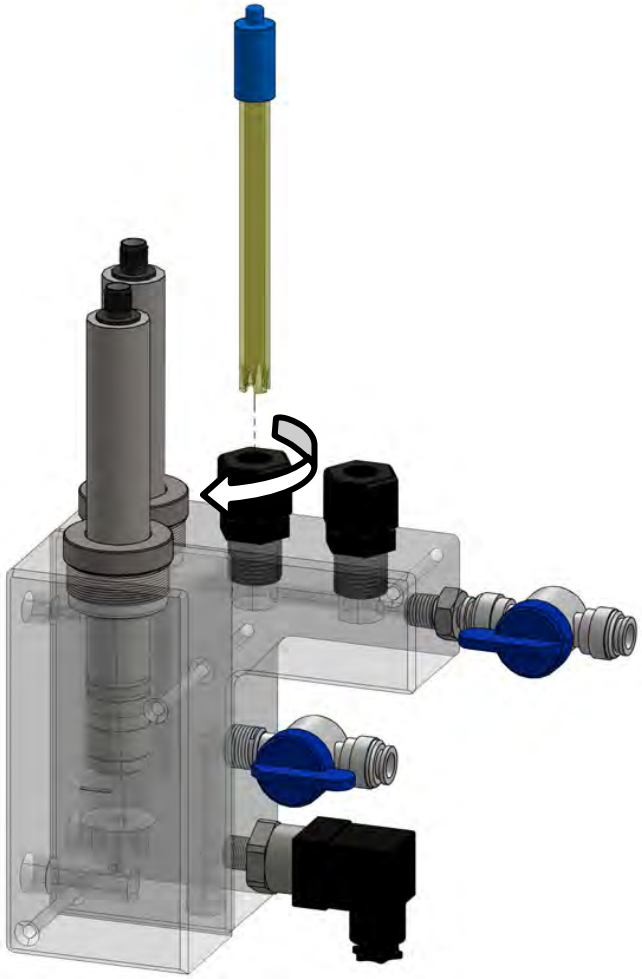


Figure 15: pH Electrode Installation

### 3.5.7 ORP ELECTRODE

**NOTE:** As shipped, the ORP electrode is shipped in a bottle of soaking solution.

### 3.5.8 ORP ELECTRODE SETUP

1) To remove the electrode from the soaker bottle, rotate cap counter-clockwise and remove electrode by pulling upward (See Figure 16).

Figure 16: ORP Electrode in Solution

### 3.5.9 ORP ELECTRODE INSTALLATION

1) Loosen the ORP compression fitting (See Figure 17) below by rotating the coupling nut in the counter clockwise direction (do not loosen the coupling nut where it becomes unattached from the plastic body of the compression fitting).

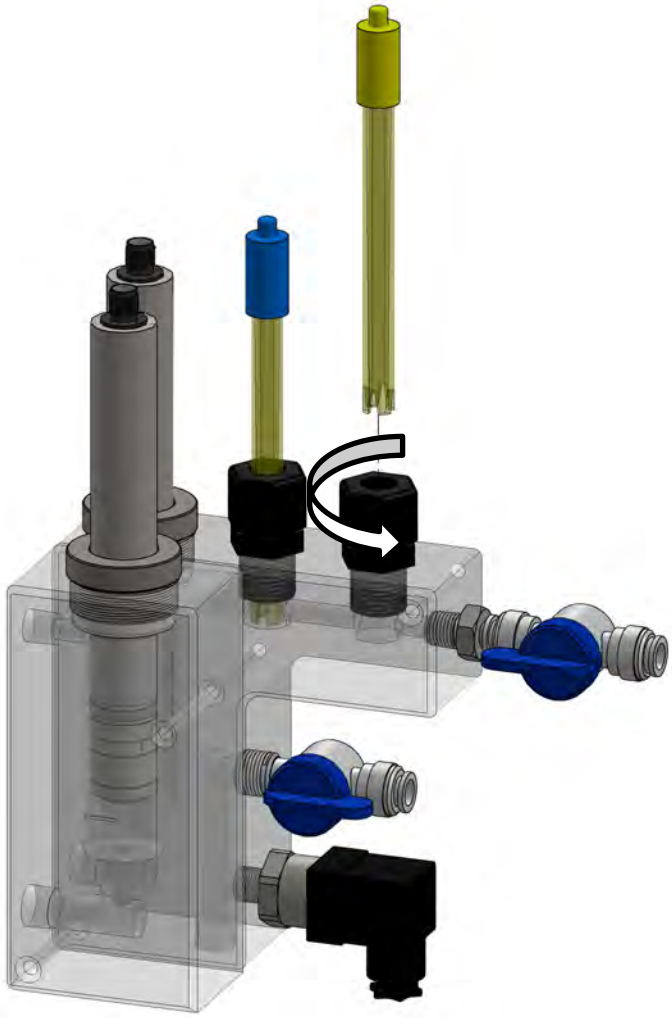


Figure 17: ORP Electrode Assembly

2) Insert the ORP electrode into flow cell. Hand tighten the ORP compression fitting (See Figure 18) by rotating the coupling nut in the clockwise direction.

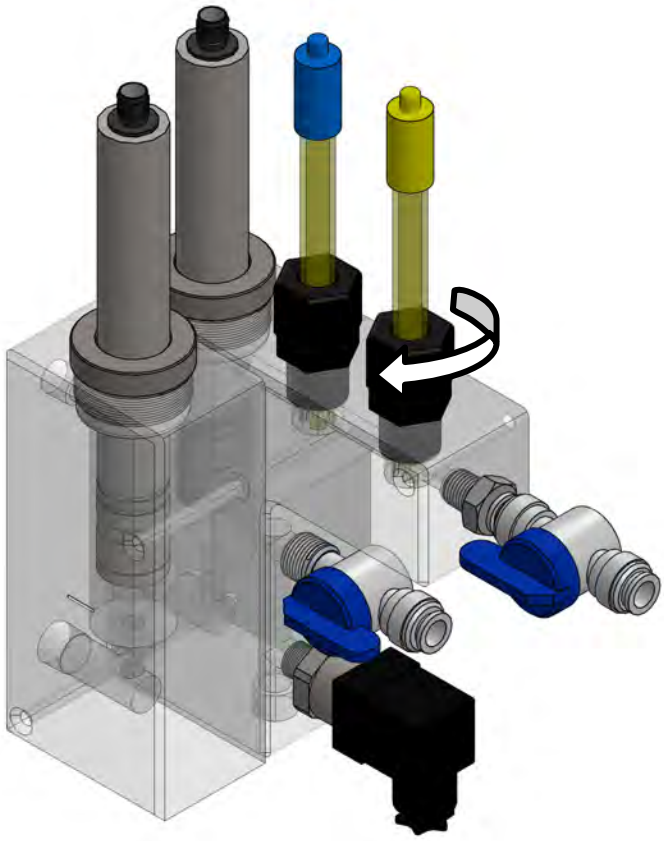


Figure 18: ORP Electrode Assembly

## 3.6 PLUMBING THE WATER QUALITY STATION

Install the drinking water sample point according to the suggested location by the PSI Application Engineering team. Optimal instrument performance is ensured by following the suggested sampling location.

**WARNING:** The water inlet valves should remain closed throughout setup prior to connecting power to the unit. Do not change any orientation of the plumbing or valves inside the Water Quality Station™ until directed by the installation instructions. Failure to comply may lead to complications during installation, and safe and reliable operation cannot be guaranteed.

### 3.6.1 WATER SAMPLE INLET

1) Connect 3/8" O.D. (outer diameter) flexible tubing from the sample location of the drinking water source to be measured to the water sample inlet (Figure 19).

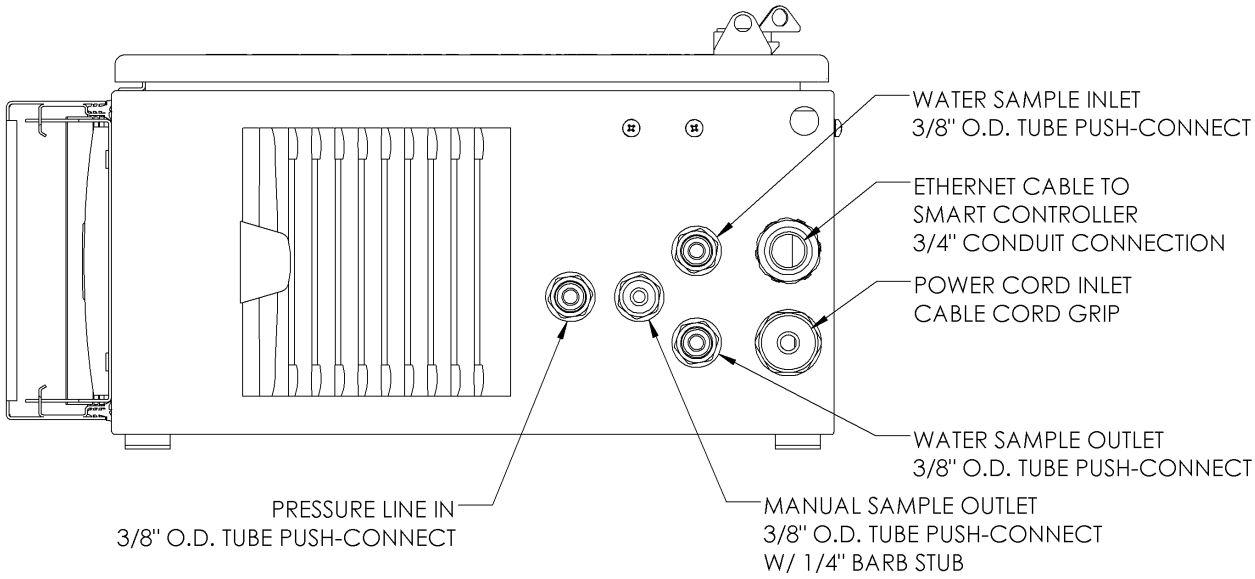



Figure 19: Water Quality Station™ Inlets/Outlets

### 3.6.2 WATER SAMPLE OUTLET

**NOTE:** The outlet sample line can be returned either to the tank, pipe or drain depending on applicable regulations. It is the sole responsibility of the customer to comply with applicable regulations.

1) Connect 3/8” O.D. flexible tubing to the water sample outlet push-connect as shown in Figure 19.
2) Route flexible tubing inside of conduit from the Water Quality Station™ to the location selected (tank, pipe or drain) to return the sample water.

### 3.6.3 PRESSURE LINE INLET (OPTIONAL)

1) Connect 3/8” O.D. (outer diameter) flexible tubing from a suitable location to measure pressure on either the storage tank or pipeline (Figure 19).

**NOTE:** If necessary, a single tap on the water storage tank or pipeline can be used for both pressure and water sample lines. To do so: split the line at the tap and run separate connections to water sample and pressure inlets on WQS to ensure that pressure drop through the water sample line does not affect pressure/level measurements.

### 3.6.4 VALVE OPERATION

A summary of valve operation is listed below.

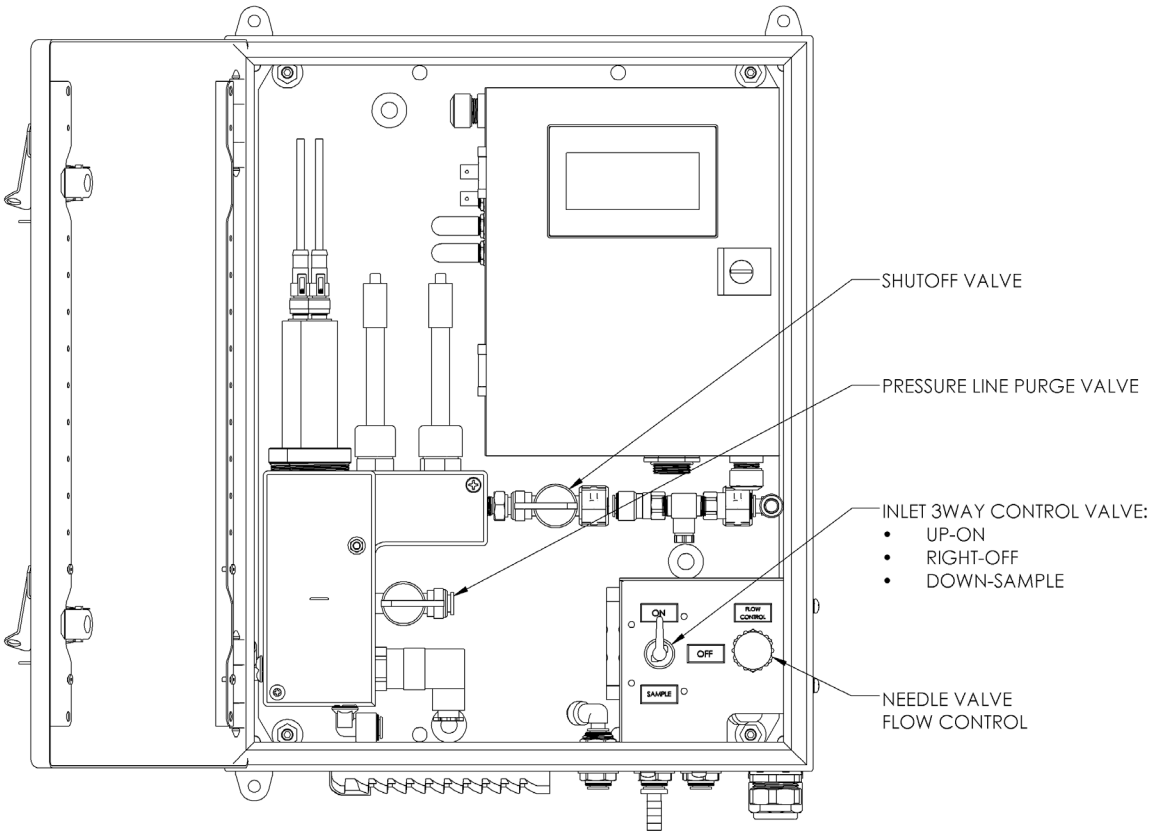



Figure 20: Valve Configuration

| WATER QUALITY STATION™ (WQS) VALVES | |
|---|---|
| **DESCRIPTION** | **VALVE OPERATION** |
| **1. Shutoff Valve** | The shutoff valve is used to isolate the flow cell while the flow through the Water Quality Station™ is turned "Off." |
| **2. Pressure Line Purge Valve** | The pressure line purge valve is used to empty the pressure line of air. |
| **3. Inlet 3-Way Control Valve** | Turning the 3-Way valve "On" and "Off" starts and stops the continuous flow through the system, respectively. The "Sample" valve is used to collect a water sample through the manual sample outlet. |
| **4. Needle Valve** | The needle valve is used to adjust the flow rate of the water sample line. The preferred flow rate is 10 GPH. |

## 3.7 SYSTEM STARTUP

**WARNING:** Close the valves prior to connecting power to the unit.

After the Water Quality Station™ inlets and outlets have been connected, follow the below steps;

1) Turn the Inlet 3-Way Control Valve to "On" to begin the continuous flow through the system (See Figure 20).
2) Open the needle valve by rotating counterclockwise to establish flow through the WQS.
3) Check all connections and ports for leaks of any kind. If a leak exists, turn the Inlet 3-Way Control Valve to "Off" and perform necessary actions to eliminate any leaks. Once adjustments have been made, reopen the inlet and outlet valves and verify all leaks have been eliminated. If additional leaks are found, repeat.
4) Plug the WQS power cable into a 15 A receptacle.
5) Open the Electronic Enclosure and turn on the main power breaker.
6) The WQS should now be powered on. Adjust the sample flow rate to 10 GPH by turning the needle valve.

**WARNING:** Make sure that all electrical and conduit connections are secure and correctly routed in accordance with all local electrical code requirements.

**NOTE:** When powered on for the first time, the WQS™ HMI displays the Home screen (See Figure 21).

## 3.8 USING THE USER INTERFACE

The user interface is a 3.8" touch screen HMI. Figure 21 shows an example of the Home screen when the system is installed and running. The Home screen is the main measurement screen that displays the parameters measured by the WQS™ sensors. The Home screen also displays the current disinfectant regime (monochloramine, dichloramine or free chlorine as calculated by the proprietary WQS™ software), alarms and active faults affecting the performance of the system.

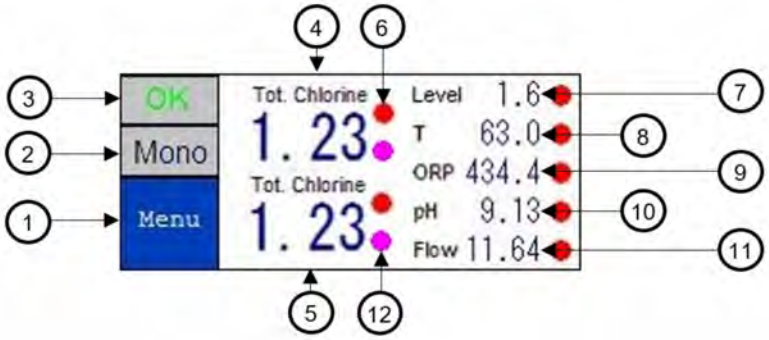



Figure 21: Example of WQS™ Home screen

| HOME SCREEN CONTENTS | |
|---|---|
| **CALLOUT** | **DESCRIPTION** |
| **1.** | Menu Button |
| **2.** | Disinfectant Regime Detection |
| **3.** | Fault Indicator |
| **4.** | Total/Free Chlorine Measurement (First Probe) |
| **5.** | Total/Free Chlorine Measurement (Second Probe) |
| **6.** | Alarm Indicator (Measurable Parameters) |
| **7.** | Water Level Measurement |
| **8.** | Temperature of Water Sample (°F) |
| **9.** | ORP Measurement (mV) |
| **10.** | pH Measurement |
| **11.** | Flow Rate of Water Sample (GPH) |

| HOME SCREEN CONTENTS | |
|---|---|
| **CALLOUT** | **DESCRIPTION** |
| **12.** | Total/Free Chlorine Measurement Discrepancy Indicator |

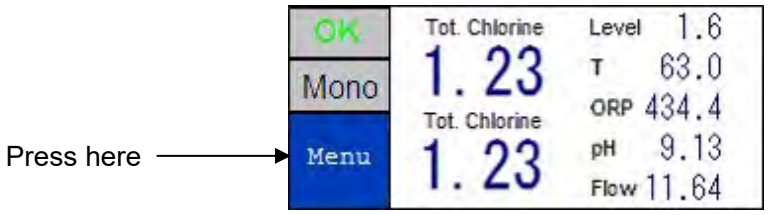
**NOTE:** If faults and alarms are triggered at start up, refer to Section 7 to resolve.

# 4. SYSTEM OPERATION

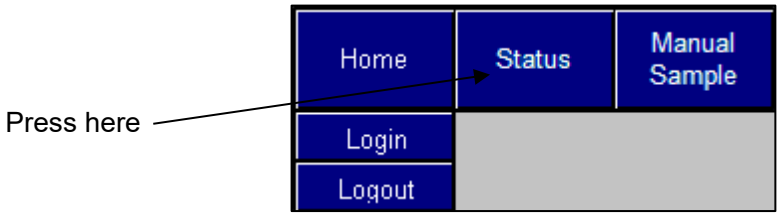
## 4.1 STATUS

The Status screen shows if a fault is occurring and which component is in fault. A description of each fault status is listed below. A fault will be indicated by a red FAULT text in the Home Screen. To access the Status screen:

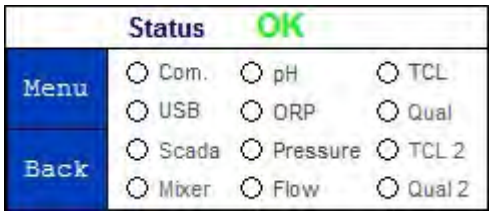
1) From the Home screen, press **Menu**.

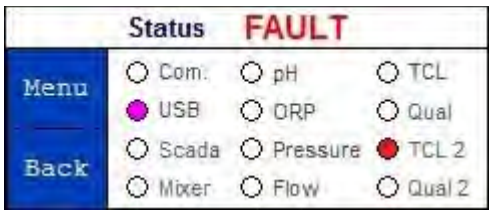



2) Press **Status**.




The Status screen will then be displayed. When the circular visual indicator is red, there is an issue with the indicated equipment. Check connections, reset the system and if the problem persists, contact our service department at 888-774-4536 or service@ugsicorp.com.



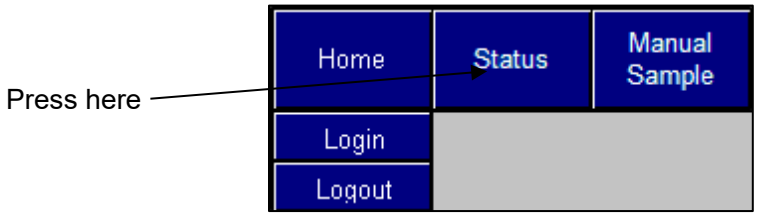
| STATUS | TYPE | DESCRIPTION |
|---|---|---|
| 1 | Com. | Smart Control Center communication error (only applicable if used with Smart Control Center) |
| 2 | USB | No USB storage drive connected |
| 3 | Scada | SCADA communication to SCADA board error |
| 4 | Mixer | Mixer communication error |
| 5 | pH | pH sensor communication error |
| 6 | ORP | ORP sensor communication error |
| 7 | Pressure | No reading from pressure sensor |
| 8 | Flow | Sampling flow is out of range |
| 9 | TCL | Total/free chlorine sensor (first probe) communication error |
| 10 | Qual | Total/free chlorine sensor (first probe) negative value |
| 11 | TCL 2 | Total/free chlorine sensor (second probe) communication error |
| 12 | Qual 2 | Total/free chlorine sensor (second probe) negative value |

## 4.2 USB DATALOG

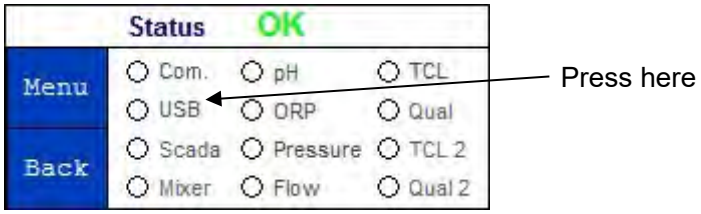
The WQS™ is able to log all monitored parameters and alarms into a USB flash drive. The USB Datalog screen shows the connection status of the USB flash drive and the storage information.

1) From the Home screen, press **Menu**.

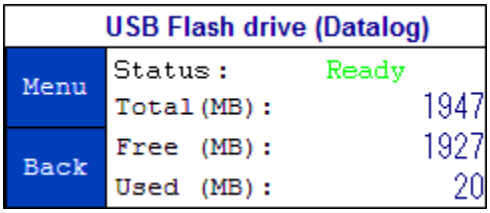
2) Press **Status**.




3) Press **USB** text.




The USB Datalog screen, shown below, will then be displayed.




**NOTE:** If USB flash drive is not connected, WQS™ marks a pink status indicator.

## 4.3 USB DATA DOWNLOAD

The Water Quality Station™ is shipped with a USB drive. The USB drive is installed in the back of the HMI to collect all water quality data (Total/Free Chlorine, pH, ORP, Temperature, Flow and Pressure) at a preset interval (data point every 30 seconds). To access the data, follow the steps below:

1) Remove USB from HMI.
2) Download all .csv files shown in Figure 22 to local computer (separate files for manual samples and water quality parameters measured by the WQS™).

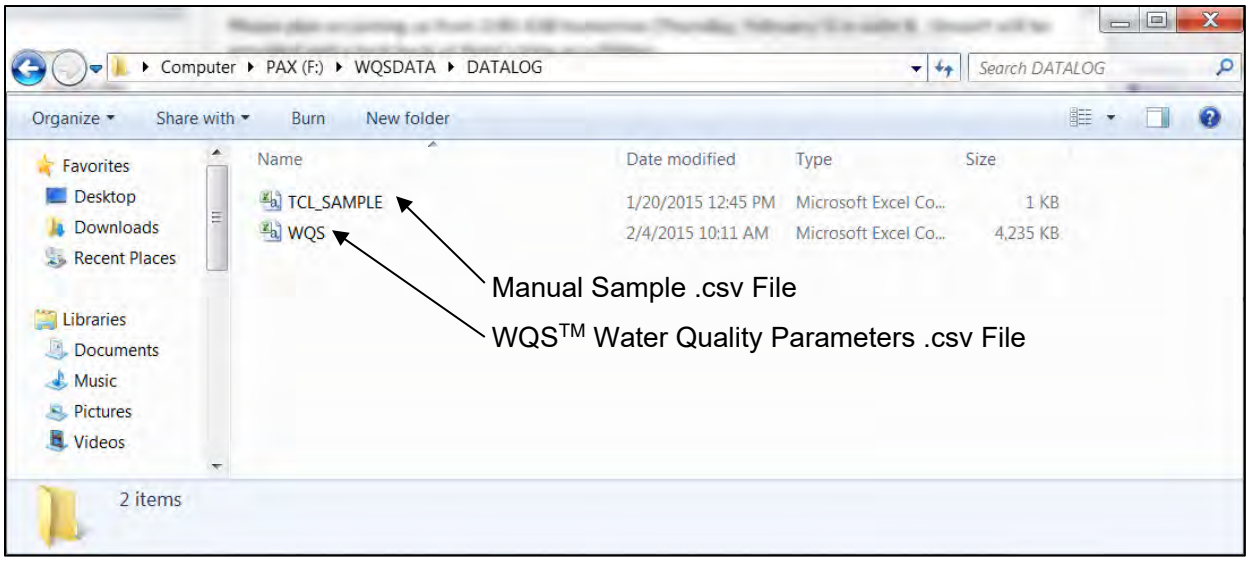



Figure 22: .csv Files of Manual Samples and WQS™ Water Quality Parameters

3) Delete files from USB.

4) Reinsert USB into USB drive on WQS™ HMI.

# 5. CALIBRATION

The Calibration screen allows the configuration of the calibration procedure. Proper calibration is needed to maintain the accuracy of the sensor readings in the Water Quality Station™. Please refer Section 8.1 for recommended calibration interval.

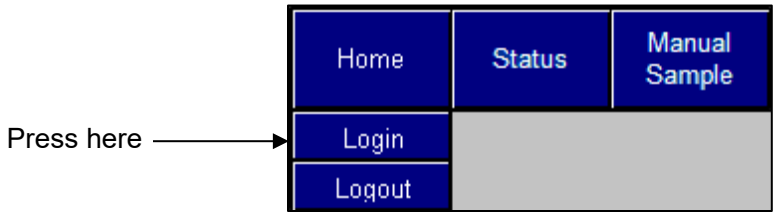
## 5.1 LOGGING IN AS OPERATOR

The software has different levels of access, Operator, Viewer and Admin, based on profiles given to each user. By default, the system has Viewer access at startup. For Calibration, Operator access is required.

To log in as an Operator, follow the steps below:

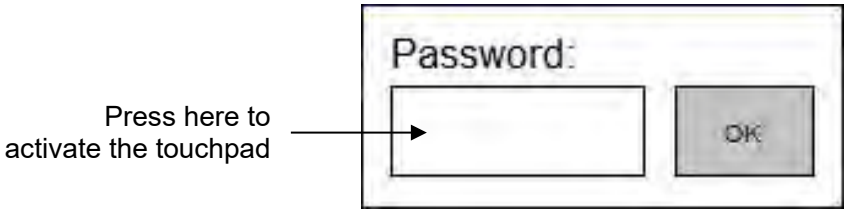
1) From the Home screen, press the **Menu** button.


2) Press Login.




3) Press **Operator**.

4) Touch inside the text box and a touchpad will appear. Enter the factory default password "**1001**".




5) Press **Enter** to close the touchpad and select **OK** to login. Once the password is accepted, it will return to the Menu screen.

**NOTE:** Operator login will automatically logout and revert to Viewer access after 15 minutes of inactivity.

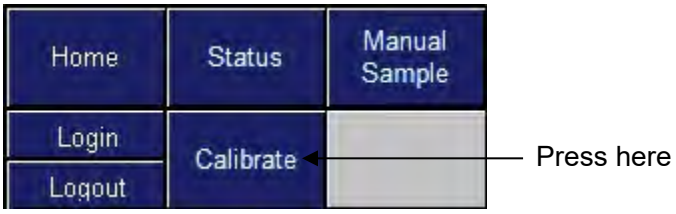
## 5.2 TOTAL CHLORINE CALIBRATION

The manual samples will provide guidance of when to do a chlorine calibration. Every month or based on the data collected, the chlorine probes should be calibrated to minimize drift.

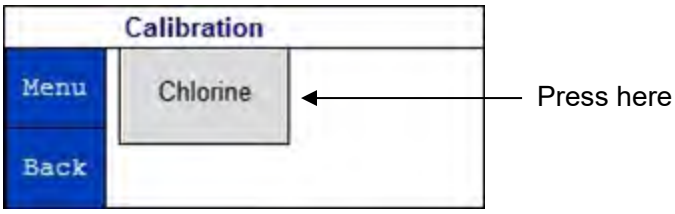
A single-point calibration (uses one reference point for calibration) is used for the total or free chlorine calibration. The steps to calibrate the total/free chlorine sensor(s) are:

1) Measure the total/free chlorine concentration of the water sample in parts-per-million (ppm) of $Cl_2$ by using a DPD (N, N-diethyl-p-phenylenediamine) colorimetric test kit.
2) From the Home screen press **Menu**.

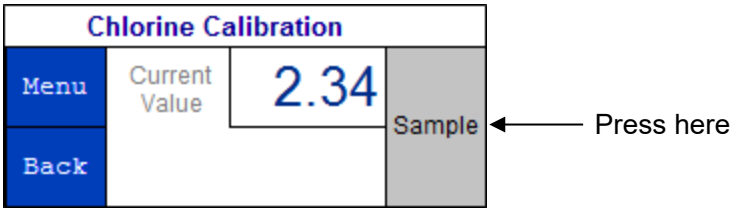

3) Press **Calibrate**.



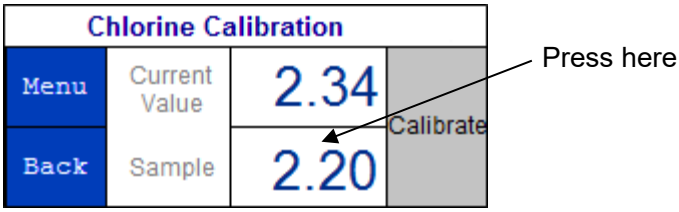

4) From the Calibration screen, press **Chlorine.**



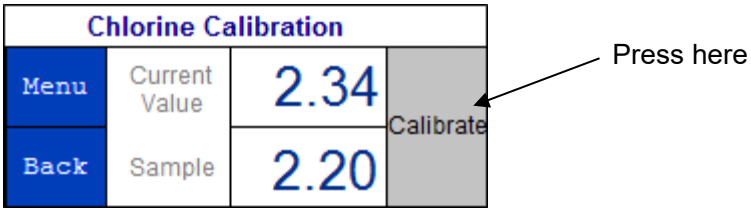

5) Press the **Sample** button on the Chlorine Calibration screen.




6) Enter the measured chlorine concentration value in the box next to the Sample button, press **Enter**.




7) Press **Calibrate** to perform the calibration.



# 6. MANUAL SAMPLE

## 6.1 TAKING A MANUAL SAMPLE DIRECTLY FROM THE WATER QUALITY STATION™

To take a manual sample directly from the Water Quality Station™, follow the steps below:

1) Remove the rubber boot from the manual sample port at the bottom of the Water Quality Station™, see Figure 23.

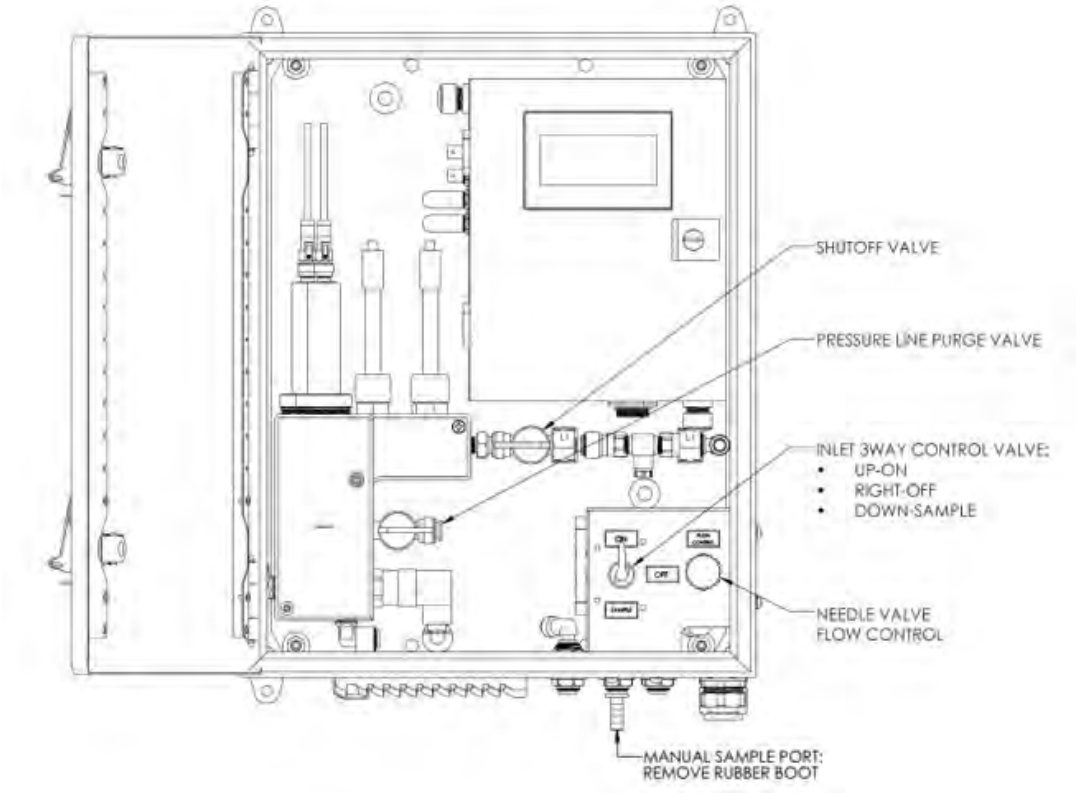



Figure 23: Manual Sample Port

2) Place collection container below manual sample port.

3) Turn the Inlet 3-Way Control Valve (Figure 23) to “Sample” to open the manual sample port.

4) Once the collection container is full, return the three-way valve to the “On” position (Figure 23)

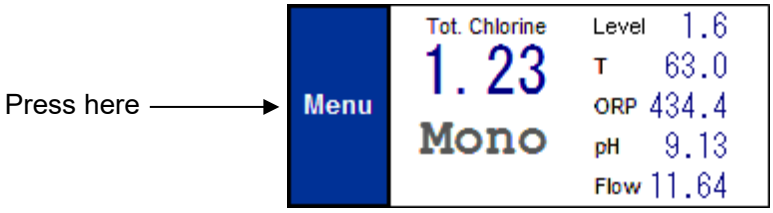
5) Replace the rubber boot on the manual sample port.

6) Enter the manual sample results into the WQS™ per the instructions below (optional).

## 6.2 STORING MANUAL SAMPLE DATA

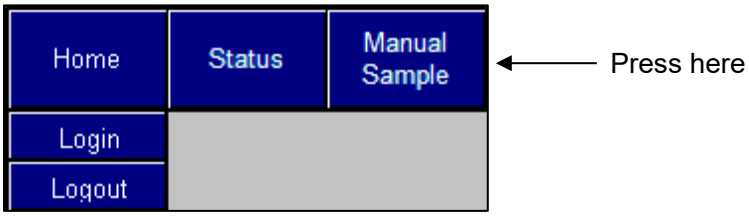
The Manual Sample screen allows an operator to store manual sample data for total chlorine (TCL), monochloramine (MCL), free ammonia (FA), total ammonia (TA), Nitrite and free chlorine (FC) into the USB flash drive. Each water quality parameter will have its own separate file in the USB drive, if installed. To store a manual sample data, follow the steps below:

1) From the Home screen, press **Menu.**

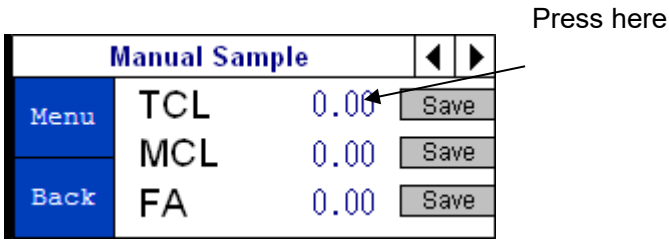



2) Press **Manual Sample**. There are 3 pages for 7 parameters (TCL, MCL, FA, TA, Nitrite, FC and an extra parameter).

| | |
|---|---|
| TCL: | Total Chlorine |
| MCL: | Monochloramine |
| FA: | Free Ammonia |
| TA: | Total Ammonia |
| Nitrite: | Nitrite |
| FC: | Free Chlorine |

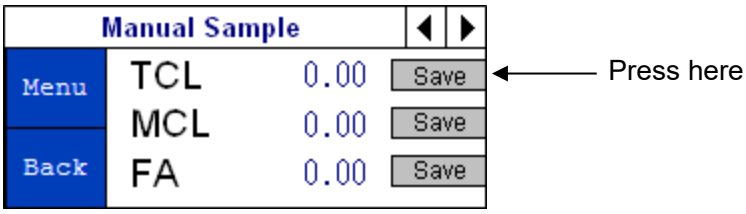



3) Press the corresponding numerical value to the parameter of the manual sample to activate the numerical pad.



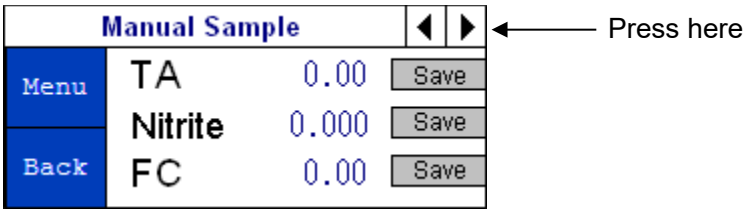

4) Enter manual sample value, press **Enter**.

5) Press **Save**.




6) Repeat for each manual sample taken.

7) Press the arrow to see other parameters.



# 7. TROUBLESHOOTING

In case of any failure, please refer to the table below to identify the fault type, and the potential cause of the problem. Perform the necessary corrective action stated in the "Resolution" column. Please contact the PSI Service Department at 888-774-4536 or service@ugsicorp.com if the failure cannot be resolved.

## 7.1 FAULTS

| FAULT TROUBLESHOOTING | | |
|---|---|---|
| **FAULT TYPE** | **DESCRIPTION** | **RESOLUTION** |
| Com. | Smart Control Center communication error | Check cable. Try power cycle |
| USB | No storage available | Try another flash drive |
| Scada | SCADA communication error | Check SCADA communication |
| Mixer | Mixer communication error | Check mixer communication cable |
| pH | pH sensor communication error | Change probe<br>Change pH board |
| ORP | ORP sensor communication error | Change probe<br>Change ORP board |
| Pressure | No reading from sensor | Check analog cable<br>Change transducer |
| Flow | Sampling flow is out of range | Adjust flow<br>Check for occlusions in tubing and flow cells<br>Use booster pump if flow is too low |
| TCL / TCL 2 | Total/free chlorine sensor (first/second probe) communication error | Check 5 pin cable of respective probe |

| | | |
|---|---|---|
| Qual / Qual 2 | Total/free chlorine sensor (first/second probe) negative value | Change electrolyte. Change cap. Replace sensor |

# 8. MAINTENANCE

**CAUTION:** Personal injury hazard. Only qualified personnel should conduct the tasks described in this section of the manual.

**WARNING**: Multiple hazards. Do not disassemble the instrument for maintenance or service. If the internal components must be cleaned or repaired, contact the manufacturer.

## 8.1 MAINTENANCE SCHEDULE

| MAINTENANCE SCHEDULE FOR WQS™ COMPONENTS | | |
|---|---|---|
| **COMPONENT** | **REQUIRED MAINTENANCE** | **FREQUENCY** |
| Chlorine Sensor | Verify calibration | During manual sampling events or monthly |
| | Change electrolyte | Every 3-6 months or sooner |
| | Replace membrane cap | Every 3 months or when sensor readings are unstable |
| | Clean electrode finger | Only when sensor readings are unstable and have not been stabilized by changing electrolyte and replacing membrane cap. |
| | Replace the sensor | Every 3 years (or less depending on water quality and application) |
| pH Sensor | Verify calibration | During manual sampling events or monthly |
| | Replace electrode | Every year |
| ORP Sensor | Verify calibration | During manual sampling events or monthly |
| | Replace electrode | Every year |

| | | |
|---|---|---|
| Strainer | Clean strainer basket | Every 2-4 weeks (or more depending on water quality) |
| Air Filter | 1) Open the filter cover by lifting up on the blue handle and moving the filter cover to the 90° position.<br>2) Remove and clean the filter with mild detergent and water.<br>3) Reinstall the filter, close the filter cover and reinstall the rain shroud | Every 3 months |

## 8.2 CHANGE CHLORINE SENSOR ELECTROLYTE AND MEMBRNE CAP

1) Close inlet valve to stop incoming water into the flow cell.
2) Disconnect the M-12 cable from the sensor.
3) Remove the sensor from the flow cell.
4) Setup chlorine sensor according to Section 3.5.1.
5) Install the sensor in the flow cell according to Section 0
6) Connect the sensor cable.
7) Open inlet valve to resume flow into flow cell.

**NOTE:** After changing electrolyte, wait 24 hours prior to operating the equipment.

## 8.3 CLEAN CHLORINE SENSOR ELECTRODE FINGER

1) Close inlet valve to stop incoming water into the flow cell.
2) Disconnect the cable from the sensor.
3) Remove the sensor from the flow cell.
4) There is an elastic vent band seal around the membrane cap which is used to seal the vent hole on the membrane cap during normal operation. Prior to servicing the probe, the elastic seal must be slid down to expose this vent hole.

WARNING: **DO NOT** loosen the membrane cap without having the vent hole exposed and unobstructed.

Failure to do so will create a vacuum and destroy the membrane.

5) Clean electrode finger with a clean, dry and soft paper towel.

6) Place the supplied special abrasive paper (blue) just at the tip of the dry, clean electrode. Place a paper towel onto a dry, flat surface and place the blue paper on top (See Figure 24). While holding the probe perpendicularly by the corners, rub the electrode tip of the probe two or three times, across the abrasive paper.

Figure 24: Electrode

7) Hold the electrode shaft upright and put it on the filled membrane cap. Then screw the membrane cap onto the electrode shaft. Turn it counterclockwise until the thread engages, then slowly screw the electrode shaft clockwise (by hand) onto the membrane cap. Excess electrolyte will escape through the vent in the membrane cap. Do not close or block this vent.

8) The elastic vent band seal around the membrane cap should be returned to its initial position covering the vent. Ensure the elastic seal is seated correctly on the membrane cap.

9) Install the sensor in the flow cell and connect the sensor cable.

10) Open the inlet valve to resume flow into flow cell.

# 9. REPLACEMENT PARTS

Please see table below for Replacement Parts

| WQS™ REPLACEMENT PARTS | |
|---|---|
| **PART NUMBER** | **PART DESCRIPTION** |
| 98-01020 | Service Kit, Total or free chlorine sensor |
| 98-01021 | Service Kit, Membrane replacement kit, total chlorine sensor |
| 98-01022 | Service Kit, Electrolyte gel, total chlorine sensor |
| 98-01023 | Service Kit, pH electrode |
| 98-01024 | Service Kit, ORP electrode |
| 98-01027 | Service Kit, Strainer |

# Residual Control System (RCS)

## Chemical Feed Skid (CFS)

### Operations & Maintenance Manual


PSI Water Technologies
A UGSI SOLUTIONS COMPANY

**Notices**



**WARNING:** It is important that this manual be read in full prior to installation or maintenance of the PSI Chemical Feed Skid. No part of this manual may be reproduced in any form or by any means (including electronic storage and retrieval or translation into a foreign language) without prior agreement and written consent from PSI Water Technologies as governed by the United States and international copyright laws.

## Manual Part Number

1101-7203-01

## Edition

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PSI Water Technologies, Inc.
1077 Dell Ave A
Campbell, CA 95008
(408) 370-6540

## Warranty

The material contained in this Installation/Operation Manual is provided “AS IS” and “WITH ALL FAULTS” and the user understands and agrees that all express and implied warranties, including those warranties implied by the Uniform Commercial Code as enacted in the state of California, United States or such other forum as may be agreed upon by PSI and the user, are excluded with regard to this manual and any information contained herein; and PSI and the user further exclude all other implied warranties of merchantability and fitness for a particular purpose with respect to this manual. The material provided in this manual is subject to change in future editions without notice to the user.

## CONTENTS

# 1. BEFORE YOU START

## 1.1 SAFETY INFORMATION

Please read and understand the following instructions and all labels fixed to the instrument before performing any procedure with this product. Failure to follow these instructions may result in death or serious injury.

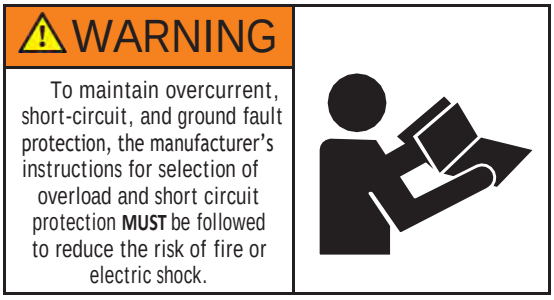
### 1.1.1 Hazard Information

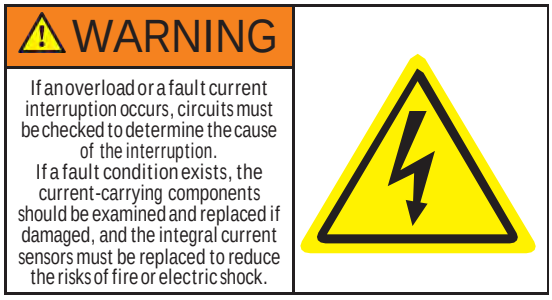
**CAUTION** indicates a hazardous situation, which if not avoided, can result in minor or moderate property/equipment injury.

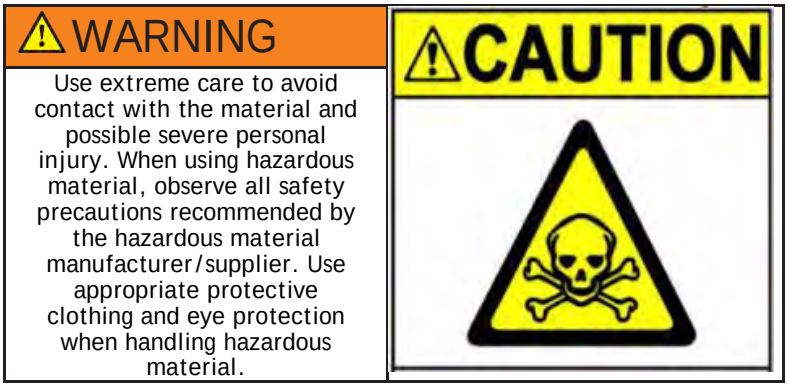
**WARNING** indicates an imminently hazardous situation, which if not heeded, can result in death, serious injury or equipment damage.

**DANGER** indicates an immediate hazard, a hazard capable of producing irreversible damage or injury.

### 1.1.2 Precautionary Labels



## 1.2 INSTALLATION, OPERATION, MAINTENANCE


**HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH**

- Installation, adjustment, repair and maintenance must be performed by qualified personnel.
- The user is responsible for compliance with all international and national electrical code requirements with respect to grounding of all equipment.
- Many parts of the Chemical Feed Skid (CFS) operate at the line voltage. DO NOT TOUCH. Only use electrically insulated tools.
- DO NOT touch unshielded components or terminal strip screw connections with voltage present.
- DO NOT short across terminals.


**FALL HAZARD**

- Fall protection is a safety requirement for work performed on water tanks. Please refer to OSHA's website for fall protection safety requirements: **http://www.osha.gov** or your relevant local authority.


**GENERAL DANGER**

- A confined space entry plan and operational procedures must be used for every reservoir entry. Refer to OSHA confined space requirements at their website: **http://www.osha.gov** or your relevant local authority.
- Lifting tools and equipment are required during installation. Refer to OSHA's website for more information: **http://www.osha.gov** or your relevant local authority.
- Installations performed by a diver require a dive plan that specifies equipment, procedures and safety measures used.

- Avoid dropping construction materials or tools into water tanks so as to prevent damage to the tank's interior coating.


**HAZARDOUS CHEMICAL DANGER**

- In the event of equipment malfunction, the user of the equipment is responsible to know and comply with the relevent health, safety, and environmental regulations.
- When dealing with hazardous materials, it is the responsibility of the equipment user to obtain and follow all safety precautions recommended by the hazardous material manufacturer/supplier.
- Avoid vapors and direct contact with chemicals. DO NOT MIX CHLORINE AND AMMONIA. Mixing chlorine and ammonia produces toxic vapors.
- Ensure personnel are trained in hazardous materials management according to OSHA, DOT and EPA standards.
- Wear protective equipment and consult MSDS manual for details.

# 2. GENERAL INFORMATION

## 2.1 PRODUCT INTRODUCTION

The Chemical Feed Skid (CFS) is designed with the necessary components to safely and precisely inject chlorine and/or ammonia into potable water.

## 2.2 INTENDED PURPOSE

The CFS is primarily intended for injecting chlorine (liquid sodium hypochlorite with typical concentrations of 0.8% and 12.5%), and ammonia (aqueous ammonia of 19% or liquid ammonium sulfate of 40%) in potable water. Use with any other chemicals or in industrial and wastewater applications must be approved by PSI Water Technologies before installation.

The ammonia CFS should be used for ammonia only. The chlorine CFS should be used for chlorine only.

## 2.3 THEORY OF OPERATION

The CFS Modbus controller receives commands from the Smart Control Center over an RS-485 network and transmits signals to the chemical dosing pump via an analog and digital signal. The chemical dosing controller monitors the pumps, pressure, and chemical level. The controller also provides feedback to the Smart Control Center. Based on this feedback, the Smart Control Center can activate any alarms and system response that are included in the extensive Alarm Management System.

## 2.4 QUALITY CONTROL STATEMENT

PSI Water Technologies is dedicated to supplying high-quality products that meet or exceed the needs of customers. PSI Water Technologies' strict quality control helps to ensure the best value to customers. PSI Water Technologies manages its business to the highest environmental and ethical standards.

## 2.5 SPECIFICATIONS

| CFS SPECIFICATIONS | |
|---|---|
| **Skid** | Chemical resistant, UV protected black polypropylene (38"H x 29"W x 24"D) (965.2mmH x 736.6mmW x 609.6mmD)<br>Single Pump Skid approximate weight: 90 lbs(40.8 kg)<br>Dual Pump Skid approximate weight: 130 lbs (58.9 kg) |
| **Pump** | Blue-White Industries Flex-Pro model A3 (M3 optional) peristaltic pump (Recommended) |
| **Piping** | PVC schedule 80 |
| **Chlorine Skid Connections** | Sodium Hypochlorite: 1/4" I.D. Reinforced PVC hose |

| | |
|---|---|
| | Sodium Hypochlorite: 3/8" O.D. x 1/4" I.D. FEP tubing (shipped separately) |
| **Ammonia Skid Connections** | Ammonia: 3/8" O.D. x 1/4" I.D. flexible polyethylene tubing |
| **Pump Tubing Connections** | Sodium Hypochlorite: 3/8" O.D. x 1/4" I.D. FEP tubing<br>Ammonia: 3/8" O.D. x 1/4" I.D. flexible polyethylene tubing |
| **Unions** | PVC body, schedule 80, Viton or EPDM seals (chemical dependent) |
| **Ball Valves** | True unions, PVC body, Viton or EPDM seals (chemical dependent) |
| **Pressure Relief Valve** | PVC body, Viton/EPDM seals, adjustable pressure range 10-250 PSI, HDPE pressure adjusting screw |
| **Back Pressure Valve** | PVC body, Viton/EPDM seals, adjustable pressure range 10-150 PSI, HDPE pressure adjusting screw |
| **Calibration Cylinder** | PVC body and end caps, chemical resistant, break resistant, colored graduations, 250ml (4 GPH) volume, ½" outlet |
| **Pressure Gauge** | 0-100 PSI, 316 stainless steel connection, 4-20mA output, +/- 0.5% Accuracy, with digital display |
| **Pressure Guard** | PVC body with PTFE isolator filled with FDA White mineral oil |
| **Check Valve** | PVC body, Viton or EPDM seals (chemical dependent), cracking pressure 1.5 PSI |
| **Y-Strainer** | PVC body, Viton or EPDM seals (chemical dependent) |
| **Mounting Clips** | Gray Nylon Plastic, Snap-in |
| **Pump Mounting Brackets** | 316 stainless steel |
| **Mounting Hardware** | 316 stainless steel |
| **Secondary Containment** | 9 gallons secondary containment |

| CHEMICAL DOSING CONTROLLER SPECIFICATIONS | |
|---|---|
| **Input/Output** | 2 digital inputs; 2 digital outputs<br>1 analog input; 1 analog output |
| **Communication** | Modbus protocol with Smart Control Center |
| **Connection** | CAT 5 pass through cable |

| | |
|---|---|
| **Power** | Standard 110VAC |
| **Enclosure** | Dimensions: 10.0” x 8.0” x 6.0”<br>NEMA Type 3R rating<br>Black Polycarbonate |
| **Pump control option** | Digital relay<br>Analog (4-20mA) |

# 3. UNPACKING AND INSTALLATION

Unpack the contents of your shipment carton and verify that all the components have been received. Refer to the packing list shown in Section 3.1. If any items are missing or damaged, contact the PSI Service Department at (888) 774-4536 or your local sales representative immediately.

**NOTE:**

- The CFS has been pressure tested at the PSI facility with potable water before shipping. Small quantities of water may be noticeable in the system.

## 3.1 PACKING LIST- ASSEMBLY PARTS LIST

The CFS is delivered preassembled. See the following table to verify the assembly parts of each CFS.

| CFS ASSEMBLY | | |
|---|---|---|
| **ITEM NO.** | **DESCRIPTION** | **QTY.** |
| 1 | Monoclor® RCS Chemical Feed Skid | 1 |
| 2 | Skid MODBUS Controller | 1 |
| 3 | Ball Valve, PVC, 1/2" | 6 |
| 4 | Graduated Calibration Cylinder, PVC | 1 |
| 5 | Pressure Relief Valve, PVC,1/2” | 1 |
| 6 | Back Pressure Valve, PVC, 1/2" | 1 |
| 7 | Check Valve, PVC,1/2" | 1 |
| 8 | Pressure Guard Fitting, PVC | 1 |
| 9 | Pressure Gauge | 1 |
| 10 | Y-Strainer | 1 |
| 11 | Dosing Pump | 1 |
| 12 | Chlorine Skid Connection Fittings (shipped loose) | 1 |

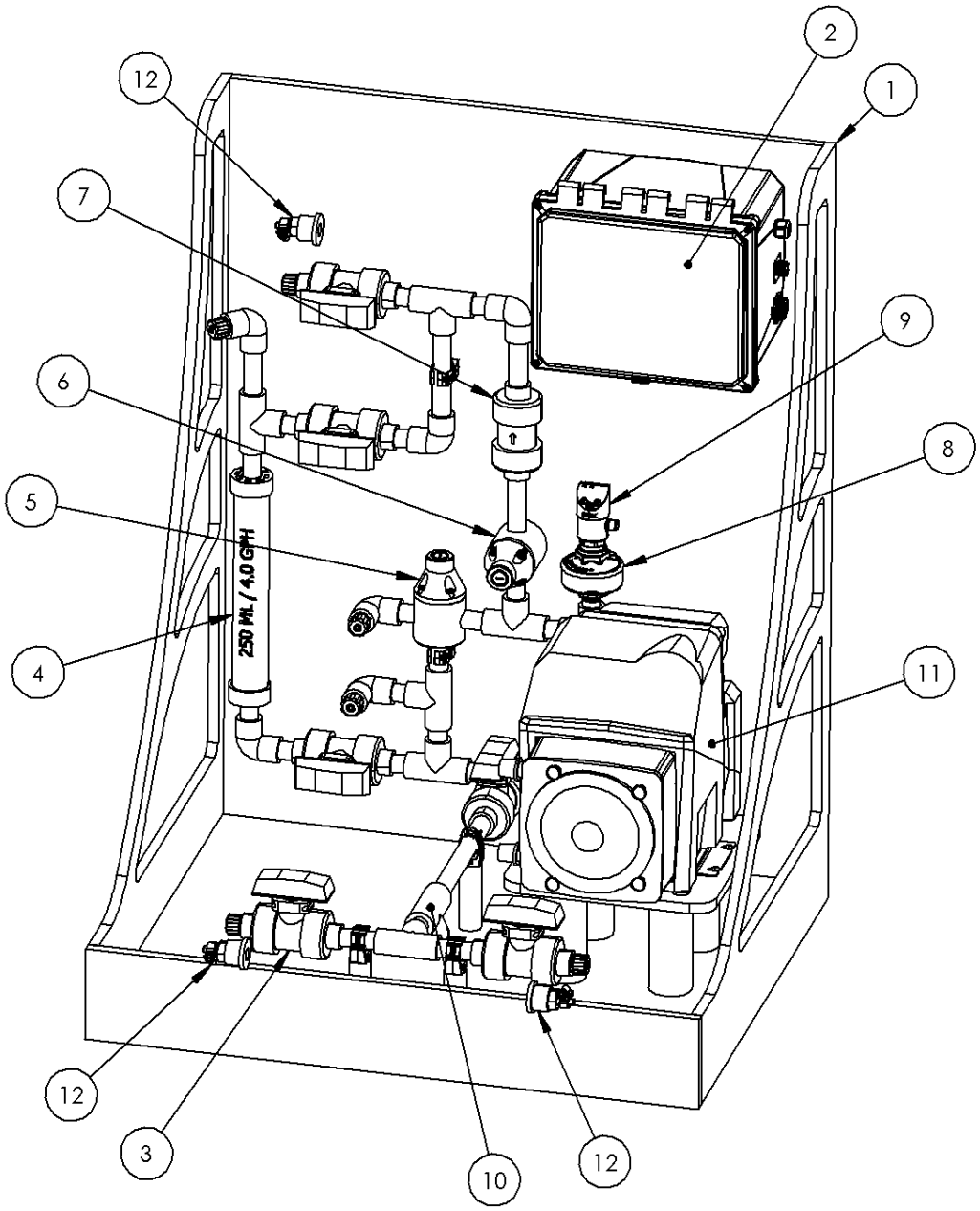



Figure 1: Assembly Parts List

## 3.2 INSTALLING THE CFS

The CFS must be installed on a level surface. Please refer to local code in regard to anchoring and securing the skid. Before beginning any portion of the install, verify the following:


**HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH**

1. INCOMING POWER HAS BEEN SHUT OFF.
2. The conduit for the line power, connection to the Smart Control Center and conduit for chemical lines have been sized properly.
3. The mounting location is secure from vandalism or theft, preferably inside a locked building or gated facility.
4. The mounting location should have sufficient space around the skid to provide operator with a working area to operate the skid. (For skid dimensions, see MOUNTING PUMP TO CFS

**NOTE:** The ammonia and chlorine feed skids are identical sizes and are color coded.

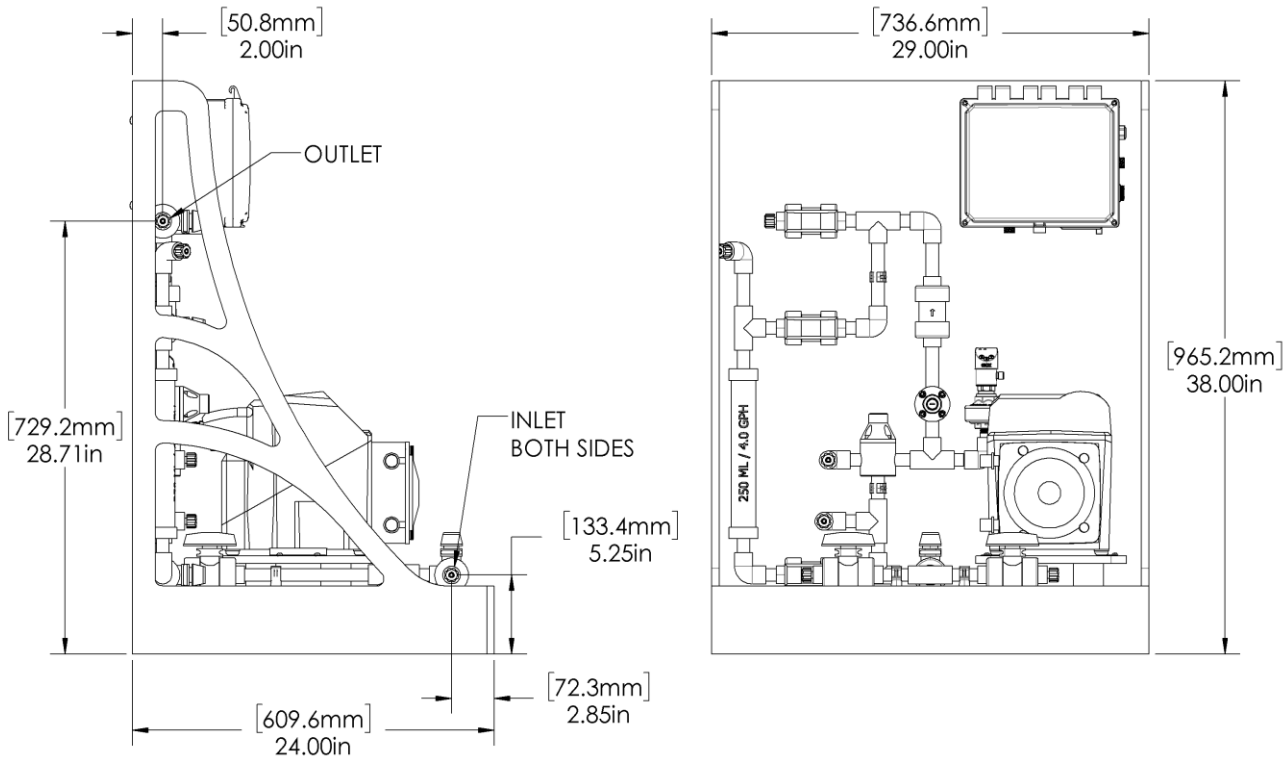



Figure 2: Dimensions

### 3.2.1 MOUNTING PUMP TO CFS

**NOTE:** The CFS and Chemical Dosing Pumps may be shipped separately. Mount the pump to the skid per the instructions below. (See Figure 3. for mounting details.)

**CAUTION** Read the instructions before mounting the pump. Failure to follow these instructions may result in damage to the skid and/or pump and warranties for this device may be voided.

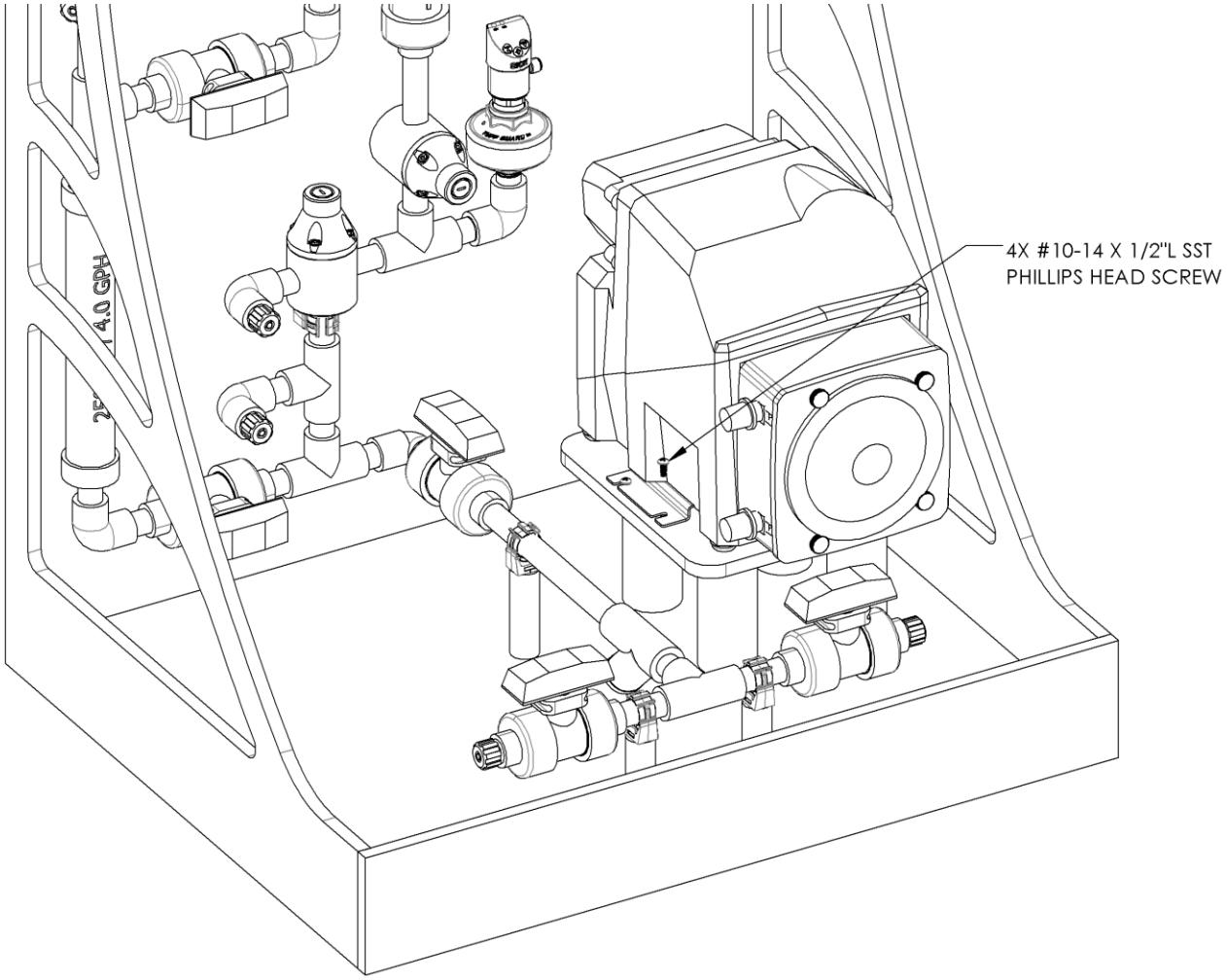



Figure 3: Pump Mounting

### 3.2.2. CONNECTING PUMP INTERFACE CABLE

1) A pump interface cable with 7-pin plug assembly is pre-wired into the rear of the pump. Plug the pump interface cable into the bottom of the Chemical Dosing Controller to the port labeled “Pump Interface Cable”, see Figure 4.

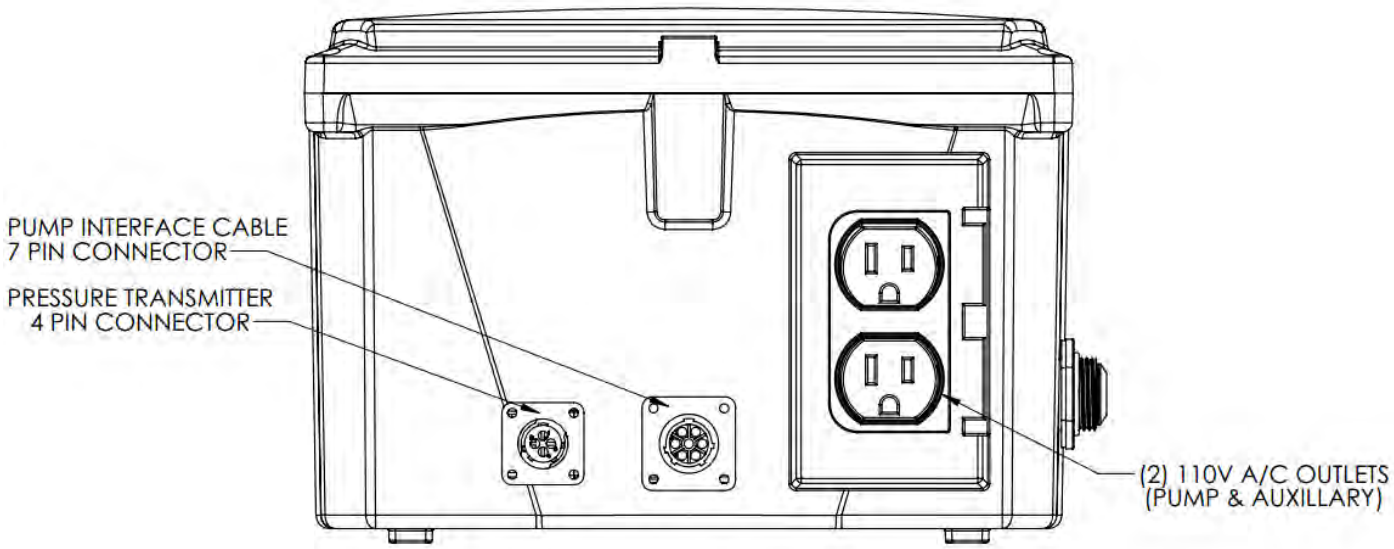



Figure 4: Chemical Dosing Controller Bottom View

2) Rotate coupling nut clockwise to secure connection. Do not over tighten.

### 3.2.3. CONNECTING PRESSURE GAUGE

1) A chemical pressure sensor cable with a 4 pin plug assembly is pre-wired to the pressure transmitter, Item No. 9 in Figure 1. Plug the chemical pressure sensor cable into the bottom of the CFS Modbus controller to the port labeled “Pressure Transmitter”, see Figure 4.

2) Rotate coupling nut clockwise to secure connection. Do not over tighten.

### 3.2.4. CONNECTING CHEMICAL LEVEL SENSOR (PROVIDED SEPARATELY)

1) A chemical level sensor cable with a 4 pin plug assembly is supplied with the sensor (provided separately). Connect the chemical level sensor to the chemical container via the instructions provided with the level sensor.

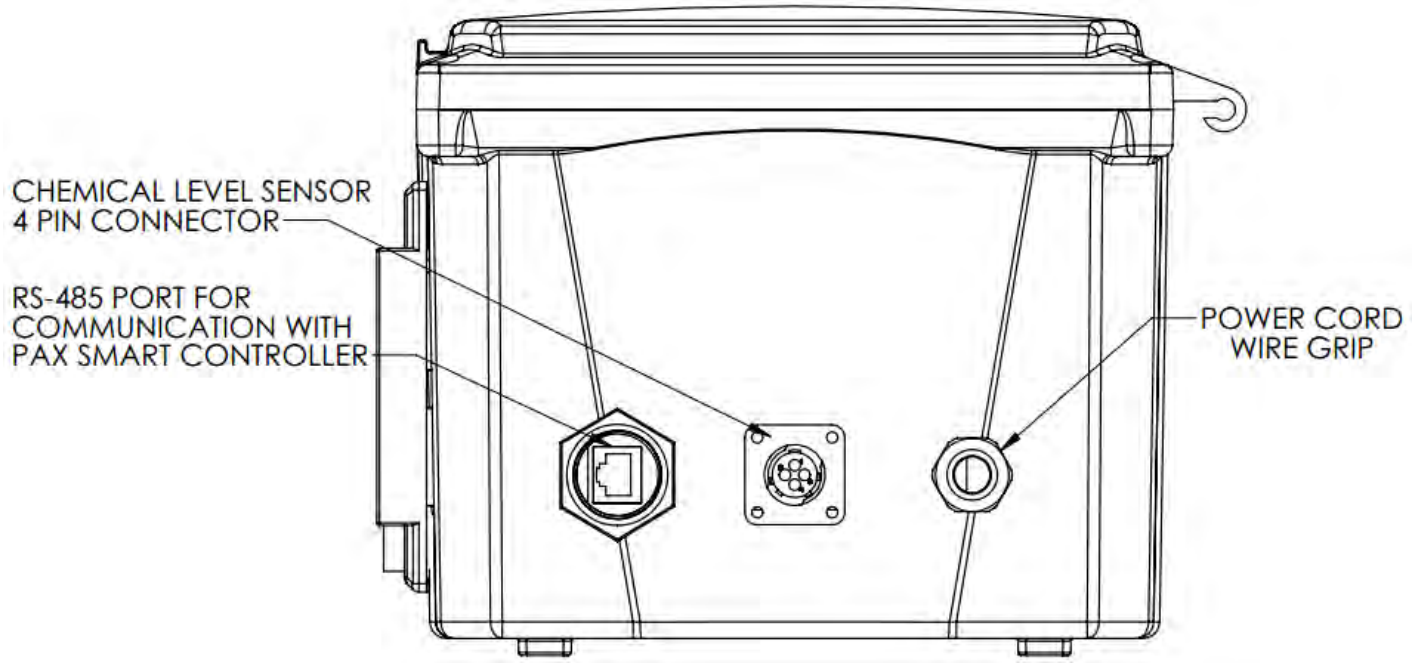



Figure 5: Chemical Dosing Controller Bottom View

2) Plug the chemical level sensor cable into the bottom of the CFS Modbus controller to the port labeled “Chemical Level Sensor”, see Figure 5.

3) Rotate coupling nut clockwise to secure connection. Do not over tighten.

### 3.2.5. CONNECTING POWER TO THE PUMP

1) Connect the 3 blade power plug exiting the rear of the pump to the courtesy outlet provided on the bottom of the CFS Modbus controller, see Figure 4.

2) Plug the 3 blade power plug exiting the CFS Modbus controller to the nearest 115V outlet.

3) The pump screen should now be lit up indicating there is power to the unit.

# 4. SYSTEM SETUP

The CFS system operation is illustrated in Figure 6 below.

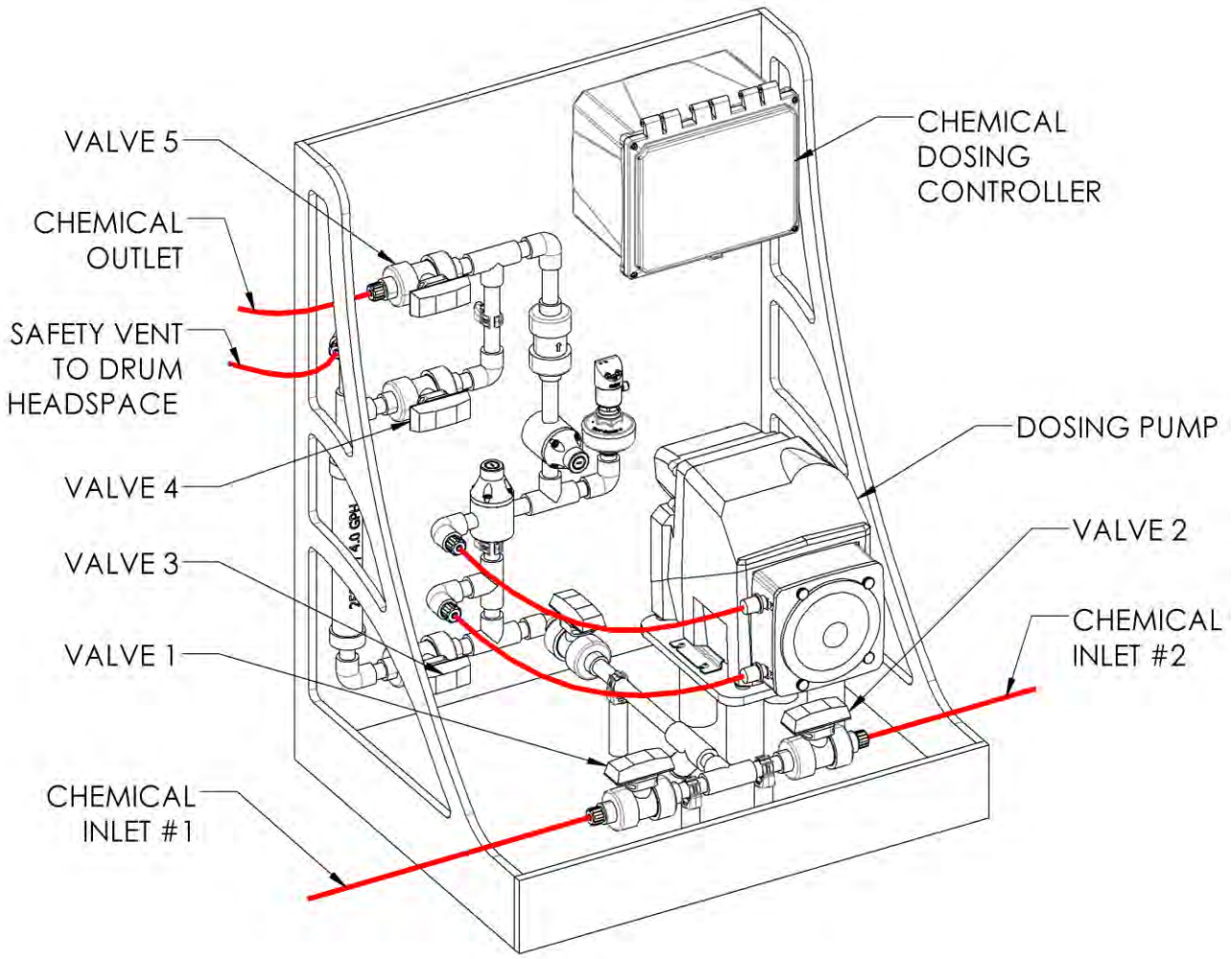



Figure 6: System Operation

## 4.1 PLUMBING CONNECTIONS

1) Connect flexible, chemical resistant tubing from chemical solution into either chemical inlet #1 or #2 (Valve 1 or Valve 2 in Figure 6 above).
2) Connect flexible, chemical resistant tubing from the chemical treated system (tank or pipe) to the chemical outlet.
3) Connect calibration cylinder, safety vent to chemical supply tank with flexible, chemical resistant tubing.

## 4.2 PUMP CHEMICALS

1) Open inlet ball valve (Valve 1 or Valve 2 in Figure 6) once the connection was made in Section 4.1 above.
2) Close other inlet ball valve (Valve 1 or Valve 2).
3) Close both valves (Valve 3 and Valve 4) leading to calibration cylinder.
4) Open outlet ball valve (Valve 5) to inject chemical into the system.
5) Start pump.

WARNING **Confirm** there are no visible leaks in the system.

## 4.3 PUMP CALIBRATION

1) Open inlet ball valve (Valve 1 or Valve 2) the connection was made in Section 4.1 above.
2) Close other inlet ball valve (Valve 1 or Valve 2).
3) Close outlet ball valve (Valve 5).
4) Close ball valve (Valve 3) on base of skid leading to calibration cylinder.
5) Open valve to the upper right (Valve 4) of the calibration cylinder.
6) Start pump.
7) Fill calibration cylinder until filled to top calibration line.
8) Stop the pump once the calibration cylinder is filled.
9) Close all valves.
10) Record chemical level in calibration cylinder.
11) Open valve (V3) on base of skid leading to calibration cylinder.
12) Open outlet valve (V5) to inject chemical into the system.
13) Run the pump calibration procedure from the Smart Control Center. Refer to the Smart Control Center O&M Manual for HMI navigations.

WARNING **DO NOT** leave pump unattended during this operation.

**NOTE:** To calibrate pump at your desired feed rate, you must pre-program your pump speed before running this procedure. Please refer to the instruction manual for your pump to adjust feed rate and additional calibration instructions.

## 4.4 LEVEL SENSOR CONFIGURATION

Please refer to the Smart Control Center Operation and Maintenance manual for level sensor configuration.

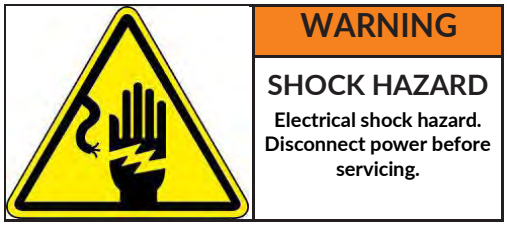
## 4.5 PRESSURE RELIEF VALVE ADJUSTMENT

The maximum pressure of the discharge line may need to be adjusted on the pressure relief valve. The maximum pressure is normally set to 40 PSI at the factory. If the discharge pressure is expected to be above 40 PSI, then the opening pressure of the pressure relief valve has to be increased accordingly.

To verify the opening pressure, close the discharge valve and start the pump. The pressure reading on the gauge should rise until it reaches the opening pressure of the pressure relief valve. To increase the opening pressure, turn the screw located at the top of the pressure relief valve clockwise. To decrease the opening pressure limit turn the screw counter-clockwise.

# 5. RECOMMENDED PREVENTATIVE MAINTENANCE

## 5.1 MAINTENANCE AND SERVICE




### 5.1.1.0 ROUTINE MAINTENANCE:

Validate pressure relief setting - quarterly

Minimum of monthly pump calibration is recommended - monthly

Clean out Y(WYE) – strainer (Quarterly)

Confirm operation of leak detector (TFS) annually

Test each valve for smooth operation annually

Check valves should be inspected – annually

Verify all electrical connections are torqued - annually

Recommended frequency:

Peristaltic pumps – change tubes quarterly

Diaphragm pumps – rebuild wet-side annually

# 6. REPLACEMENT PARTS

The following are replacement part numbers for the Chemical Feed Skid:

| DESCRIPTION | PART NUMBER | QUANTITY |
|---|---|---|
| Peristaltic Pump Tube | 98-01025 | 1 |

For information contact PSI Water Technologies

Service Department

Phone: (866) 729-6493

service@ugsicorp.com

# PAX Water Mixer (PWM400v3)

## Installation/Operation Manual

PAX Water Technologies
A UGSI SOLUTIONS COMPANY

**Notices**



**WARNING:** It is important that this manual be read in full prior to installation or maintenance of the PAX Mixing System. 

### Manual Part Number

1101-7301-01-D

### Edition

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Printed in USA
PAX Water Technologies, Inc.
550 Sycamore Drive
Milpitas, CA 95035
(866) 729-6493

### Warranty

The material contained in this Installation/Operation Manual is provided “AS IS” and “WITH ALL FAULTS” and the user understands and agrees that all express and implied warranties, including those warranties implied by the Uniform Commercial Code as enacted in the state of California, United States or such other forum as may be agreed upon by PAX and the user, are excluded with regard to this manual and any information contained herein; and PAX and the user further exclude all other implied warranties of merchantability and fitness for a particular purpose and any warranties arising from course of dealing or usage of trade with respect to this manual. The material provided in this manual is subject to change in future editions without notice to the user.

## CONTENTS

# 1. Before You Begin

Read and understand the following instructions before performing any procedure with this product. Failure to follow these instructions may result in death or serious injury.

## HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Installation, adjustment, repair and maintenance must be performed by qualified personnel.
- The user is responsible for compliance with all international and national electrical code requirements with respect to grounding of all equipment.
- Many parts of the PAX Control Center, including the printed circuit boards, operate at the line voltage. DO NOT TOUCH. Only use electrically insulated tools.
- DO NOT touch unshielded components or terminal strip screw connections with voltage present.
- DO NOT short across terminals.

## BEFORE SERVICING THE PAX WATER MIXER

- Disconnect all power, including external control power that may be present.
- Place a "DO NOT TURN ON" label on all power disconnects.
- Lock all power disconnects in the open position.
- WAIT 15 MINUTES to allow the VFD capacitors to discharge.

## UNINTENDED EQUIPMENT OPERATION

- No responsibility is assumed by PAX Water Technologies for any consequences arising out of the use of this product.
- Do not operate or install any drive or drive accessory that appears damaged. Contact your PAX representative to resolve any damage issues.

## SAFETY WARNINGS

**WARNING:** indicates an imminently hazardous situation, which if not avoided, can result in death, serious injury or equipment damage.

**NOTE:** Indicates manufacturer recommendations to consider when installing or operating equipment.

**TIP:** Helpful information regarding equipment installation or operation.

- A confined space entry plan and operational procedures must be used for every reservoir entry. Refer to OSHA confined space requirements at their website: **http://www.osha.gov** or your relevant local authority.
- Lifting tools and equipment are required during installation. Refer to OSHA's website for more information: **http://www.osha.gov** or your relevant local authority.
- Fall protection is a safety requirement for work performed on water tanks. Please refer to OSHA's website for fall protection safety requirements: **http://www.osha.gov** or your relevant local authority.
- Installations performed by a diver require a dive plan that specifies equipment, procedures and safety measures used.
- Only licensed electrical contractors should attempt installation of the electrical components of the PAX Water Mixer and its Control Center.
- Avoid dropping construction materials or tools into water tanks to prevent damage to the tank's interior coating.

**NOTE:** A "Rotating Machinery Hazard" label is included with your shipment. Place label near tank hatch.

# 2. Overview

## PAX WATER MIXER SYSTEM DESCRIPTION

The PAX Water Mixer is a submersible active mixing system for potable water storage tanks and reservoirs. When operated correctly, the PAX Water Mixer can rapidly reduce thermal stratification, reduce ice formations, rapidly blend and distribute doses of residual disinfectant, and maintain uniform chemical and temperature conditions. Under some conditions, the mixing action can also reduce the rate of residual disinfectant loss and lower volatile disinfection byproduct levels inside the tank as part of an in-tank aeration system.

The grid-powered Control Center is compatible with both wired and wireless SCADA outputs. This manual includes guidelines for installation of the grid-powered PAX Control Center and troubleshooting information.

**NOTE:** The PAX Mixer will need to be recertified if not installed or left in a non-operational state for two years. Contact your PAX Water Technologies representative for details.

## QUALITY CONTROL STATEMENT

PAX Water Technologies is dedicated to supplying high-quality products that meet or exceed the needs of water customers. PAX Water Technologies' strict quality control and continuous improvement programs ensure the best value to customers. PAX Water Technologies manages its business to the highest environmental and ethical standards.

## BASIC SYSTEM OPERATION AND FAULT MONITORING

The PAX Control Center converts single phase input power to three phase output power to operate the PAX Mixer. The PAX Control Center is programmed to maintain a constant RPM speed for the PAX Mixer. During normal operating conditions, the Mixer RUN light (Green) is illuminated. In the event of a fault the RUN light will go out and the FAULT light (Red) will illuminate. Neither light is illuminated when there is a NO Power condition or if a remote SCADA OFF command has been issued. The PAX Control Center is equipment with two SCADA interfaces, details can be found in section 10 of this manual.

### The PAX Control Center monitors various parameters including:

- Input Voltage: The system will go into a fault condition for an under voltage and an overvoltage condition.
- Output Current: The system will go into a fault condition for an undercurrent or overcurrent condition.
- Phase Loss: The system will go into a fault condition if there is a loss of one or more output phases between the PAX Control Center and the PAX Mixer.
- Motor Short Circuits: The system will go into a fault condition if there is a ground fault between the PAX Control Center and the PAX Mixer.

- Mixer Low Power: The system will go into a fault condition if the motor load drops below the lower operating value for more than 30 seconds. This fault will occur if the water level drops below the PAX Mixer impeller. Even though this feature is incorporated into the PAX Control Center to ensure that the PAX Mixer is not run dry, we do not recommend using this to shut down the PAX Mixer. The PAX Water system should be shut down through either the SCADA Interface or by performing the shutdown procedure.
- Motor Overload: The system will go into a fault condition if there is a locked rotor or excessive output current to the PAX Mixer.
- Remote SCADA ON/OFF Command: When a SCADA OFF command is issued the VFD display will show an RDY code and the RUN and FAULT lights will turn off. When the SCADA ON Command is issues, the display will show the running frequency and the RUN light will illuminate.

Refer to Section 14 for a listing of the faults.

A fault can be cleared by turning off the PAX Control Center and then turning it back on or by performing a Remote SCADA OFF then ON command.

NSF International provides testing and certification of water systems and components to ensure their safety for use in drinking water systems. Certification to the health effects requirements of NSF/ANSI Standard 61-G has been completed for these products which include all wetted components – including the frame, feet, motor, impeller and power cable.

## 3. Installation Tools & Test Equipment

**NOTE:** Installing the PAX Water Mixer is a two-person job.

1. Slot Head Screwdriver, 6" (5.2 cm) and 12" (30.5 cm)
2. Slot Head Screwdriver, Small Technical
3. Wire Stripper/Crimper
4. Diagonal Cutter, 6" (5.2 cm)
5. Electrical Tape, Black, ½" (1.3 cm) width
6. Multimeter (Fluke #373 or equivalent)
7. Current Clamp (Fluke #373 or equivalent)
8. Needle-nose Pliers

## 4. Facilities Requirements

The following requirements must be provided at the installation site. This manual is not intended to cover the set-up of these facilities.

**NOTE:** Install the following items in accordance with all electrical codes, state, local and OSHA requirements.

| PWM400 MIXER ASSEMBLY | |
|---|---|
| **REQUIREMENT** | **DESCRIPTION** |
| Line Power<br>(Based on Configuration) | 120/240 VAC, 50/60 Hz, Non GFCI Protected 20-amp circuit. |
| Junction Box<br>(Not Included) | 3R located in accordance with electrical codes. |
| Electrical Conduit<br>(Not Included) | Use electrical conduit from the tank penetration to the junction box and from the junction box to the PAX Control Center. Conduit size shall be determined based on the wire size used. To connect the PAX power cable to PAX Control Center, use copper wire only, Type THHN, 12 AWG (3.31 $mm^2$) or larger, rated minimum 60°C. |

**WARNING: Use proper incoming power based on your configuration.**

## 5. PAX Water Mixer Assembly

| MIXER SPECIFICATIONS | |
|---|---|
| Power Supply Requirement | 120/240 VAC, 50/60 Hz, Non GFCI Protected 20-amp circuit |
| Motor Type | 230 VAC, ½ HP, water-filled, water-lubricated |
| RPM | 2100 |
| Nominal Power Draw | 0.575 kVA (575 watts) |
| Impeller Specifications | 316 stainless steel 6” (16 cm) tall x 3” (8 cm) diameter |
| Footprint Diameter | 3’ 10” (117 cm) |
| Height | 3’ 11” (119 cm) |
| Weight: Mixer Assembly | 53 lbs. (24 kg) |
| Control Center Dimensions | 20”x 21” x 8” (50 cm x 53 cm x 20 cm)<br>55 lbs. (25 kg) |
| Material: Control Center | Powder-coated carbon steel, Type 4 enclosure |
| Material: Stand | 316 stainless steel |
| Material: Motor Seals | Chlorine/chloramine-resistant NBR rubber |
| Material: Feet | Chlorine/chloramine-resistant EPDM rubber |
| Wiring | NSF 61 & UL-listed submersible pump cable 14 AWG (2.1 $mm^2$) XLPE<br>(.78 in x .28 in / 20 mm x 7 mm) |
| Maximum Motor Wire Length | 250’ (76 m) |

## Control Center Assembly Parts List

The following parts are included with your PAX Water Control Center assembly *(See Figure 1)*.

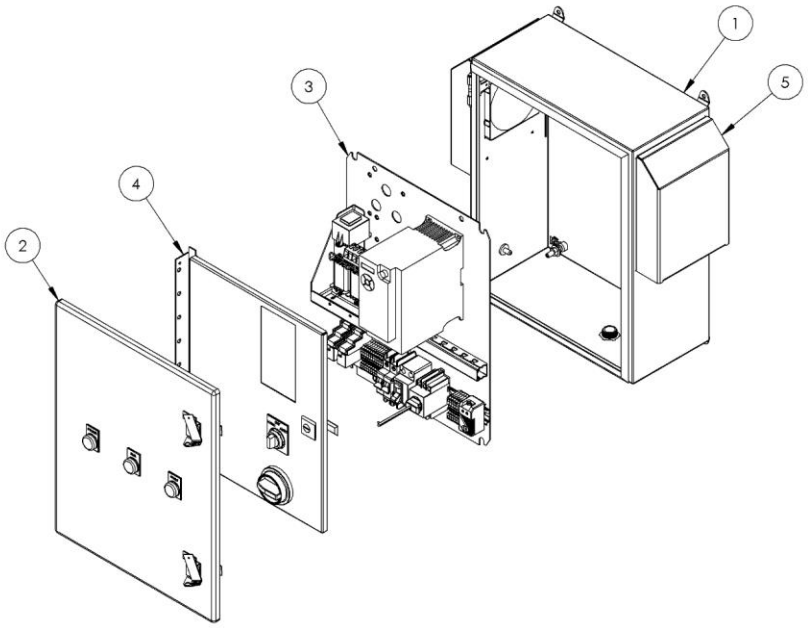



**FIGURE 1**

| PCC405 CONTROL CENTER ASSEMBLY |
|---|
| **DESCRIPTION** |
| 1. Assembly, PCC Enclosure, Type 4 |
| 2. Assembly, PCC Door |
| 3. Assembly, PCC Back Plate |
| 4. Electronics Cover Panel |
| 5. Assembly, Cooling Fan *(Not Shown)* |

| PCC405 CONTROL CENTER BACK PLATE ASSEMBLY | | |
|---|---|---|
| **DESCRIPTION** | **PART NO.** | **QUANTITY** |
| 1a. AC Drive, 37 Hz, 1.0hp, 115v In, 230v Out | PSK-1244 | 1 |
| 1b. AC Drive, 37 Hz, 1.0hp, 230v In, 230v Out | PSK-1245 | 1 |
| 2. Sine Filter Assembly, 1HP | PSK-1216 | 1 |
| 3. Circuit Breaker, GFP, 300 mA, 2 Pole, 40 A | PSK-1022 | 1 |
| 4. Relay Socket, 782/Ad-70s2, Square | PSK-1023 | 2 |
| 5. Relay, 24 VDC, DPDT, 15A, LED 4 | PSK-1024 | 2 |
| 6. Thermostat, 24-230 VAC-Vdc, Switch Din Mount | PSK-1025 | 1 |
| 7. Circuit Breaker, 1P, 20A | PSK-1247 | 1 |
| 8. Circuit Breaker, 1P, 2A | PSK-1248 | 1 |
| 9. AC Power Disconnect Switch | PSK-1249 | 1 |
| 10. Assembly, Cooling Fan *(Not Shown)* | PSK-1027 | 1 |
| 11. HOA Switch *(Not Shown)* | PSK-1250 | 1 |

**TIP:** For items not listed contact your PAX Water Technologies representative.

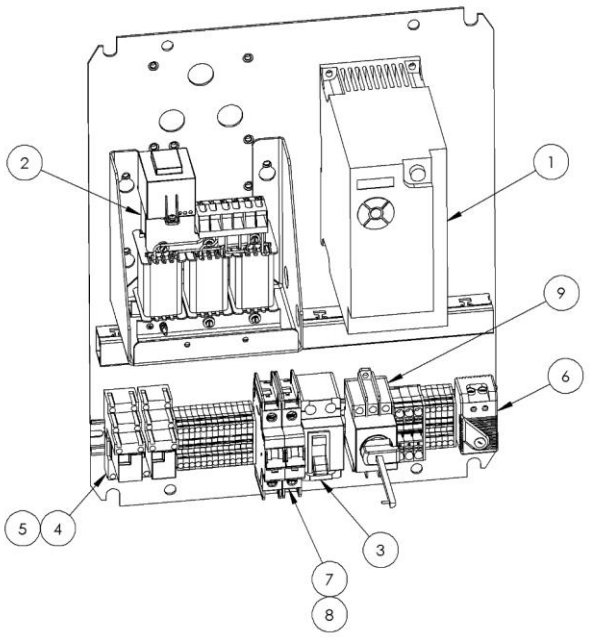



**FIGURE 2**

## 6. Assembly and Installation Procedure – Tripod Configuration

The following parts are included with your PAX Water Mixer's Tripod assembly:

| TRIPOD CONFIGURATION PARTS LIST | |
|---|---|
| **DESCRIPTION** | **QUANTITY** |
| 1. Bearing Housing/Motor Mount | 1 |
| 2. Tripod Leg with Feet | 3 |
| 3. Tripod Foot | 3 |
| 4. Impeller | 1 |
| 5. Knurled Knob and Ball Chain String | 3 |
| 6. Clevis Pin w/ Locking Cotter Pin | 3 |
| 7. Bail Lifting Handle | 1 |
| 8. Power Cable, 70' (21 m), 130' (40 m) or 170' (52 m) *(Not Shown)* | 1 |
| 9. Hose Clamp, 316 Stainless Steel with EPDM Rubber | 2 |

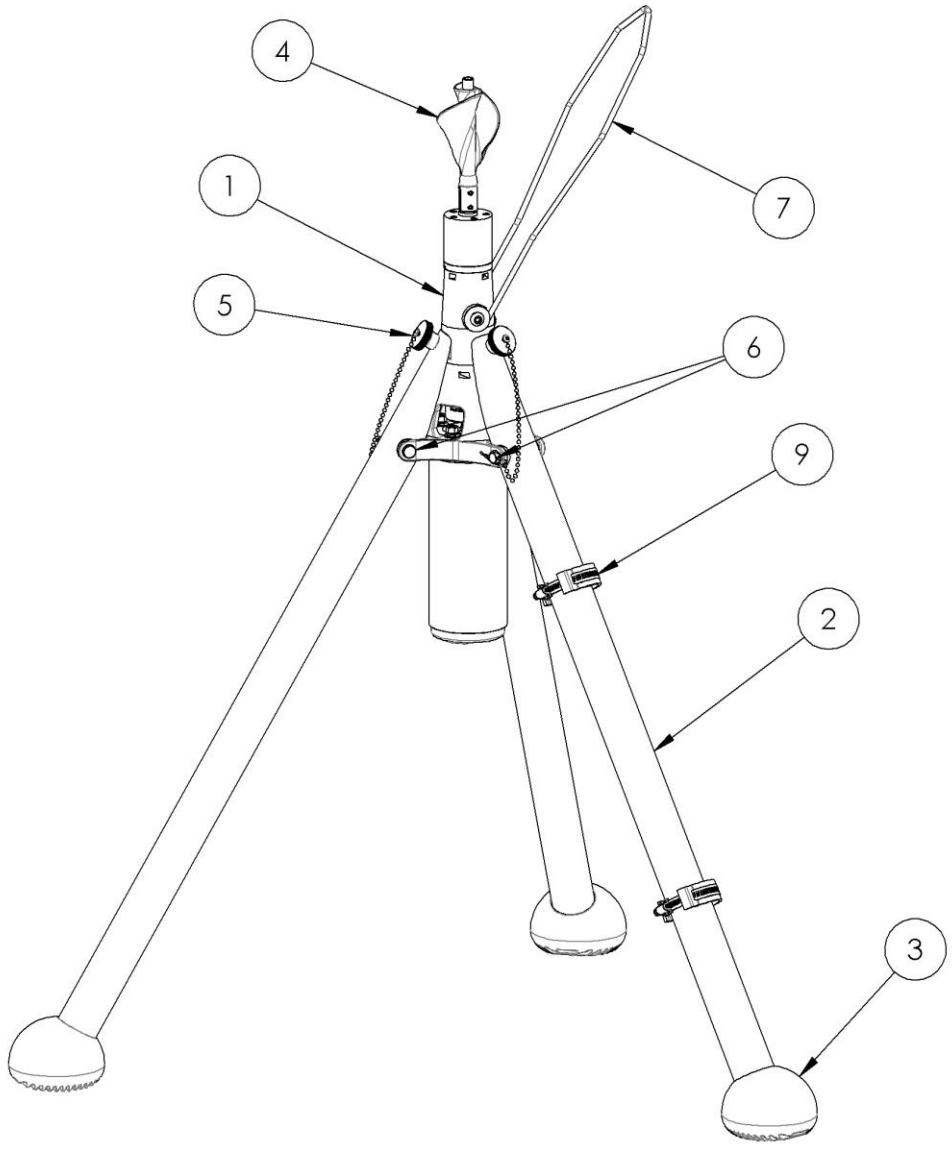



**FIGURE 3**

**WARNING:** Take care not to bump or hit the impeller/motor assembly. A bent shaft may result, voiding the warranty.

**WARNING:** The PAX Water Mixer must be completely submerged prior to starting.

**TIPS:**

1. Transport the PAX Water Mixer to the reservoir/tank site entry point or hatch lifting by the bail handle *(See Figure 3, Item 7)*.

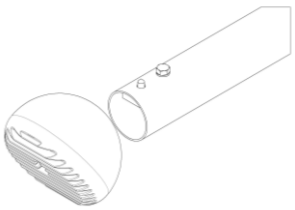


**FIGURE 4a**

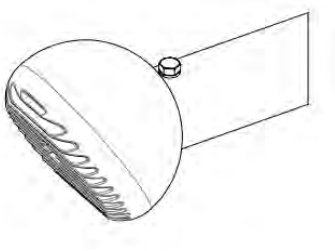


**FIGURE 4b**

**WARNING:** Do not stand the PAX Water Mixer on the impeller to attach the tripod legs.

2. Attach the tripod feet (3 each) to the tripod legs (3 each) in the correct orientation *(See Figure 4a)* assuring they rest flat on the reservoir/tank floor.
3. Be sure the tripod leg is vertical when tightening the hex cap screw, this will align the cone point set screw with the lower hole in the tripod leg. Tighten the hex cap screw so the cone set screw pierces the inside of the foot.
4. Insert the ball chain on to the locking cotter pin.
5. Attach each tripod leg to the Bearing Housing/Motor Mount. Once tripod leg is in place, insert the clevis pin through the leg and motor housing. Insert the straight leg of the locking cotter pin into the hole in the clevis pin *(See Figure 5)*. Push forward until the cotter pin ring snaps into position. Do **not** thread in the knurled knob at this time.

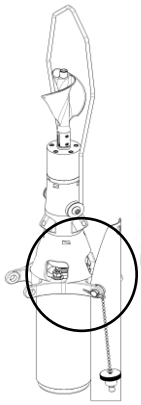


**FIGURE 5a**

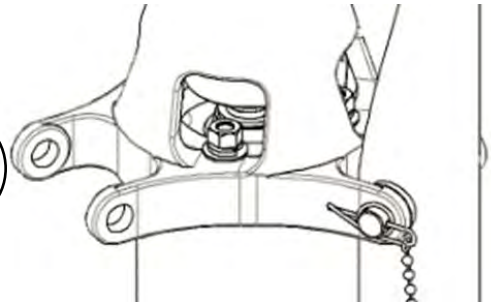


**FIGURE 5b**

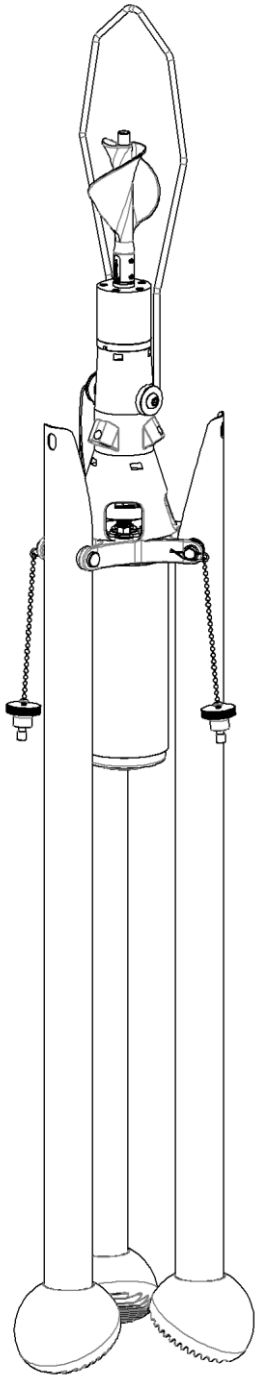


FIGURE 6a (side view)

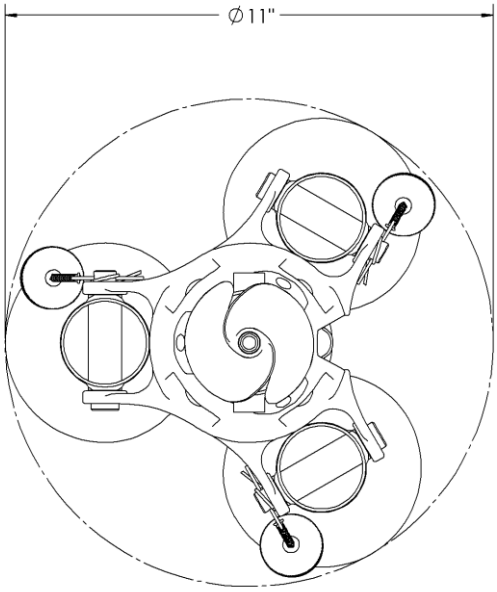



FIGURE 6b (top view)

6. Lower the PAX Water Mixer in the retracted position, with the assembled Bearing Housing/Motor Mount and Impeller into the reservoir/tank using the bail lifting handle *(see Figure 6a)*. A top view of the Mixer's retracted legs is shown (*See Figure 6b*), which will fit through a standard 12" hatch.
7. Extend the tripod legs and secure then using the knurled knobs *(See Figure 7)*.

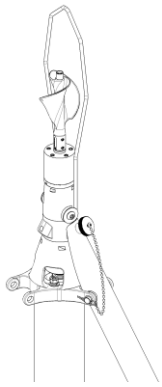


**FIGURE 7**

8. Ensure the bend radius of the power cable from the motor is at least 7x the diameter of the cable *(See Figure 8a)*.
9. For dry/diver install, secure the PAX Water Mixer power cable to the nearest tripod leg in two places with the EPDM-insulated stainless-steel hose clamps. Ensure the EPDM insulation is between power cord and hose clamp. *(See Figure 8a)*.
10. For wet install, secure the PAX Water Mixer power cable to the Long Bail Handle in two places with the EPDM-insulated stainless-steel hose clamps. Ensure the EPDM insulation is between power cord and hose clamp. Loosely tether power cable to chain with stainless steel hose clamp to keep the cord from wrapping around the impeller *(See Figure 8b)*.

**WARNING:** Do not over-tighten the stainless-steel hose clamps. Damaged wiring may result, voiding the warranty.

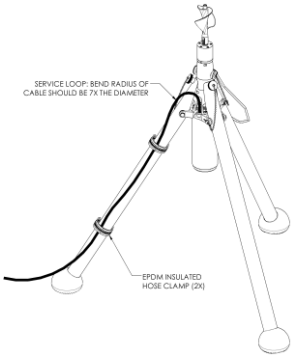



**FIGURE 8a**

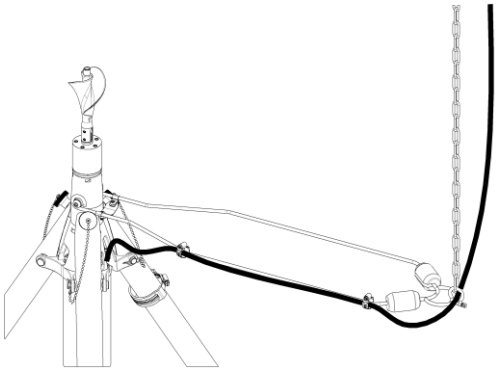


**FIGURE 8b**

11. For a dry/diver install, move the PAX Water Mixer to its pre-planned location in the tank. Contact your PAX representative if you have questions about its placement (See Figure 9a).
12. For a wet install, lower Mixer to its pre-planned location in the tank using the Long Bail Handle (See Figure 9b). Refer to the Long Bail Handle Install Instructions, included with your Mixer.

**NOTE:** For best results, do not place the mixer directly in front of the incoming water inlet. Contact your PAX Representative if you have questions about its placement.

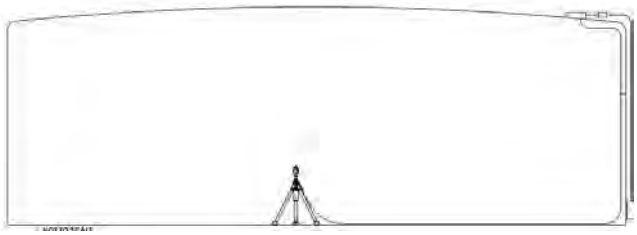


**Figure 9a** ***(dry/diver install)***

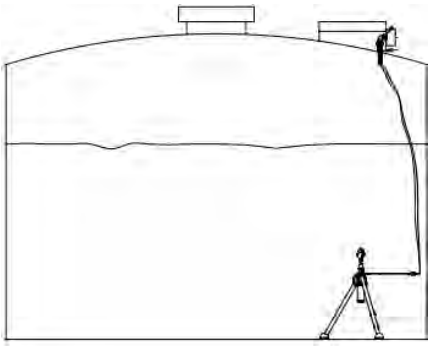


**Figure 9b** ***(wet install)***

13. Route the PAX Water Mixer power cable inside the tank, then out through the tank penetration and into a junction box *(See Figure 17)*.
14. Manually rotate the impeller back and forth to check for free rotation. In the unlikely event that the rotor sticks and cannot be released, please call your PAX representative. The entire assembly may need removal and replacement. The PAX Mixer impeller will rotate in a clockwise direction when running.
15. Assure that the Mixer power cable is routed and secured away from the tank inlet and outlet so that incoming turbulence does not wear it prematurely.

**WARNING:** Manually rotate the impeller back and forth to check for free rotation. In the unlikely event that the rotor sticks and cannot be released, please call your PAX representative. The entire assembly may need removal and replacement.

**WARNING:** The PAX Water Mixer must be completely submerged prior to starting.

## 7. Assembly and Installation Procedure – Bracket Configuration

The following parts are included with your PAX Water Mixer's Bracket assembly *(See Figure 10)*.

| BRACKET CONFIGURATION | |
|---|---|
| Footprint (Diameter) | 8" (20.3 cm) |
| Height | 2' 7" (78.7 cm) |
| Weight | 47 lbs. (21.3 kg) |
| Pad Material | Chlorine/chloramine-resistant EPDM rubber |

| BRACKET CONFIGURATION PARTS LIST | |
|---|---|
| **DESCRIPTION** | **QUANTITY** |
| 1. Bearing Housing/Motor Mount | 1 |
| 2. Bracket Mounting Kit | 1 |
| 3. Clevis Pin W/ Locking Cotter Pin | 3 |
| 4. Bail Lifting Handle | 1 |
| 5. Isolation Pad | 1 |
| 6. Impeller | 1 |
| 7. Power Cable, 70' (21.3 m), 130' (39.6 m) Or 170' (51.8 m) *(Not Shown)* | 1 |
| 8. Hardware Kit, including Hose Clamps (*Not Shown)* | 1 |

**TIP:** For items not listed contact your PAX Water Technologies representative.

**WARNING:** Manually rotate the impeller back and forth to check for free rotation. In the unlikely event that the rotor sticks and cannot be released, please call your PAX representative. The entire assembly may need removal and replacement.

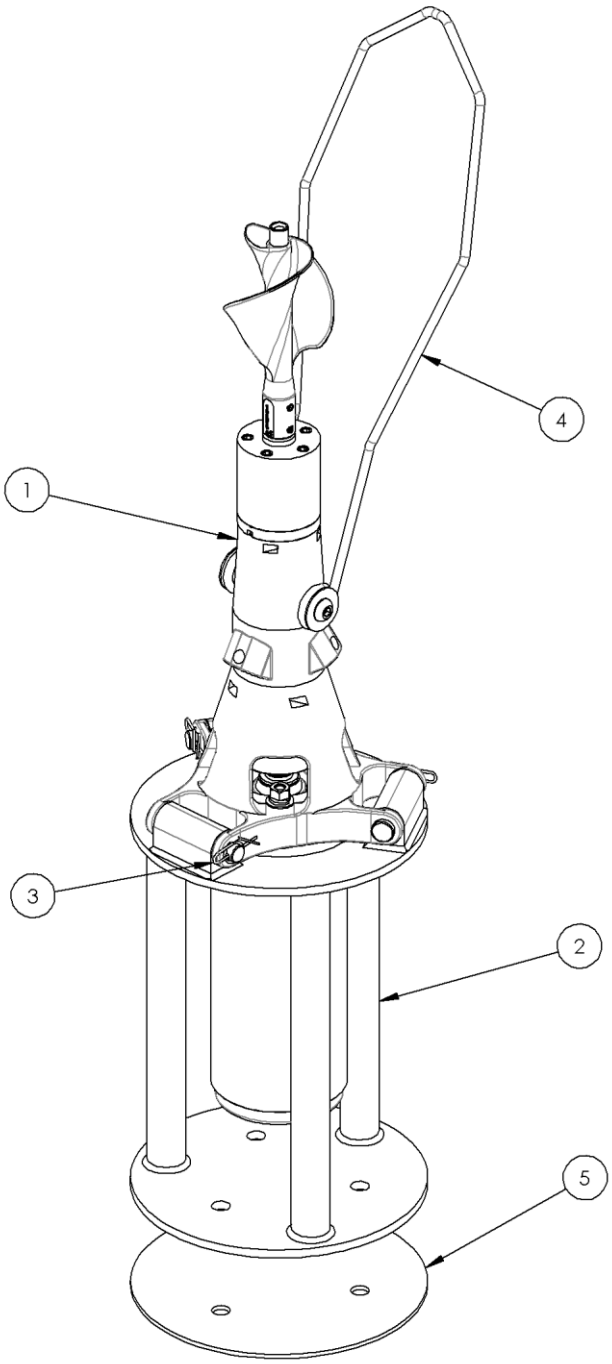



FIGURE 10

**WARNING:** The PAX Water Mixer must be completely submerged prior to starting.

1. Transport the PAX Water Mixer to the tank entry point or hatch.
2. Attach bracket to the customer supplied support arm/riser using PAX Water Technologies supplied hardware kit and isolation pad (*See Figure 11).*
3. Tighten bolts/nuts and ensure that the bracket is secure (*See Figure 11).*

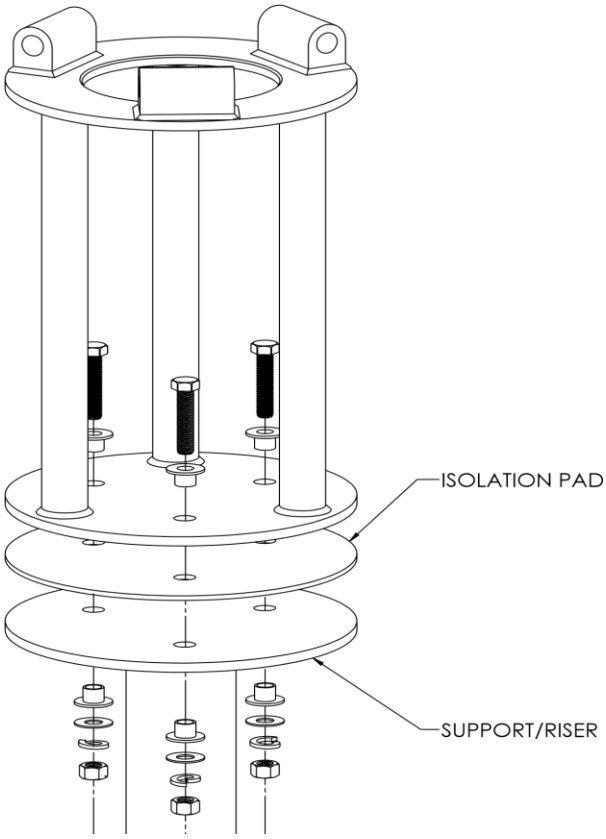



**FIGURE 11**

4. Lower the PAX Water Mixer onto the bracket using the bail lifting handle *(See Figure 10, Item 4).*
5. Insert clevis pins (3 each) and secure with locking cotter pins *(See Figure 12).*
6. Manually rotate the impeller back and forth to check for free rotation. In the unlikely event that the rotor sticks and cannot be released, please call your PAX representative. The entire assembly may need removal and replacement.
7. Assure that the Mixer power cable is routed and secured away from the tank inlet and outlet so that incoming turbulence does not wear it prematurely. The PAX Mixer impeller will rotate in a clockwise direction when running.

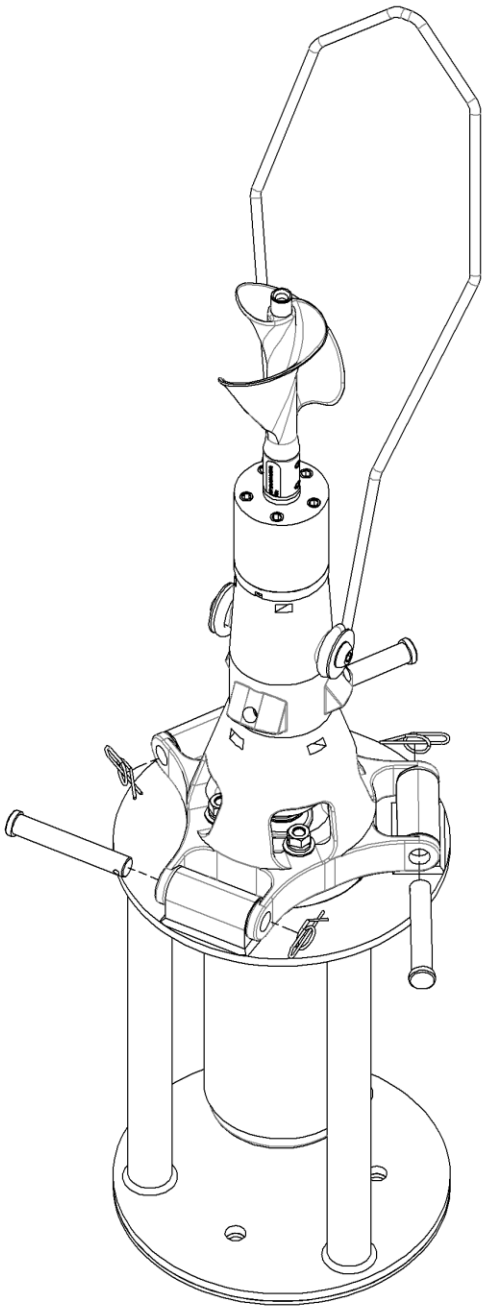


**FIGURE 12**

**WARNING:** Manually rotate the impeller back and forth to check for free rotation. In the unlikely event that the rotor sticks and cannot be released, please call your PAX representative. The entire assembly may need removal and replacement.

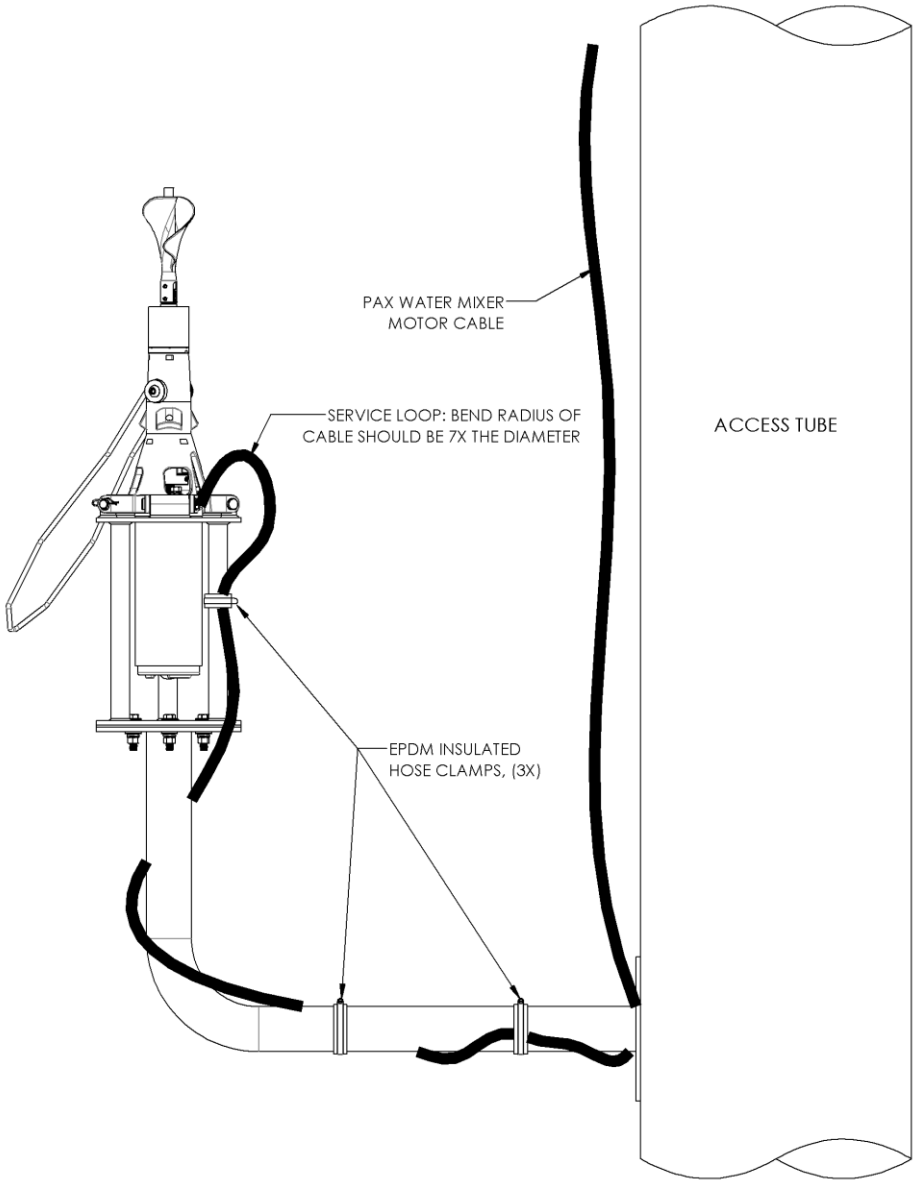



**FIGURE 13**

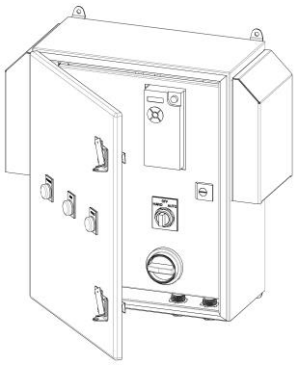
**WARNING:** Do not over-tighten the stainless-steel hose clamps. Damaged wiring may result, voiding the warranty.

8. Route and secure the PAX Water Mixer power cable along the support arm/riser using EPDM insulated hose clamps, then out through the tank penetration and into the junction box. This ensures that the power cable cannot get caught in the impeller *(See Figure 13)*.

## 8. Mounting the Control Center

**NOTE:** Mounting location and hardware must be able to support 55 lbs. (25 kg) under exposed conditions.

| PAX CONTROL CENTER | |
|---|---|
| HEIGHT | 20” / 50 cm |
| WIDTH | 21" /53 cm |
| DEPTH | 8” / 20 cm |
| WEIGHT | 55 lbs. / 25 kg |



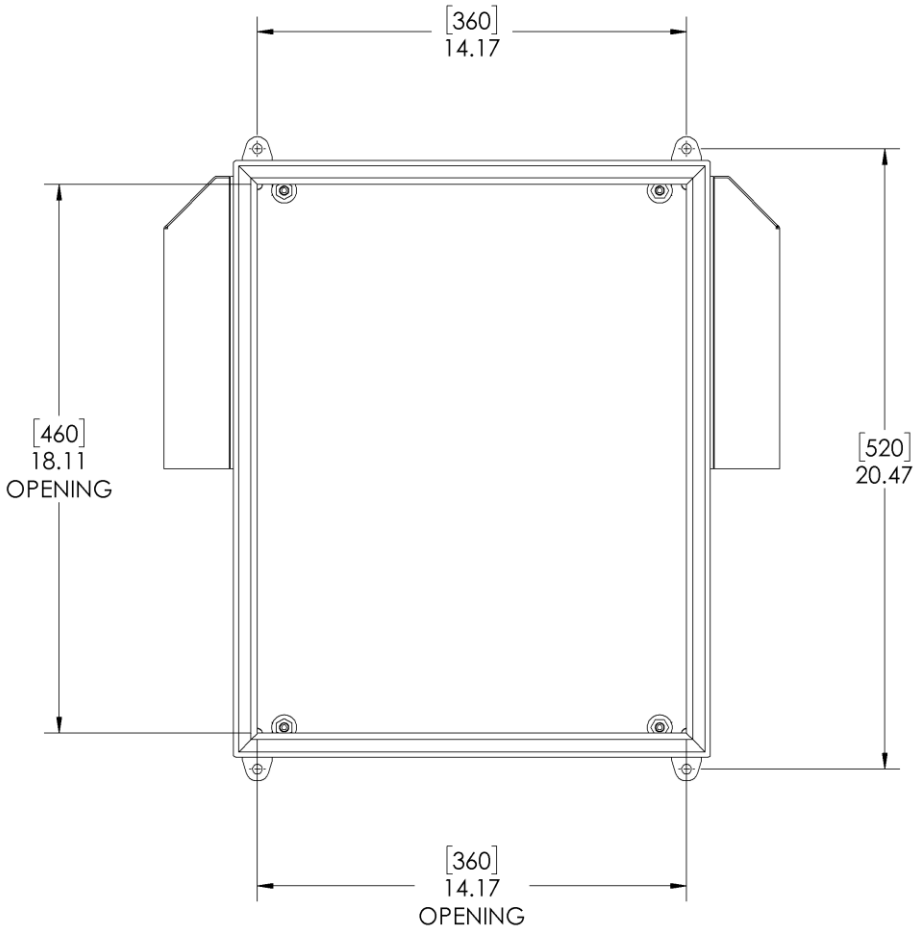



**FIGURE 14**

1. Verify the following:
    A. INCOMING POWER HAS BEEN SHUT OFF.
    B. The conduit for the line power and the conduit for the Mixer Power cable have both been properly sized.
    C. The mounting location is secure from vandalism or removal, preferably inside a locked building or gated facility.
    D. The mounting location will accept the PAX Control Center mounting hardware, such as a stud in a concrete wall mount, a pole mount or a beam mount. A wall mount is preferable as it is most secure.
    E. The mounting location should allow access to the internal components and opening clearance for the PAX Control Center door.
2. Mount the PAX Control Center on a wall, a pole or a Unistrut back frame using mounting hardware. (For mounting dimensions, *See Figure 14*).

## 9. Connecting the PAX Water Mixer and Power to the PAX Control Center

After mounting the PAX Control Center, complete the steps below.

**NOTE:** Make sure that all electrical and conduit connections are secure and correctly routed in accordance with all electrical code requirements.

1. Route the Mixer power cable out of the tank penetration. Connect at the junction box (*optional*). (*See Figure 16).*

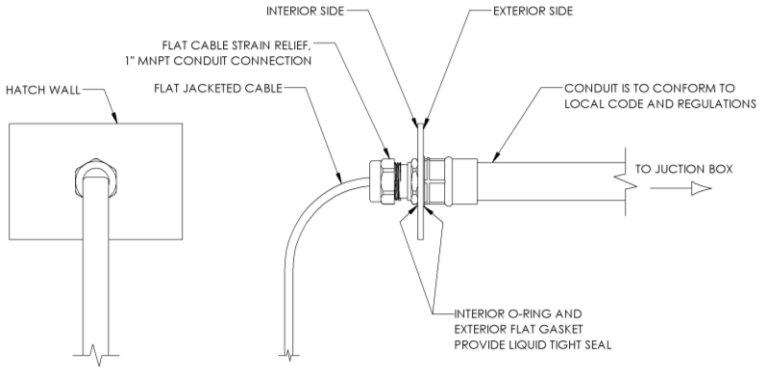



**FIGURE 15**

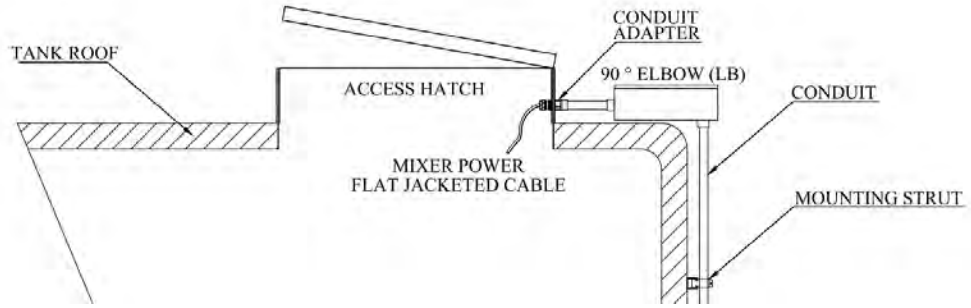



**FIGURE 16**

2. Open the PAX Control Center door.
3. Open the electronics cover panel by unscrewing the retaining screw and pulling the panel toward you.

**NOTE:** The power disconnect switch extension rod will remain attached to the power knob on the electronics cover panel.

**WARNING:** Use the correct incoming power based on the configuration (120VAC or 240VAC). Refer to the label on the inside front panel of the PAX Control Center.

4. Pull incoming line power inside the conduit from the safety disconnect switch to the Control Center. Connect the line and neutral AC power wires to Terminal Blocks 15 and 16 (*See Figure 17*). Use THHN type 12 AWG (3.31 $mm^2$) copper conductor.

**NOTE:** Leave 10" (25 cm) of wire inside the Control Center.

5. Connect ground wire to Terminal Block 14 (*See Figure 17*). If required by local code, connect ground to stud located inside the Control Center, side panel, lower left. Use THHN type 12 AWG (3.31 $mm^2$) copper conductor.
6. Pull the Mixer power cable inside the conduit from the tank penetration to the junction box and from the junction box to the control center.

**NOTE:** Leave 10" (25 cm) of wire inside the Control Center.

7. Connect the L1, L2, L3 wires from the Mixer power cable to Terminal Blocks 17, 18, 19 (*See Figure 17*) from left to right. Use THHN type 12 AWG (3.31 $mm^2$) copper conductor.
8. Connect the ground wire from the Mixer power cable to Terminal Block 20 (*See Figure 17*). Use THHN type 12 AWG (3.31 $mm^2$) copper conductor.
9. Ensure the GFP breaker is in the "ON" position *(See Figure 2, Item 3)*.
10. Reinstall the electronics cover panel, making sure to slide the extension rod back into the slot in the power disconnect switch, then tighten the retaining screws.
11. Close the PAX Control Center door.

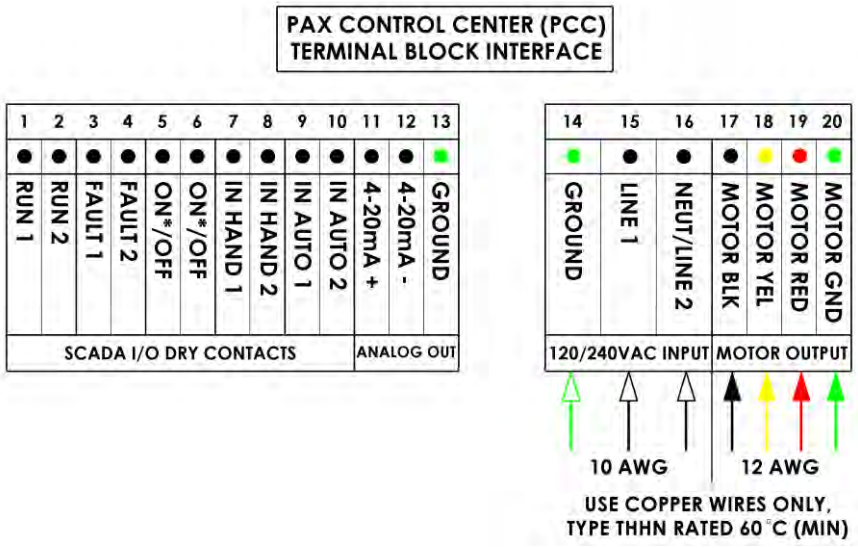



*FIGURE 17*

## 10. Connecting SCADA Interface to the PAX Control Center

1. To connect to a remote SCADA Control System, open the PAX Control Center door.
2. Open the electronics cover panel by unscrewing the retaining screw and then pulling the panel toward you.

**NOTE:** The power disconnect switch extension rod will remain attached to the power knob on the electronic cover panel.

3. Remove the jumper on Terminal Blocks 5 and 6 *(See Figure 18)*.
4. Connect the SCADA control circuit in series with Terminal Blocks 5 and 6 *(See Figure 18)*. A closed contact (dry contact) is required to control the PAX Water Mixer remotely.
5. To monitor the Run signal from the PAX Control Center use Terminal Blocks 1 and 2 *(See Figure 18)*. The dry contacts will close when the system is running normally.
6. To monitor the Fault signal from the PAX Control Center use Terminal Blocks 3 and 4 *(See Figure 18)*. The dry contacts will close when the system has a fault.
7. To monitor the position of the HOA switch, tie the "In Hand" and "In Auto" circuit to the SCADA system from the PAX Control Center use Terminal Blocks 7 & 8 and 9 & 10 respectively *(See Figure 18)*. The dry contacts will close when the switch is in either position. If both are open, then the switch is in the Off position.
8. To monitor the rated output drive current, at the PAX Control Center use Terminal Blocks 11 and 12 *(See Figure 18)*. The 4mA corresponds 0 motor current amps and 20mA corresponds to 4.8 motor current amps. Scale accordingly.
9. Reinstall the electronics cover panel, making sure to slide the extension rod back into the slot in the power disconnect switch, then tighten the retaining screws.
10. Close the PAX Control Center door.

**TIP:** The VFD is equipped with a Modbus RS485 serial port and an Ethernet port.

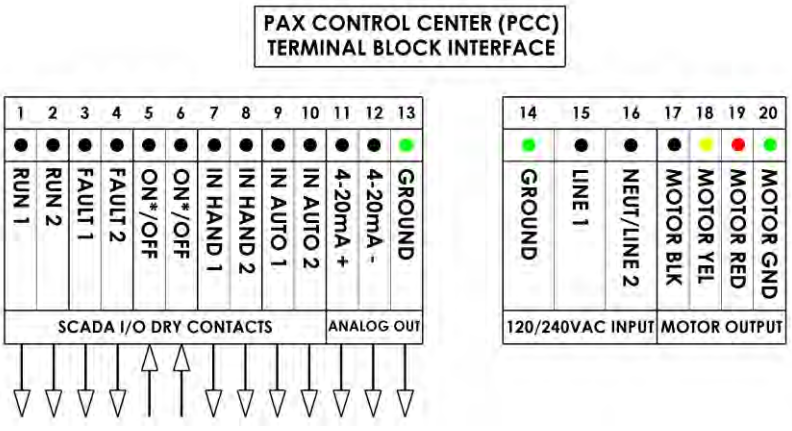



**FIGURE 18**

# 11. PAX Water Mixer Operation

After the initial installation, or any event that takes the tank out of service, always perform the PAX Control Center checks before placing the PAX Water Mixer into service.

**Checks include:**

1. Measuring Motor Resistance
2. Measuring AC Input Current
3. Measuring AC Input Voltage
4. Measuring AC Motor Input Current

## HOW TO TURN THE PAX WATER MIXER ON AND OFF (LOCALLY)

### Turning the PAX Water Mixer ON

1. Energize power to the PAX Control Center.
2. Open the PAX Control Center door.
3. Turn on the power disconnect switch.
4. Ensure the VFD indicates that the PAX Water Mixer is running by verifying the frequency reading on the VFD Display.
5. The frequency reading should be 37.0 Hz.

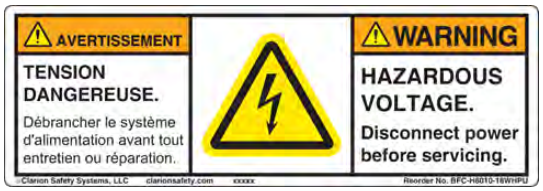
### Turning the PAX Water Mixer OFF

1. Open the PAX Control Center door.
2. Turn off the power disconnect switch.
3. Verify the VFD Display goes to 0.0 Hz.
4. Close the PAX Control Center Door.

## HOW TO TURN THE PAX WATER MIXER ON AND OFF (REMOTELY)

1. The PAX Water Mixer can be configured to be operated from a remote SCADA control system *(Refer to Section 10)*.
2. After the PAX Control Center is configured for remote SCADA control, perform the PAX Water Mixer turn-on procedure.
3. Verify the Mixer is working properly.
4. To remotely shut down PAX Water Mixer, the remote SCADA will need to open the contacts wired in series with the ON/OFF Terminal Blocks 5 and 6 in the PAX Control Center.
5. To remotely restart the PAX Water Mixer, close the contacts.

## 12. Control Center Electrical Check




The major hazard associated with the PAX Water Mixer is danger of electrical shock when disassembling or servicing the PAX Control Center. Always use caution when working with high voltage. A lockout disconnect switch is required upstream of the PAX Control Center so that internal electronics can be safely serviced.

Following the installation of all hardware, and after all electrical connections have been made, start the unit and perform an electrical check, making sure that PAX Control Center is operating properly. This electrical check is to be completed by a licensed electrical contractor.

### Control Center Electrical Test Equipment

1. The following equipment is to be used to perform the electrical check.
    - Digital Volt Meter (DVM)
    - Current Clamp

**TIP:** To access the wiring, remove the electronics cover panel by unscrewing the retaining screws and then pulling the panel toward you. The power disconnect switch extension rod will remain attached to the power knob on the electronics cover panel. Reinstall the electronics cover panel after the electrical checks are completed, making sure to slide the extension rod back into the slot in the power disconnect switch, then tighten retaining screws before placing the PAX Water Mixer back online.

### TABLE 1: QUICK REFERENCE CHART FOR ELECTRICAL CHECK

| # | WHAT TO MEASURE | READING MEASURED | NORMAL READING 120 VAC | NORMAL READING 240 VAC | MULTIMETER SYMBOL | TOOL FOR MEASURING |
|---|---|---|---|---|---|---|
| 1 | Wire resistance L1 and L2, L2 and L3, L1 and L3 (when powered down) | | 10-13 ohms | 10-13 ohms | Ω | Multimeter (with probes) |
| 2 | Wire resistance L1, L2 and L3 to Ground (when powered down) | | >700K ohms | >700K ohms | Ω | Multimeter (with probes) |
| 3 | Frequency setting | | 37.0 Hz | 37.0 Hz |  | Visual |
| 4 | AC input current @ Terminal Block (when running submersed) | | 4.0-6.0 amps AC | 2.0-3.0 amps AC | ~ | Multimeter (with clamp) |
| 5 | AC input voltage @ Terminal Block (when running submersed) | | 110-120 VAC | 220-250 VAC | ~ | Multimeter (with probes) |
| 6 | AC current L1, L2, L3 (when running submersed) | | 1.5-2.5 amps AC | 1.5-2.5 amps AC | ~ | Multimeter (with clamp) |

## 1. Measuring Motor Resistance

1. Disconnect all power, including external control power that may be present.
2. Place a "DO NOT TURN ON" label on all power disconnects.
3. Lock out all power disconnects in the open position.
4. WAIT 15 MINUTES to allow the VFD capacitors to discharge.
5. Verify the motor resistance between wires by measuring between L1 and L2 (Terminal Blocks 17 and 18), L2 and L3 (Terminal Blocks 18 and 19), and L1 and L3 (Terminal Blocks 17 and 19). The resistance should be between 10-13 ohms depending on the length of the wires.
6. Measure the motor resistance to motor ground between Terminal Blocks 17 and 20, 18 and 20, 19 and 20. The resistance should be greater than 700k ohms.
7. If all the readings are within specification, then remove any lockout/tag-outs and perform the PAX Water Mixer start up.

## 2. Measuring AC Input Current

1. Power up the system.
2. Verify that the VFD is turned on and running at a frequency reading of 37.0 Hz.
3. Set the multimeter to AC amps.
4. Clamp the current meter to the line AC power wire, Terminal Block 15 (*See Figure 20).*
5. Verify the current is between:
   a) 4.0-6.0 AC amps for a 120 VAC configuration
   b) 2.0-3.0 AC amps for a 240 VAC configuration

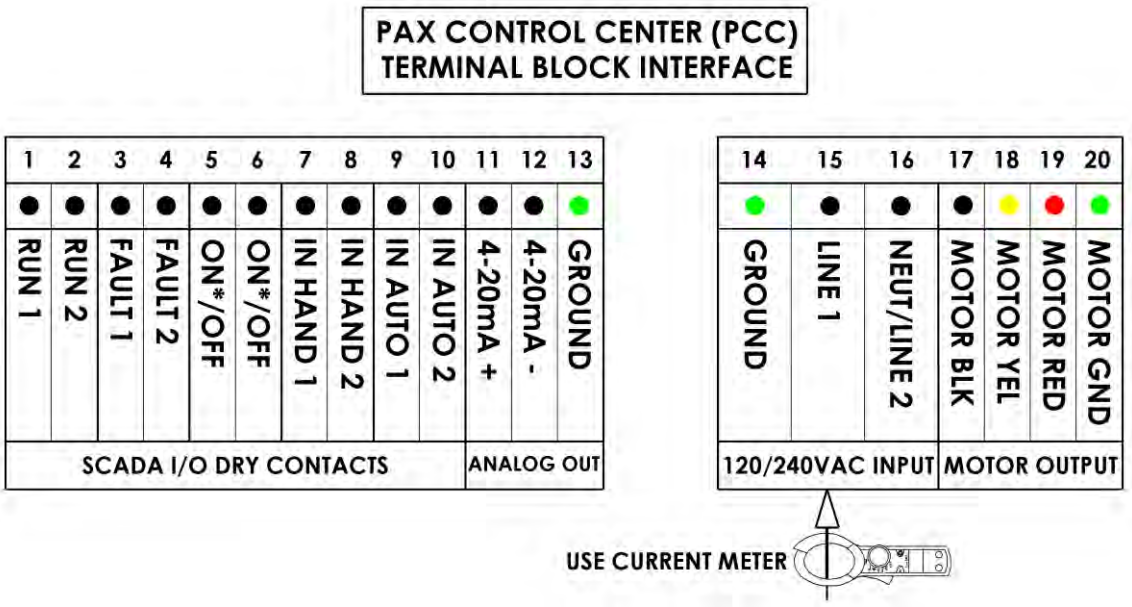



FIGURE 19

## 3. Measuring AC Input Voltage

1. Power up the system and assure that the VFD display is illuminated.
2. Verify that the VFD is turned on and running at a frequency reading of 37.0 Hz.
3. Set the multimeter to AC Volts. Place the probes into Terminal Blocks 15 and 16 (*See Figure 20).*
4. Verify the voltage is between:
    a) 110-120 VAC for a 120 VAC configuration
    b) 220-250 VAC for a 240 VAC configuration

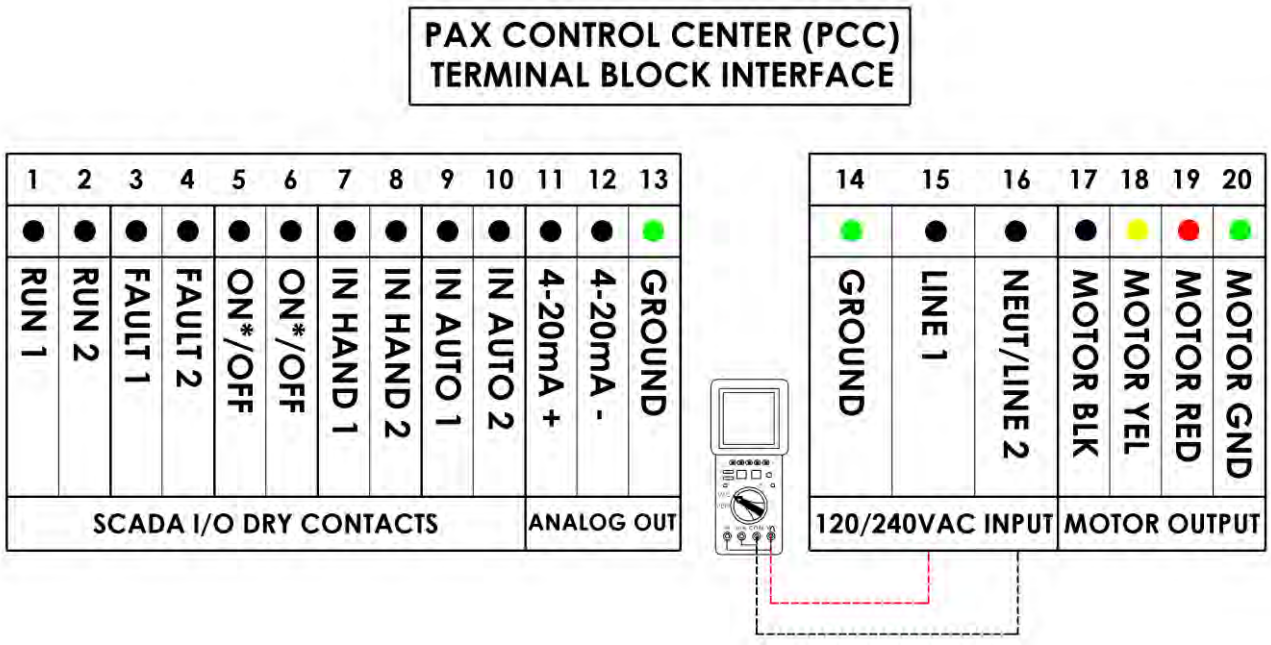



**FIGURE 20**

## 4. Measuring AC Motor Input Current

1. Power up the system and assure that the VFD display is illuminated.
2. Verify that the VFD is turned on and running at a frequency reading of 37.0 Hz.
3. Set the multimeter to AC amps.
4. Clamp the current meter to one of the three Mixer motor wires L1, L2 or L3 on Terminal Blocks 17, 18 and 19 respectively (*See Figure 21).*
5. Verify the motor amperage at start up on each of the three Mixer motor wires.
6. The amperage reading should between 1.5-2.5 AC amps.
7. Check the other two Mixer motor wires.
8. Verify the motor amperage on each of the three Mixer motor wires after the unit has run for 30 minutes.
9. The amperage reading should still be between 1.5-2.5 AC amps for each of the Mixer motor wires.

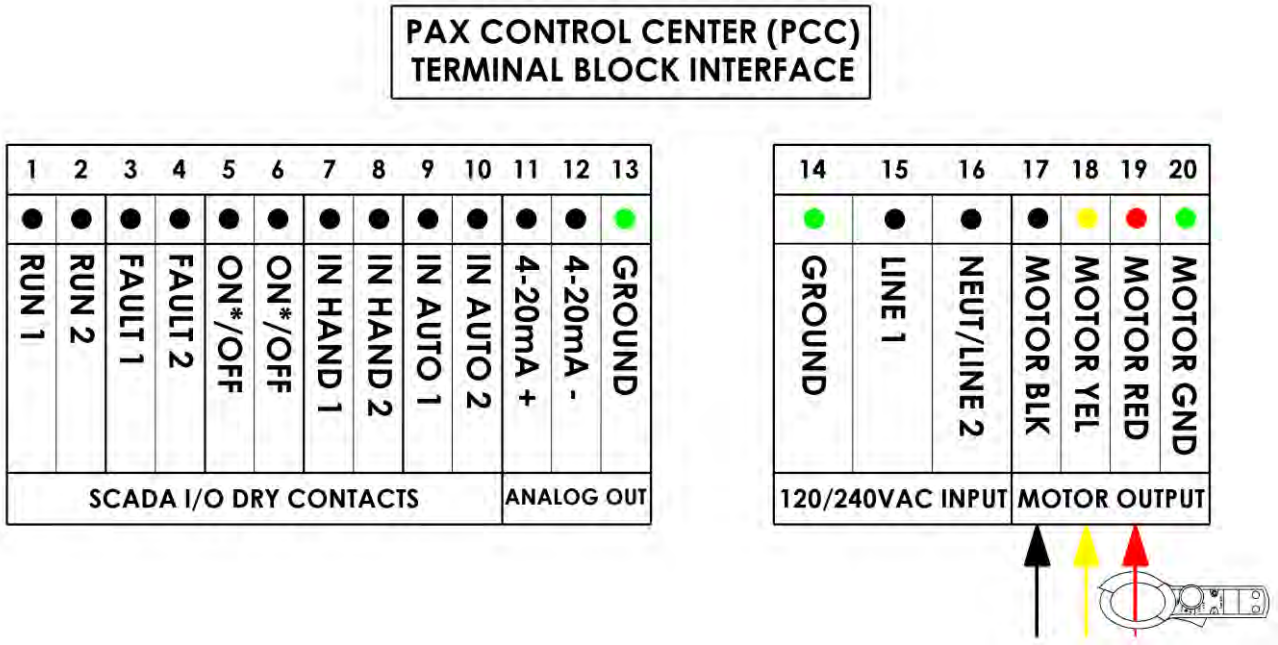



FIGURE 21

## 13. Recommended Preventative Maintenance

It is recommended that the PAX Water Mixer be replaced every 7 years as preventative maintenance. The PAX Control Center requires minimal maintenance to ensure proper operation.

### A. Check the following yearly:

1. The condition and tightness of connections.
2. Ensure that the temperature around the PAX Control Center remains between -4° F to 129° F (-20 °C to 54 °C) or less and that ventilation is effective.
3. Remove any dust from inside the PAX Control Center and around the VFD.
4. Ensure proper operation of the VFD fan and PAX Control Center fan (if installed).
5. Physical damage to the PAX Control Center.

### B. Clean the air filters twice a year:

1. Refer to Figure 14 for a view of the PAX Control Center.
2. Cleaning the side filter:
   a) To access the left-side and right-side filters, first remove the rain shroud by sliding it up and away from the PAX Control Center.
   b) Open the filter cover by lifting the blue handle and moving the filter cover to the 90° position.
   c) Remove and clean the filter with mild detergent and water.
   d) Reinstall the filter, close the filter cover and reinstall the rain shroud.

## 14. Fault Codes

| CODE | NAME | POSSIBLE CAUSES | REMEDY | REF. PAGE(S) |
|---|---|---|---|---|
| Code 1 | Normal ops | | | |
| No Display Code 2 | No power | GFCI breaker tripped | Reset the GFCI breaker | Page 12, Fig. 2, Item 3 |
| | | No line voltage | Check the line voltage | Page 32 |
| | | VFD not connected | Check the wiring connections | Page 38 |
| No Display Code 3 | VFD not on | GFCI breaker tripped | Reset the GFCI breaker | Page 12, Fig. 2, Item 3 |
| | | VFD not connected | Check the wiring connections | Page 41 |
| No Display Code 5 | VFD does not start | Verify SCADA host has issued "ON" command (if connected to Terminal Blocks 5 & 6) | Verify SCADA host has issued on command | --- |
| | | Missing jumper on Terminal Blocks 5 & 6 (Remote SCADA not connected) | Check jumper on Terminal Blocks 10 & 11 (if no SCADA host connection) | Page 28 |
| Under voltage F004 | DC bus voltage fell below the minimum value | Monitor the incoming AC line for low voltage or line power interruption. | Check the line voltage | Page 32 |
| Overvoltage F005 | DC bus voltage exceeded maximum value. | Internal electronic overload trip. | Check the line voltage | Page 32 |
| Motor Stalled F006 | Drive is unable to accelerate or decelerate motor. | Excess Load current | Check the VFD frequency setting on the display | Page 29 |
| | | | Check the motor for free movement Check the motor load (VFD output amps) | Page 33 |
| Motor Overload F007 | Internal electronic overload trip. | VFD charging relay control fault or charging resister damaged | Check the VFD frequency setting on the display | Page 29 |
| | | | Check the motor for free movement Check the motor load (VFD output amps) | Page 33 |
| Heatsink OvrTmp F008 | Power Module temperature exceeded | Heatsink/Power Module temperature exceeds a predefined value. | Check Air filters on PCC | Page 34 |
| | | | Check for blocked or dirty heat sink Fins on VFD | Page 12, Fig. 2, Item 1 |
| | | | Verify that ambient temperature has not exceeded the rated ambient temperature. | Page 34 |
| | | | Check PCC fan. | Page 11, Fig. 1 Item 5 |
| CC OvrTmp F009 | | | Check Air filters on PCC | Page 34 |

| | | | | |
|---|---|---|---|---|
| | Control Module temperature exceeded . | Control module temperature exceeds a predefined value. | | |
| | | | Check for blocked or dirty heat sink Fins on VFD | Page 12, Fig. 2, Item 1 |
| | | | Verify that ambient temperature has not exceeded the rated ambient temperature. | Page 34 |
| | | | Check PCC fan. | Page 11, Fig. 1 Item 5 |
| HW OverCurrent F012 | Motor overload | The drive output current has exceeded the hardware current limit. | Check the VFD frequency setting on the display | Page 29 |
| | | | Check the motor load (VFD output, amps) | Page 33 |
| Ground Fault F013 | Ground fault detected | A current path to earth ground has been detected at one or more of the drive output terminals. | Check the motor and external wiring to the drive output terminals for a grounded condition. | Page 31 |
| Load Loss F015 | Motor underloaded | The output torque current is below the value programmed for a time greater than the time programmed | Check the connection from the PAX Control Center to the PAX Water Mixer by measuring the resistance | Page 31 |
| | | Motor current below lower set point | Check the VFD frequency setting on the display | Page 29 |
| | | | Verify Mixer is underwater | --- |
| Output Ph Loss F021 | Output Phase Loss | Motor not connected | Check the connection from the PAX Control Center to the PAX Water Mixer by measuring the resistance | Page 31 |
| | | Motor power too low, below 6% of the VFD nominal current | Check the VFD frequency setting on the display | Page 29 |
| Phase to Ground F038 F039 F040 | Phase to ground fault | A phase to ground fault has been detected between the drive and motor in this phase. | Check the connection from the PAX Control Center to the PAX Water Mixer by measuring the resistance | Page 31 |
| | | | Check motor for grounded phase. | Page 31 |
| | | | Replace drive if fault cannot be cleared. | Page 12, Fig. 2 Item 1 |
| Phase to Short F041 F042 F043 | Excessive Current | Excessive current has been detected between these two output terminals. | Check the connection from the PAX Control Center to the PAX Water Mixer by measuring the resistance | Page 31 |
| | | | Replace drive if fault cannot be cleared. | Page 12, Fig. 2 Item 1 |
| Drive Overload F064 | Overcurrent | Load to High Locked Rotor | Check the VFD frequency setting on the display | Page 29 |
| | | | Check the motor load (VFD output, amps) | Page 33 |

## 15. Replacement Parts List

The following is a replacement part number for the PAX Water Mixer (*See Figure 22*).

| DESCRIPTION | PART NO. | QUANTITY |
|---|---|---|
| Service Kit, PWM400 Mixer, Replacement | PSK-1242 | 1 |

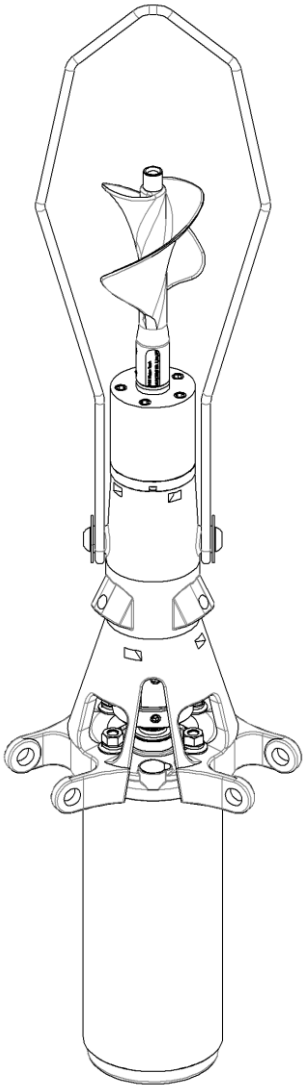
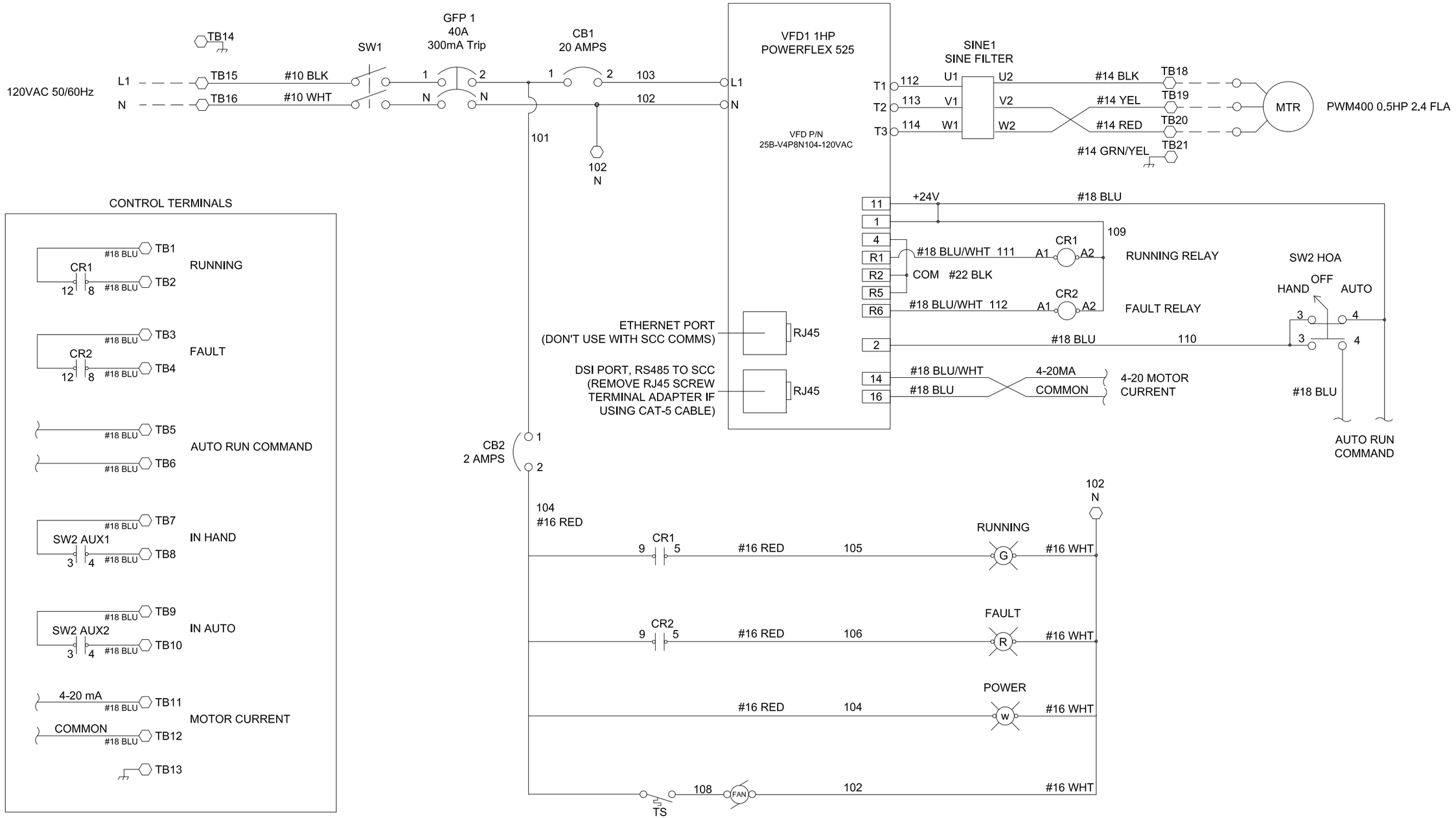


**FIGURE 22**




| REV. △ | DATE | BY | DESCRIPTION | REV. △ | DATE | BY | DESCRIPTION |
|---|---|---|---|---|---|---|---|
| A | 03/26/2020 | RC | DRAWING CREATED | | | | |
| B | 11/29/2021 | BF | TERMINAL BLOCK UPDATE | | | | |
| C | 01/17/2022 | TY | ENCLOSURE LAYOUT & BACK PLATE LAYOUT ADDED | | | | |
| | | | | | | | |



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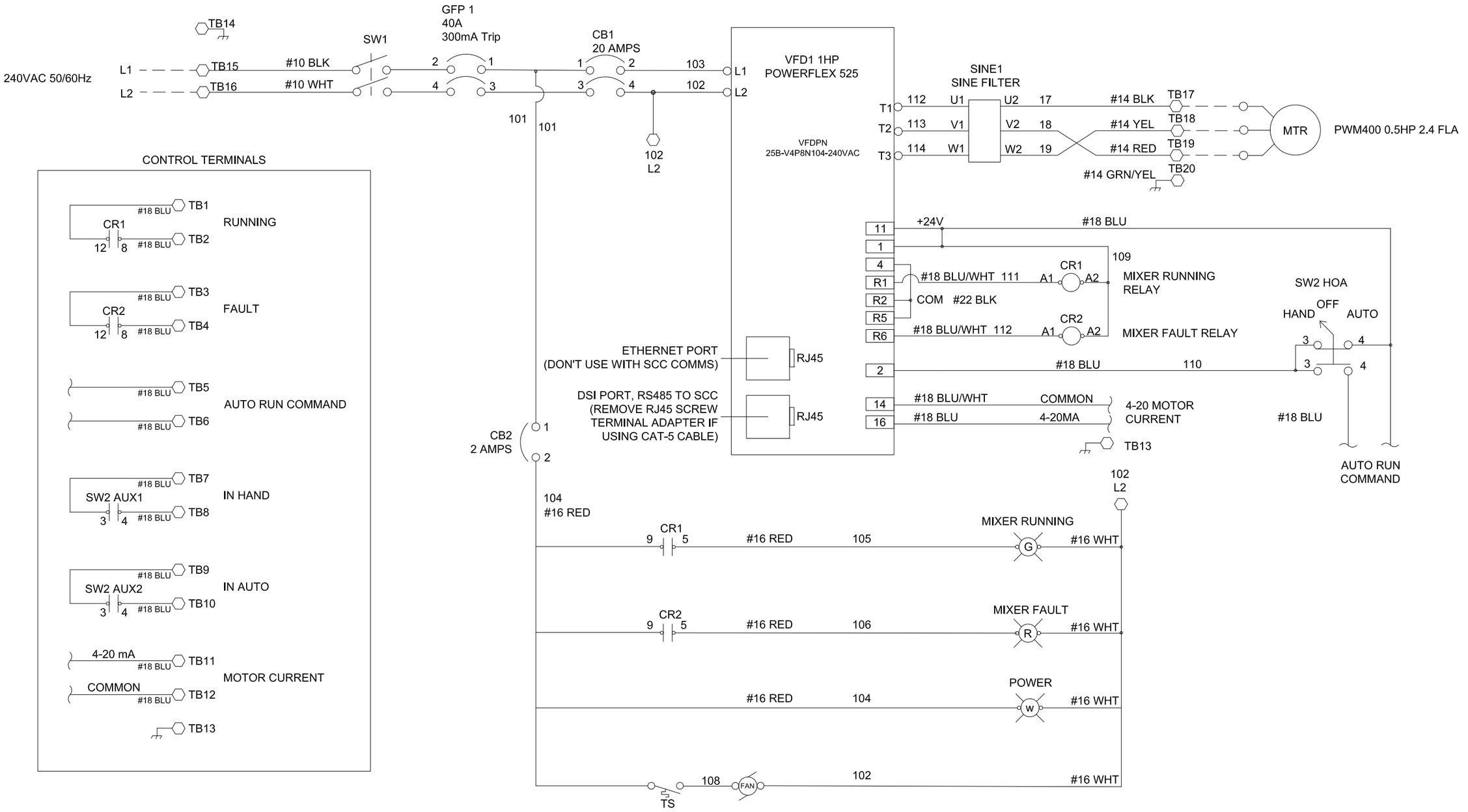
| | |
|---|---|
| DRAWN BY: T. YOUNG | DATE: 01/17/2022 |
| CHECKED BY: B. FRITZ | DATE: 01/17/2022 |
| SCALE: NONE | SIZE: D |

PROJECT:
PAX WATER TECHNOLOGIES INC.
STANDARD DRAWING

SUBJECT:
PAX MIXER CONTROL CENTER
PCC405 120VAC 1HP V3.0
ELECTRICAL SCHEMATIC

DWG #: 1101-7434-01 | SHEET 4 OF 4 | REV. C




| REV. △ | DATE | BY | DESCRIPTION | REV. △ | DATE | BY | DESCRIPTION |
|---|---|---|---|---|---|---|---|
| A | 03/26/2020 | RC | DRAWING CREATED | | | | |
| B | 01/17/2022 | TY | ENCLOSURE LAYOUT & BACK PLATE LAYOUT ADDED | | | | |
| | | | | | | | |
| | | | | | | | |



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| | | | |
|---|---|---|---|
| DRAWN BY: | T. YOUNG | DATE: | 01/17/2022 |
| CHECKED BY: | B. FRITZ | DATE: | 01/17/2022 |
| SCALE: | NONE | SIZE: | D |

PROJECT:
PAX WATER TECHNOLOGIES INC.
STANDARD DRAWING

SUBJECT:
PAX MIXER CONTROL CENTER
PCC405 240VAC 1HP V3.0
ELECTRICAL SCHEMATIC

DWG #: 1101-7435-01 | SHEET 4 | REV. B

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## SECTION 5

### TRAINING: TROUBLESHOOTING

### Monoclor® Residual Control System

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# Monoclor® RCS Training :
# Troubleshooting

August 2021

# Preface

- This training module covers troubleshooting the operation of the Monoclor® RCS (Automated Residual Control System)

- Focus is on reviewing common data trends to identify anomalies and how to take action

- Compilation of examples from actual systems (anonymous) in the field for which telemetry is available
  - Most examples are from 2019 and 2020

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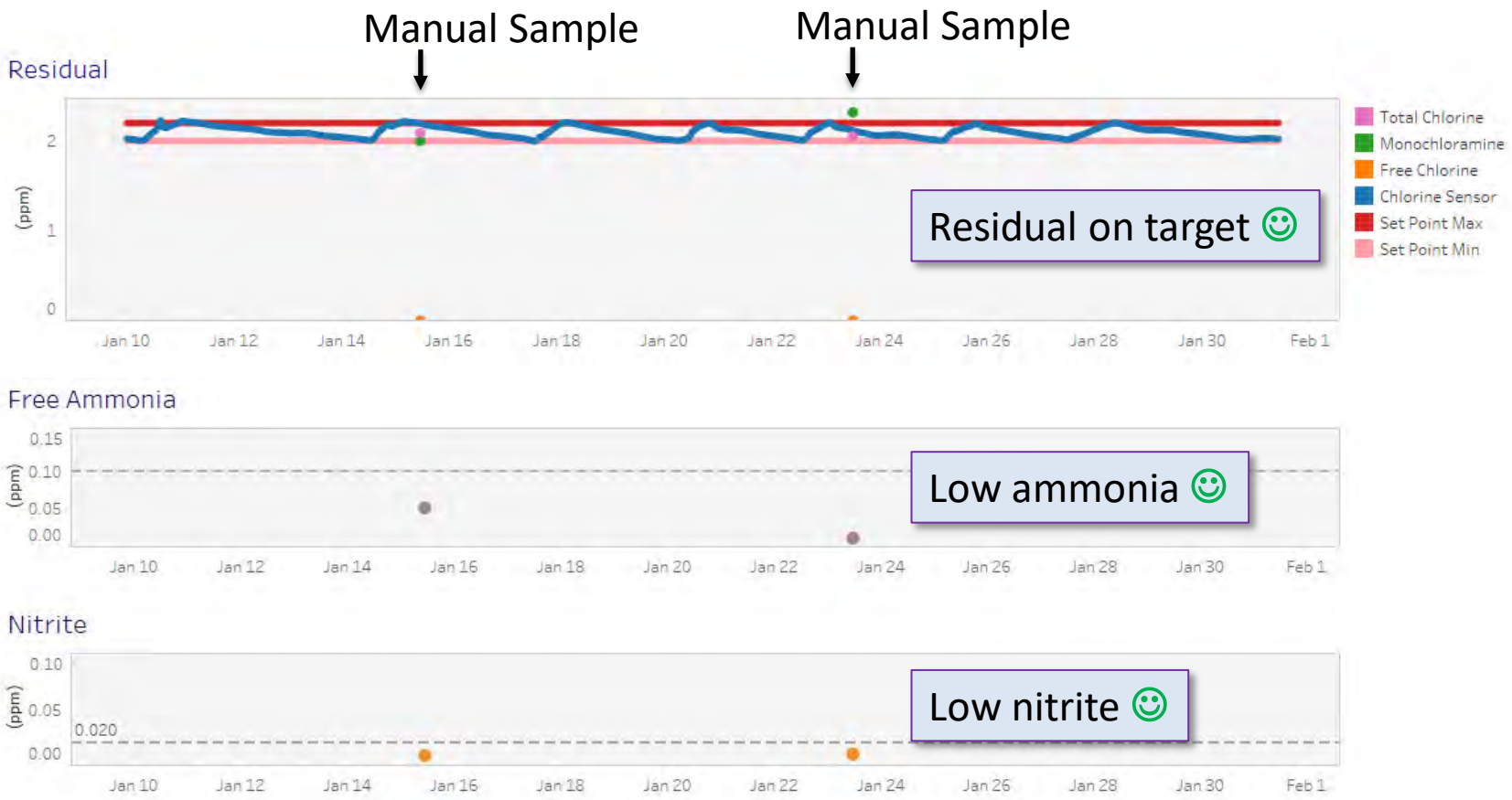
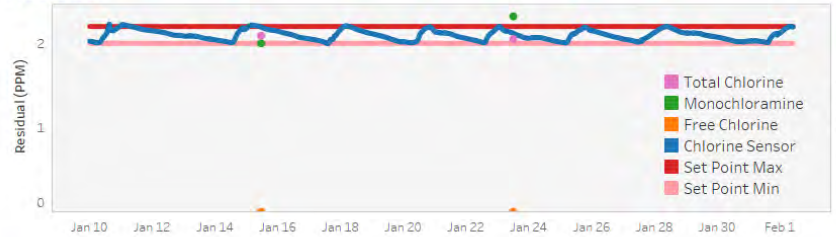
# Normal Operation Examples

# Monoclor® RCS maintains residual on target. Grab samples confirm these results.

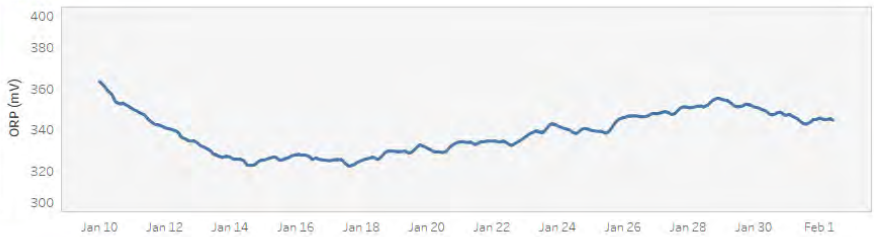


# Trends from telemetry confirm all systems are operating normally.

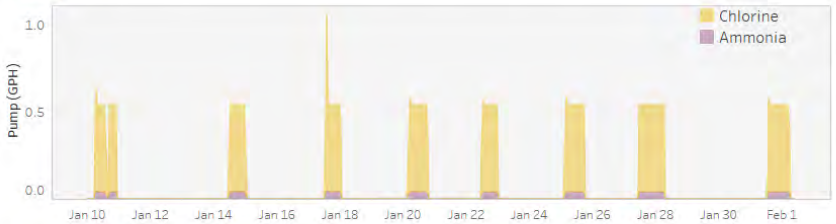
Residual



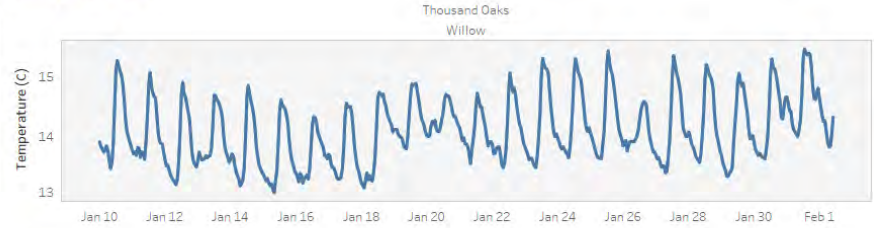

ORP



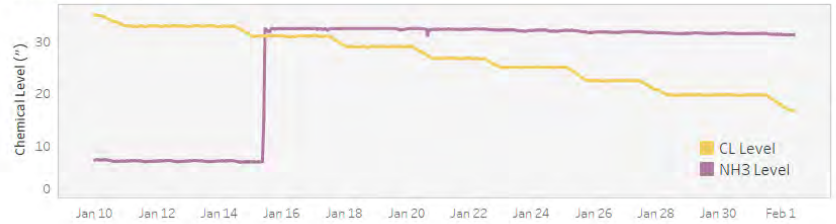

Pump



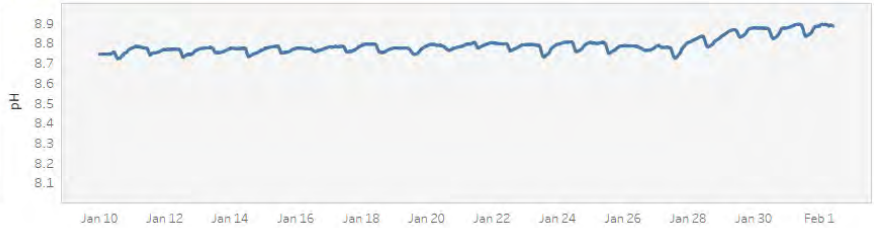

Temperature



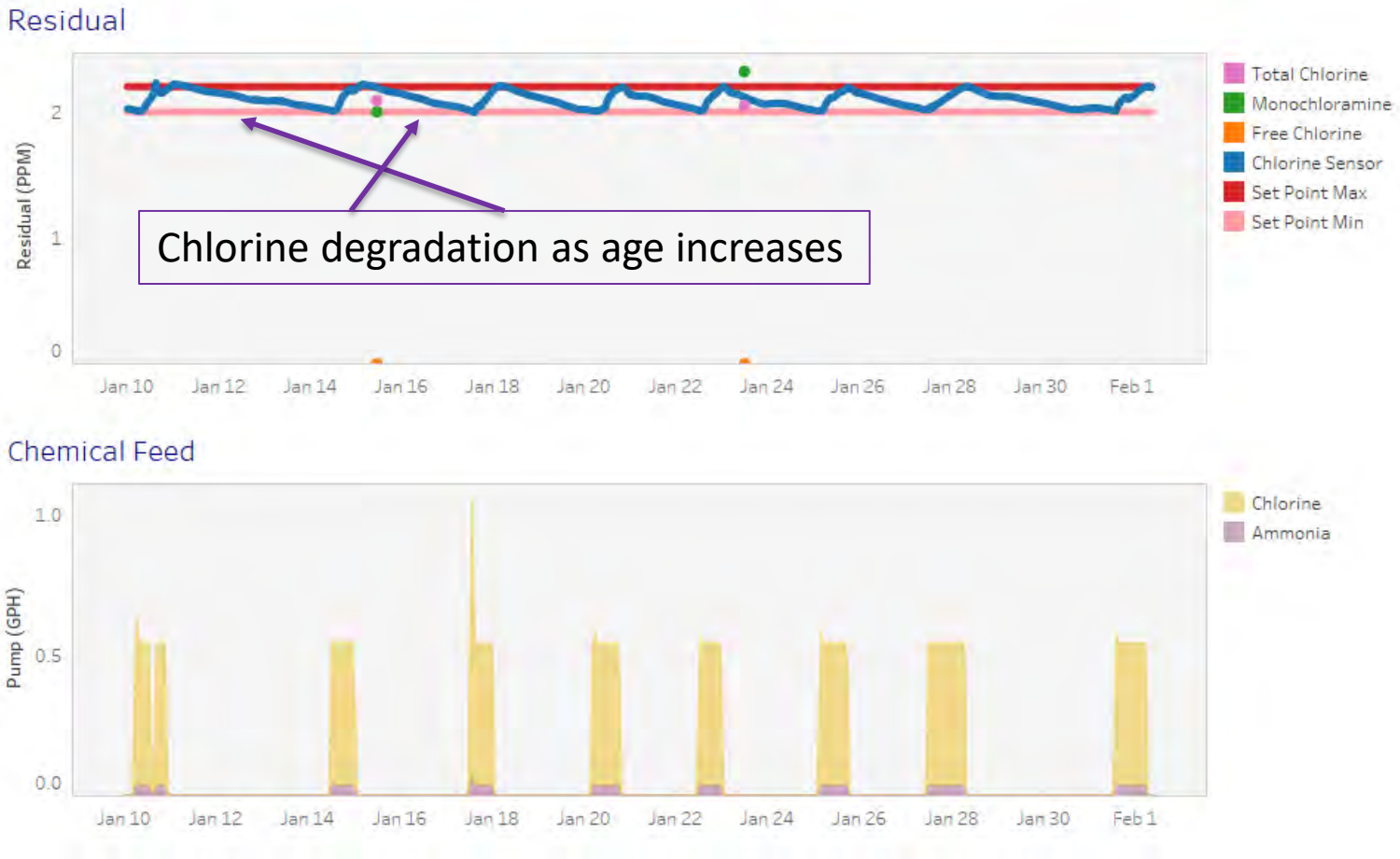

Chemical Level



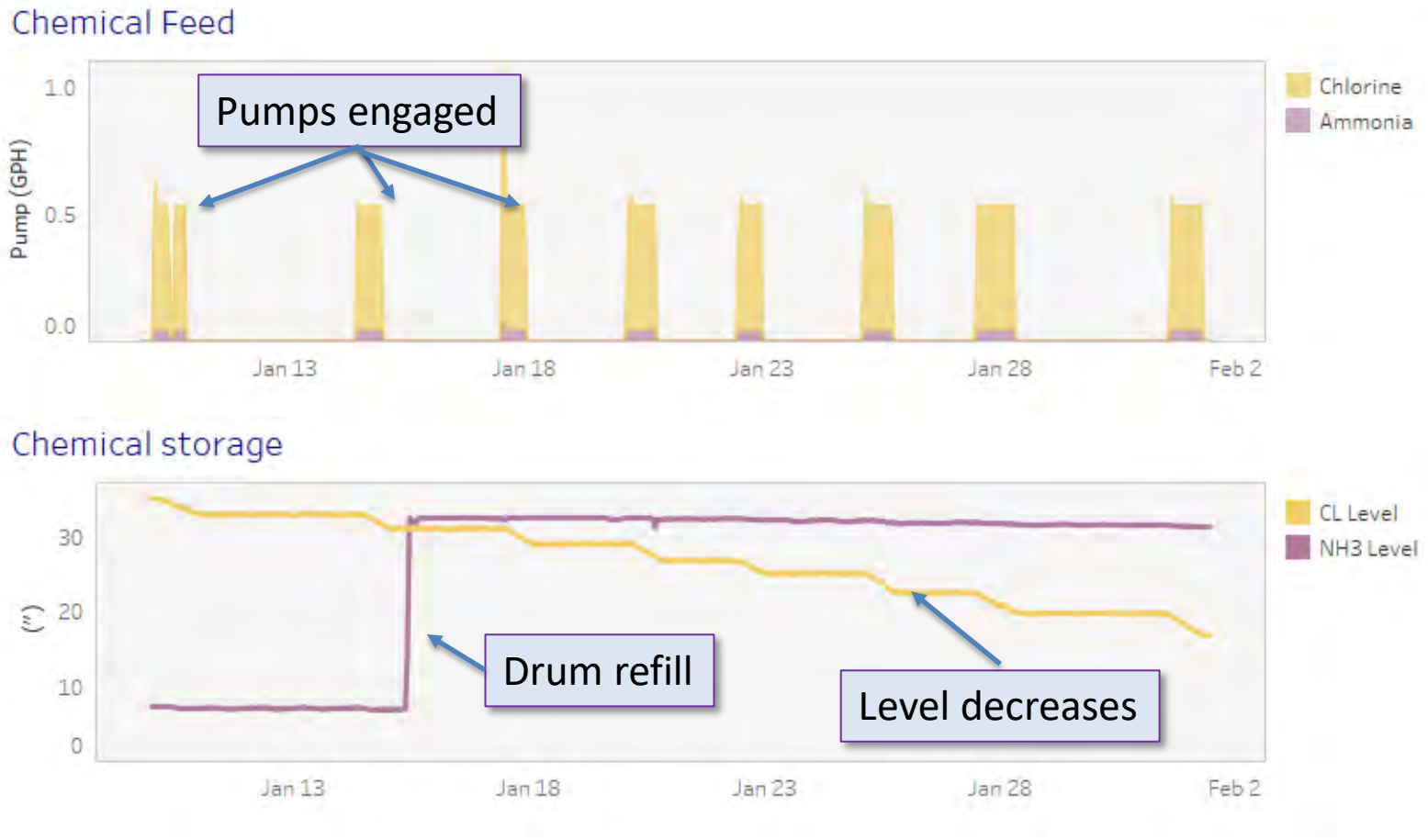

pH



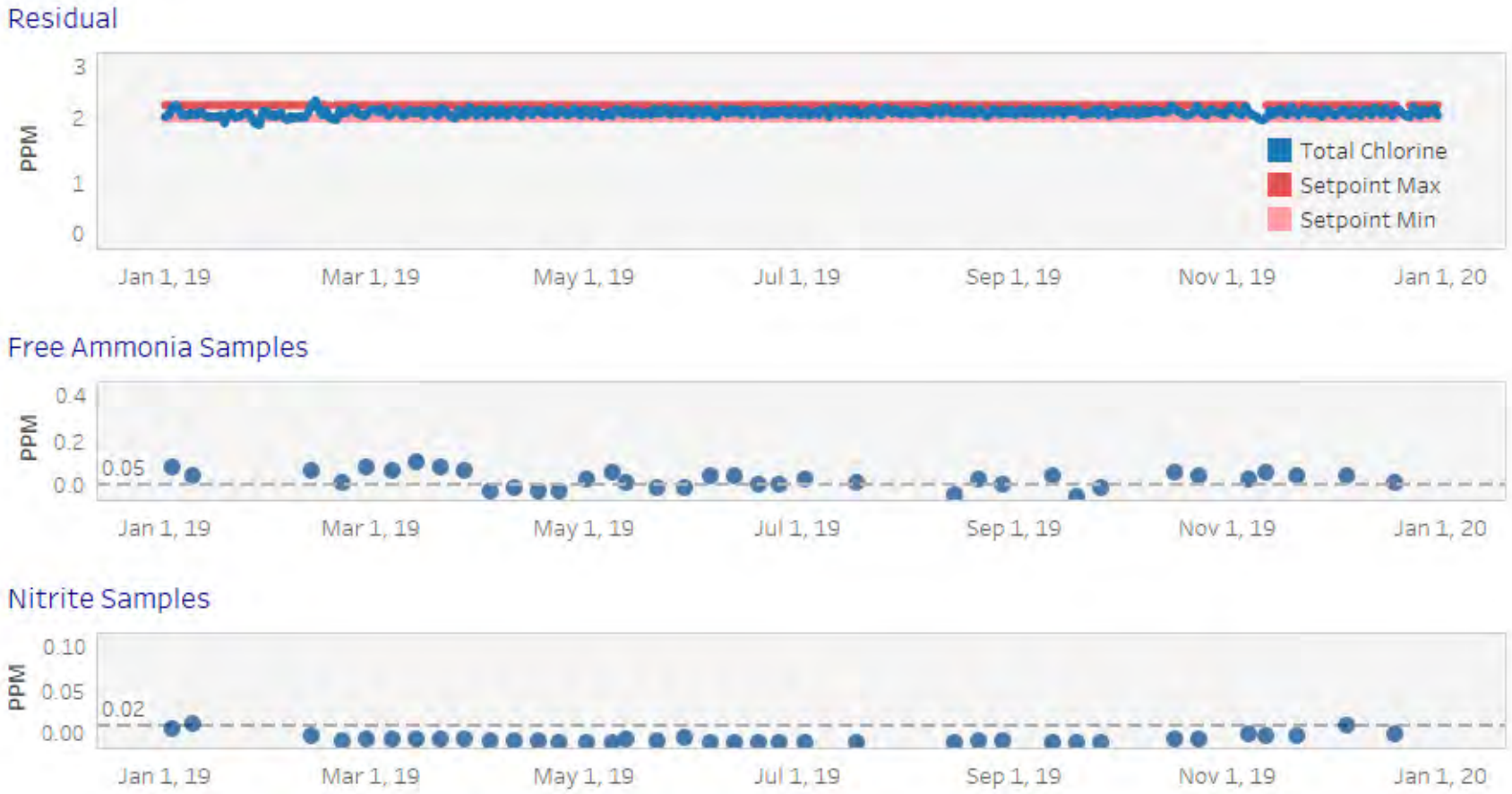
Chloramine degrades as water ages between fill cycles. Chemical feed is engaged when residual drops below the setpoint min. and stops when residual reaches the setpoint max.



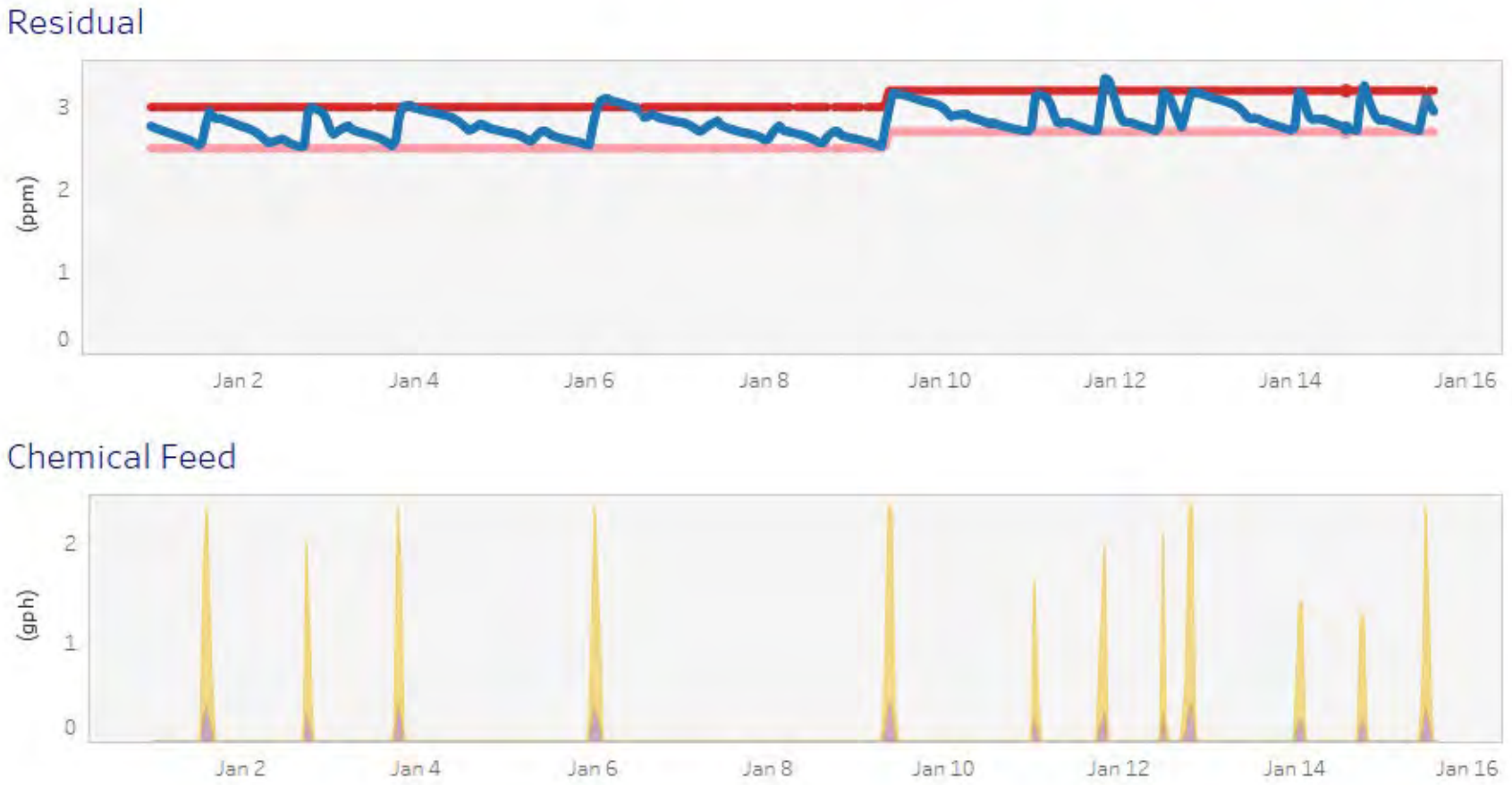
# Levels in storage drums decrease as chemical pumps are feeding chemicals to control residual



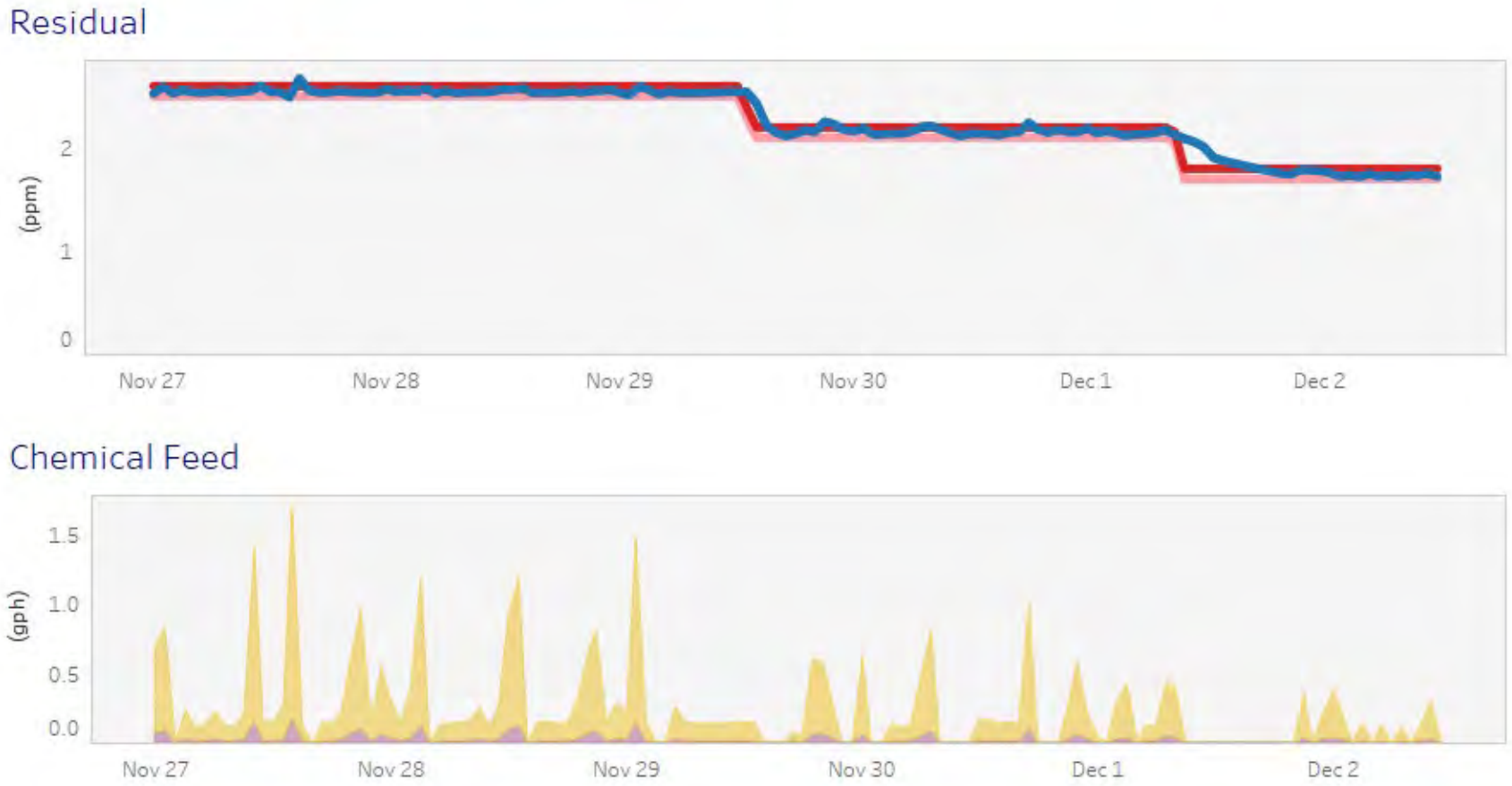
# Example of year-long normal operation of Monoclor® RCS



# Monoclor® RCS responds to new setpoint thresholds. Example of set point increase:



# Example of set point decrease before a planned, system-wide switch to free chlorine:



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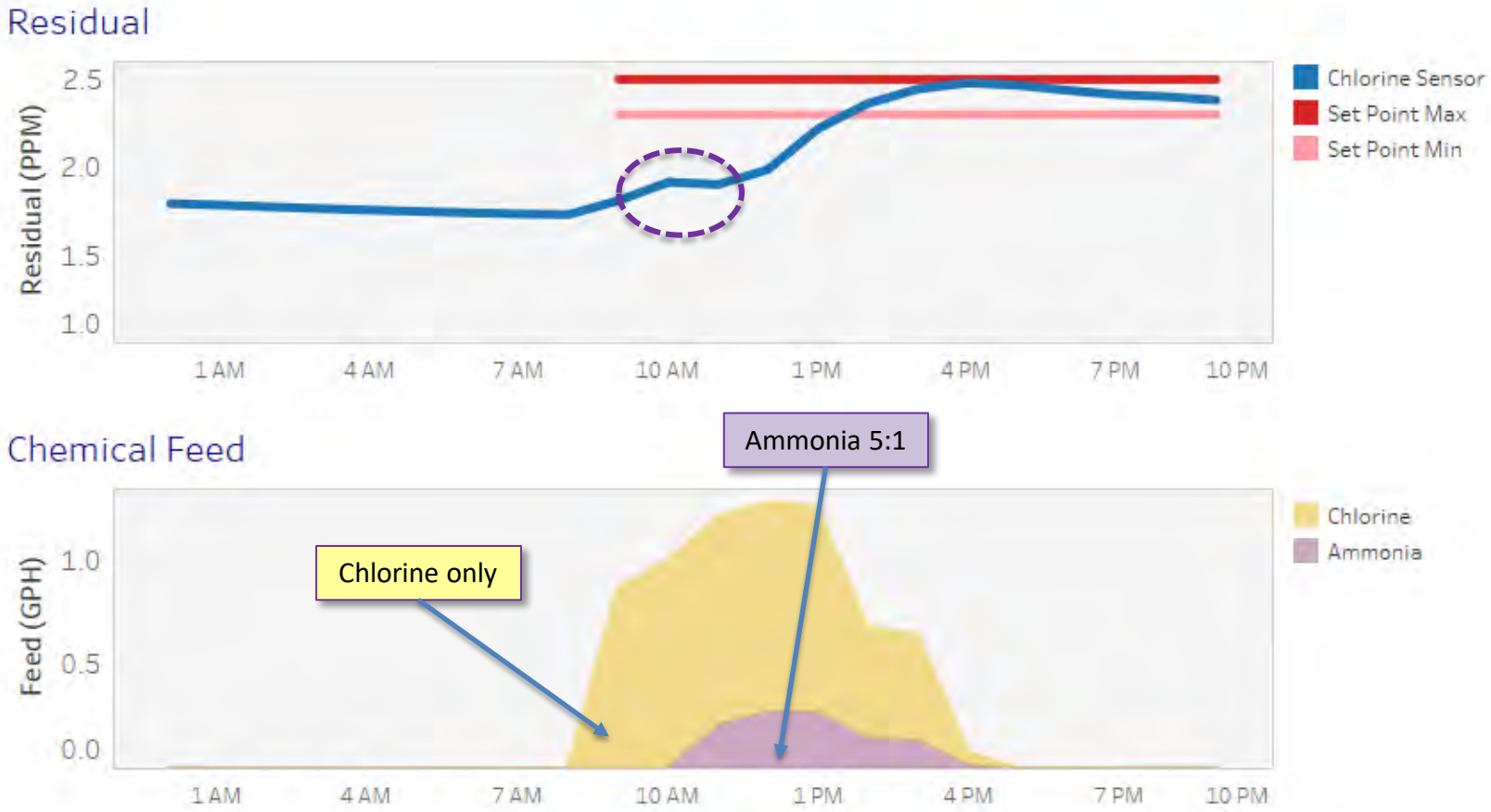
# Example of Monoclor® RCS Algorithm

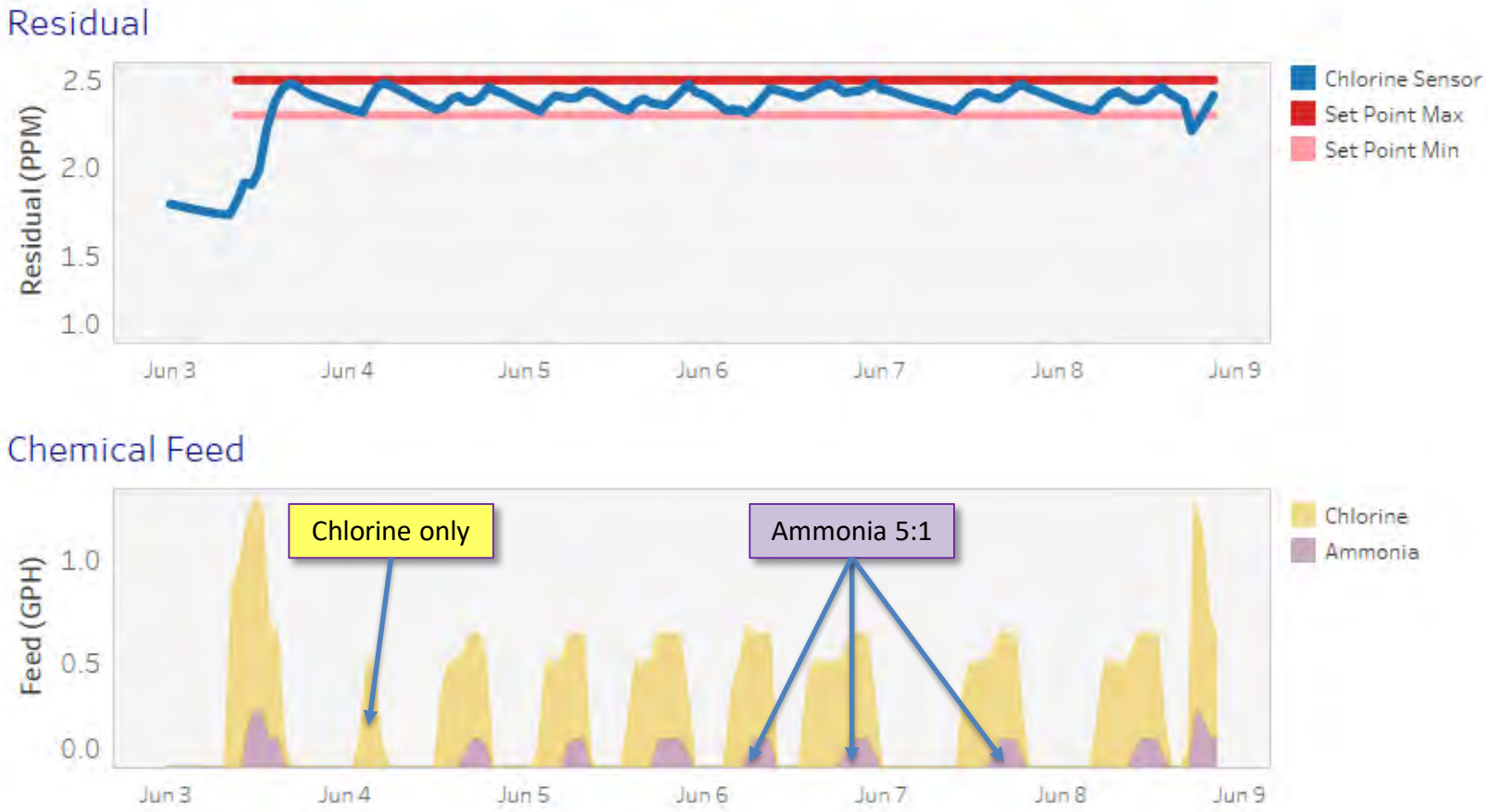
*Patented

# Example of Monoclor® RCS algorithm

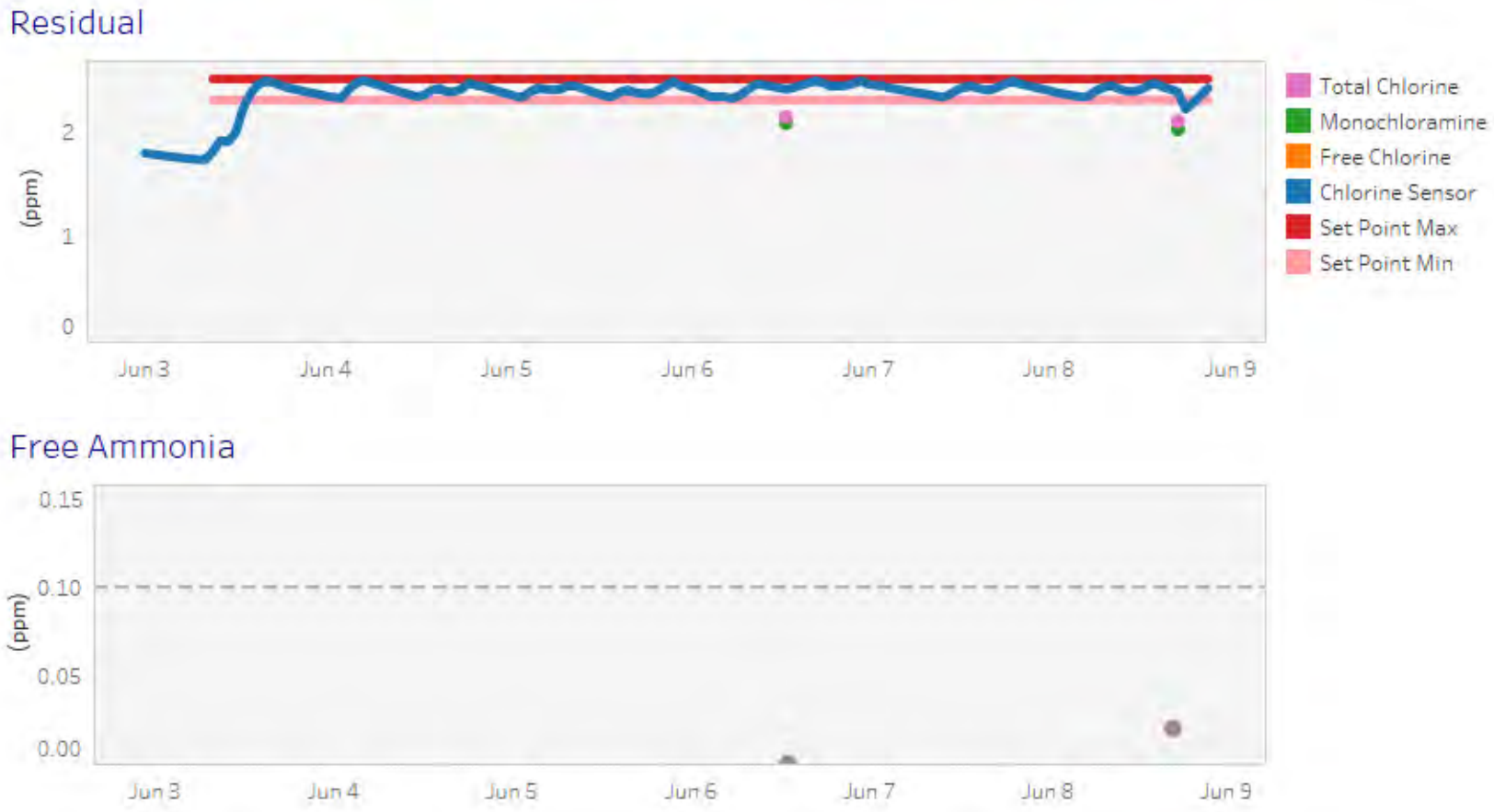
Algorithm detects a drop in chlorine residual slope (ppm/hr) in response to chlorine dosage. Di-chloramine regime is detected, and ammonia pump is automatically engaged at a preset ratio of 5:1 until residual reaches the set point



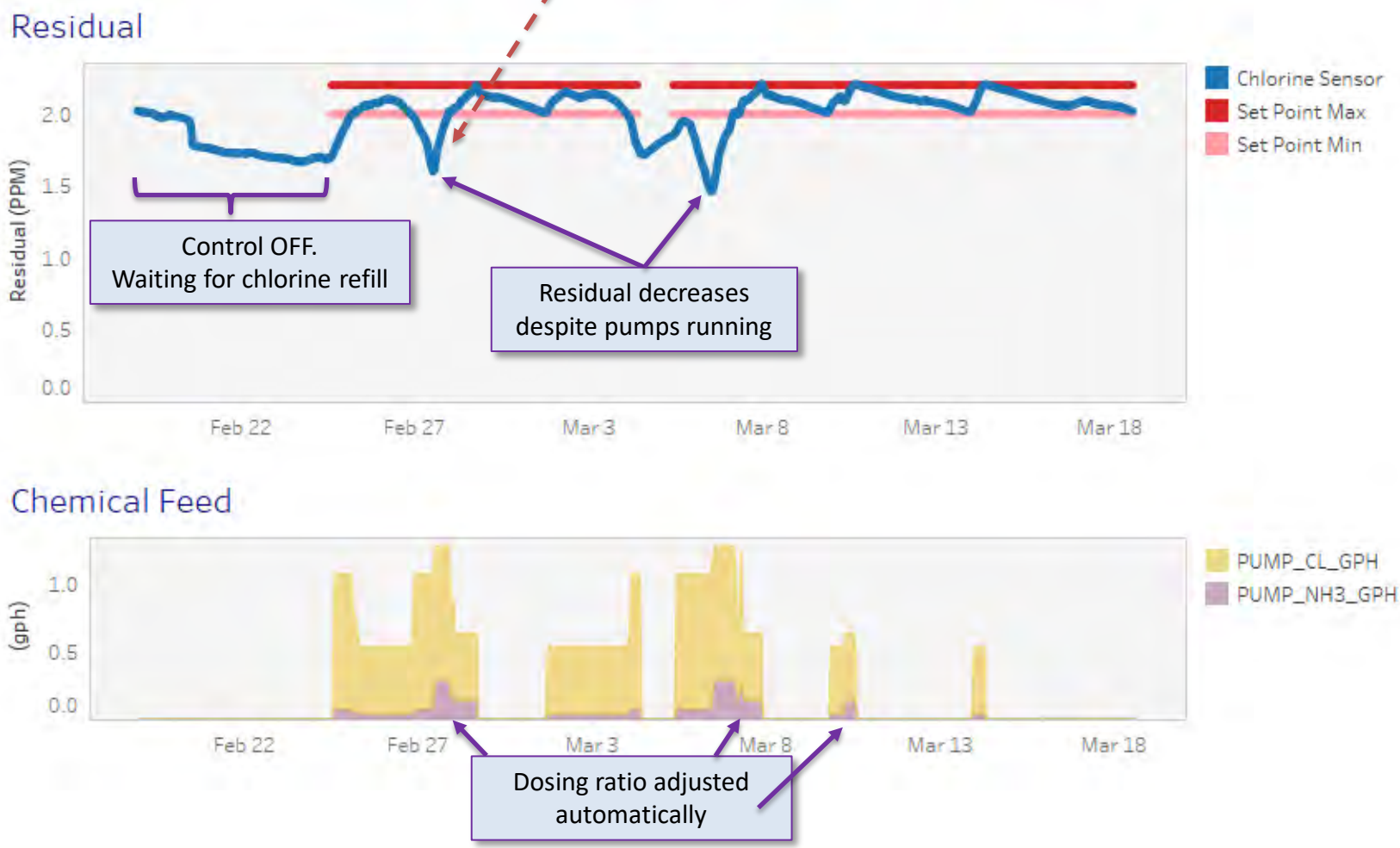
# Monoclor® RCS algorithm feeds chlorine to control residual and engages the ammonia feed when required.



# Algorithm performance is confirmed by operator's grab samples: low free ammonia level

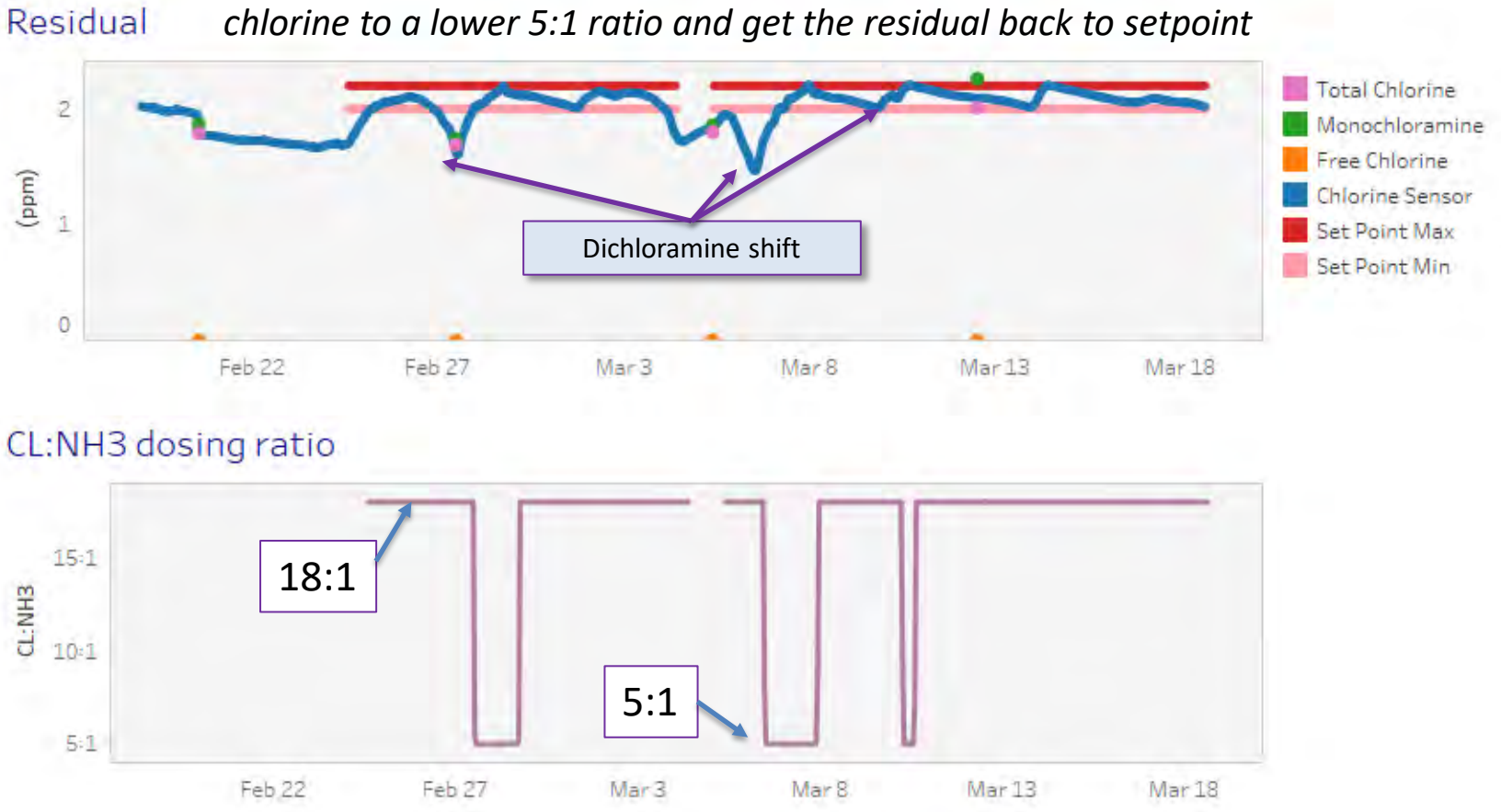


# Another example: Monoclor® RCS algorithm adjusts $NH_3$ dosing ratio automatically in response to change in incoming water quality



# Monoclor® RCS algorithm adjusts CL:$NH_3$ ratio automatically according to real-time residual reading. Operator preset dosing ratio to 18:1 (left-side) and 5:1 (right-side)

*The system was set to add a lot more chlorine that ammonia (18:1) initially - then the RCS system adjusted automatically to back-off chlorine to a lower 5:1 ratio and get the residual back to setpoint*



# Algorithm performance is verified by grab samples: low free ammonia level

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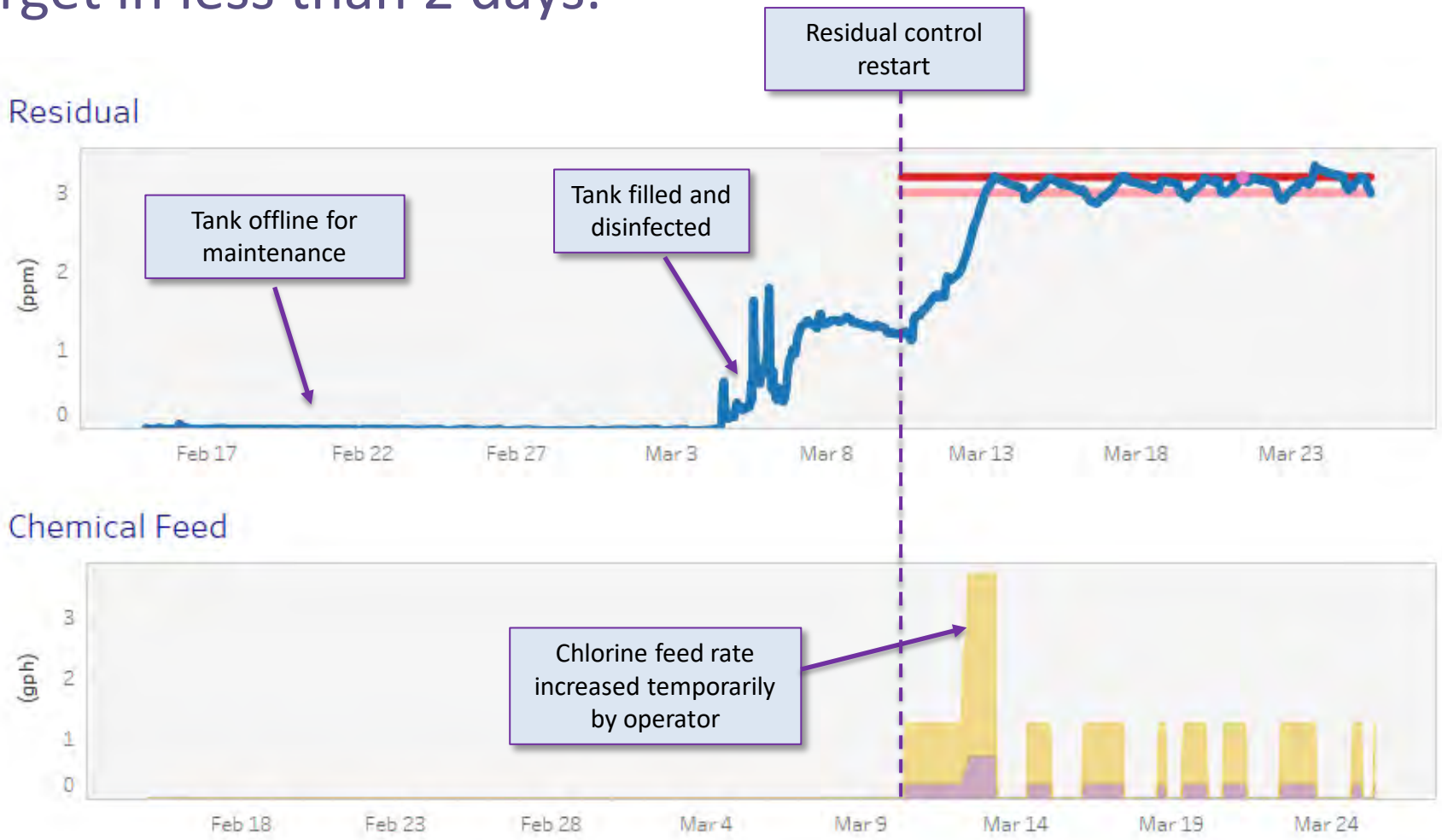
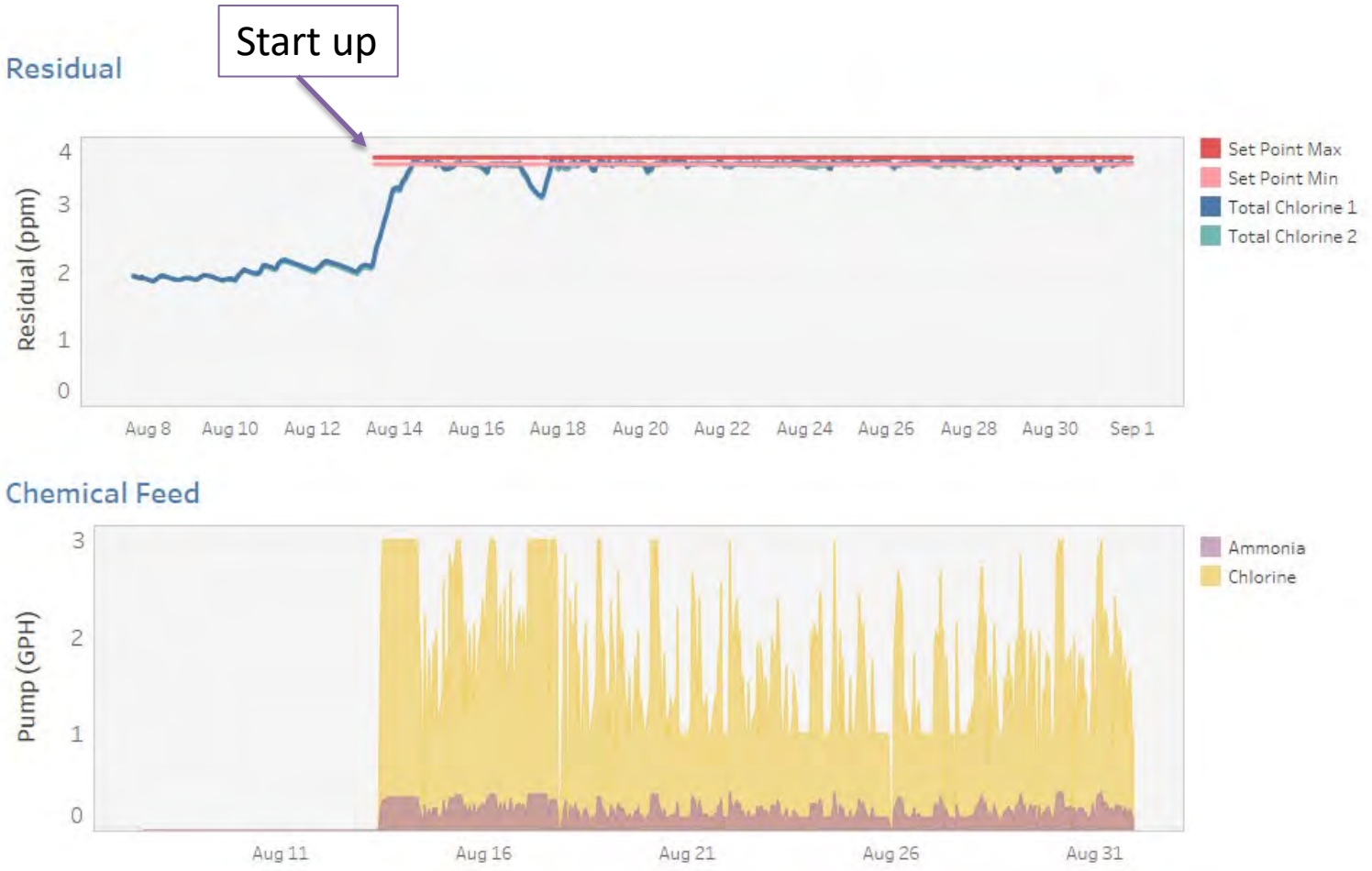
# Startup examples

# Residual control was restarted after tank was offline for a few weeks due to planned maintenance - residual back to target in less than 2 days.



# Another start-up example : Residual reached target of 3.6-3.7 ppm next day after startup.



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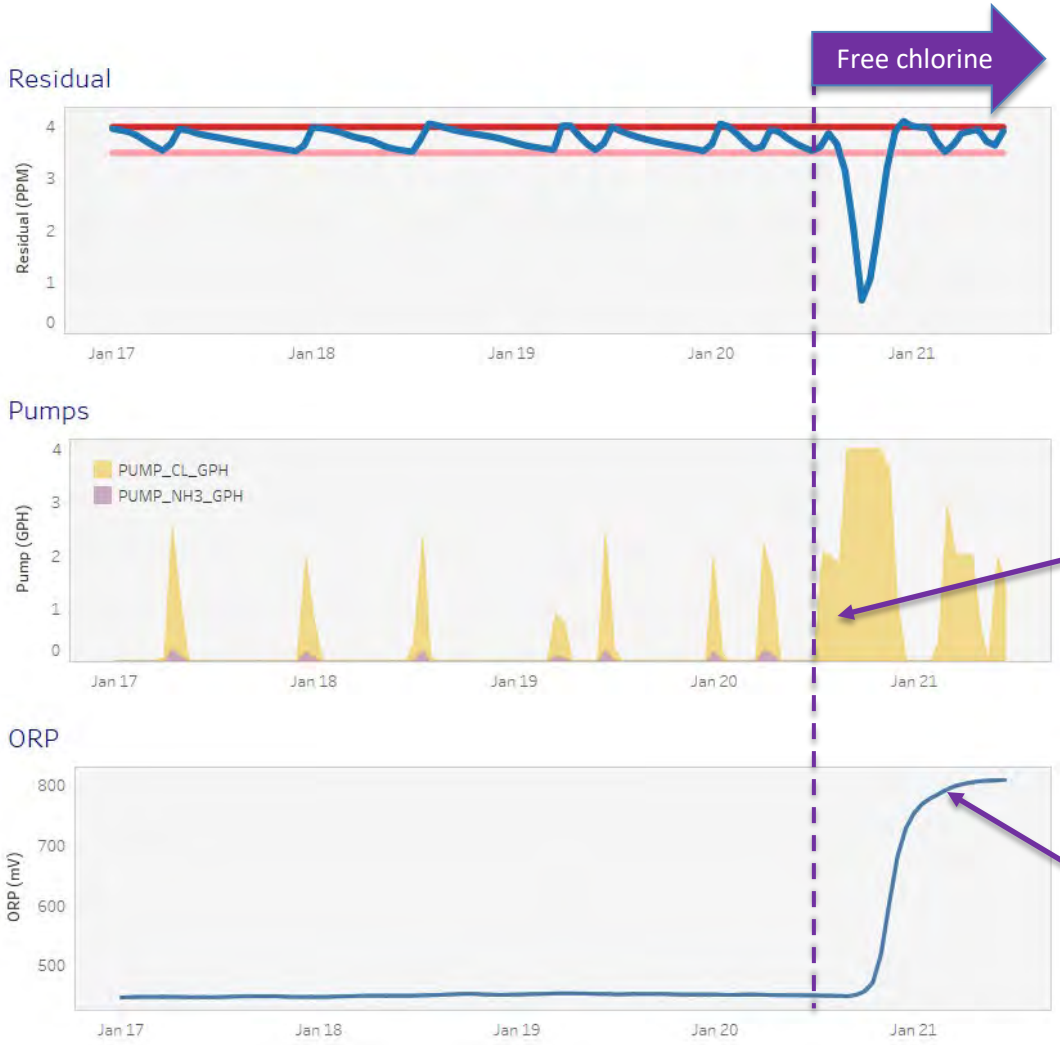
# Breakpoint chlorination example

# Breakpoint chlorination example : Operator switched from chloramine to free chlorine mode from the PSC screen (unintended): 9 hours to complete breakpoint chlorination.

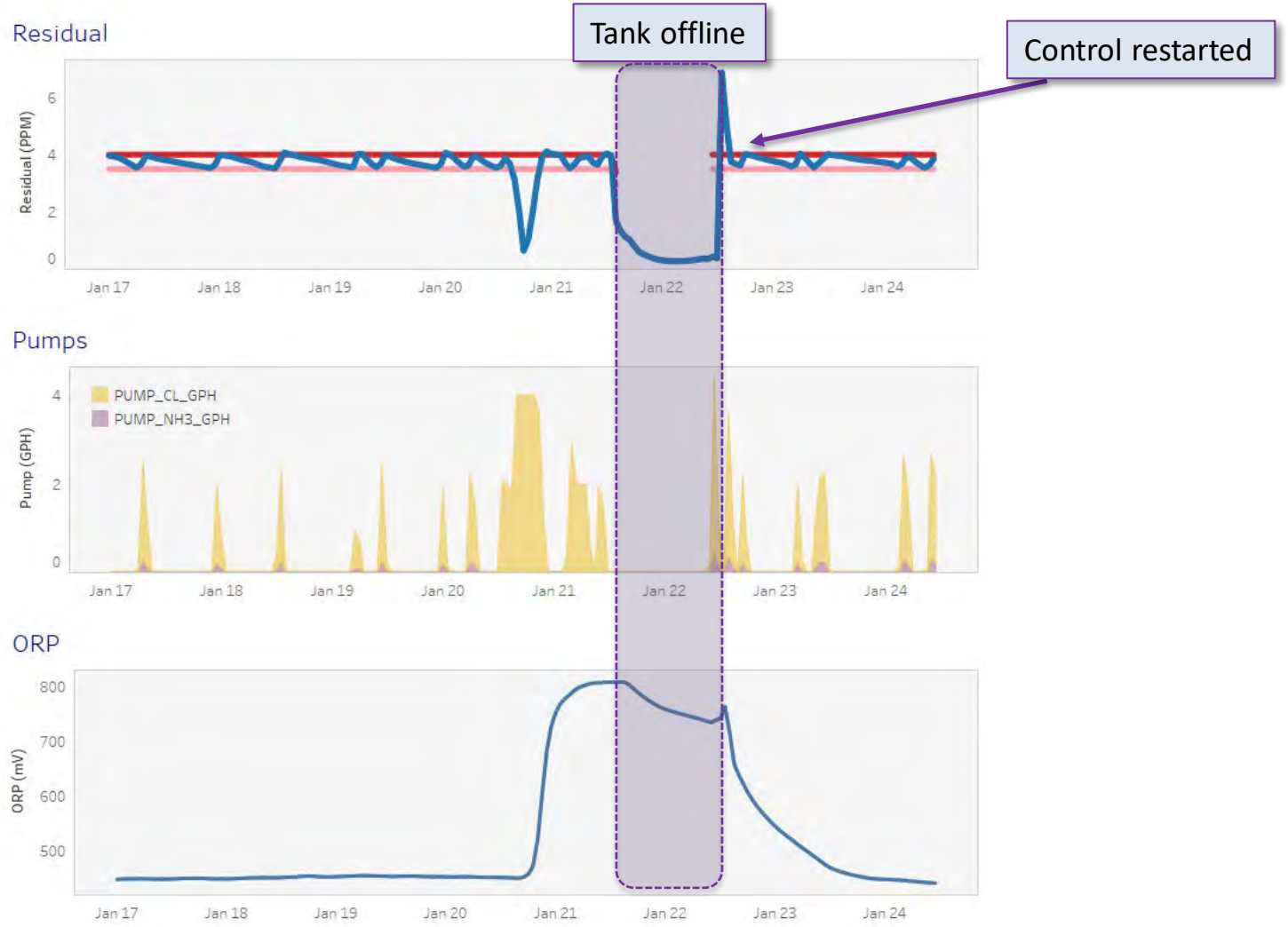



1. Operator switched to "Free chlorine mode" (Jan 20th 1 PM)

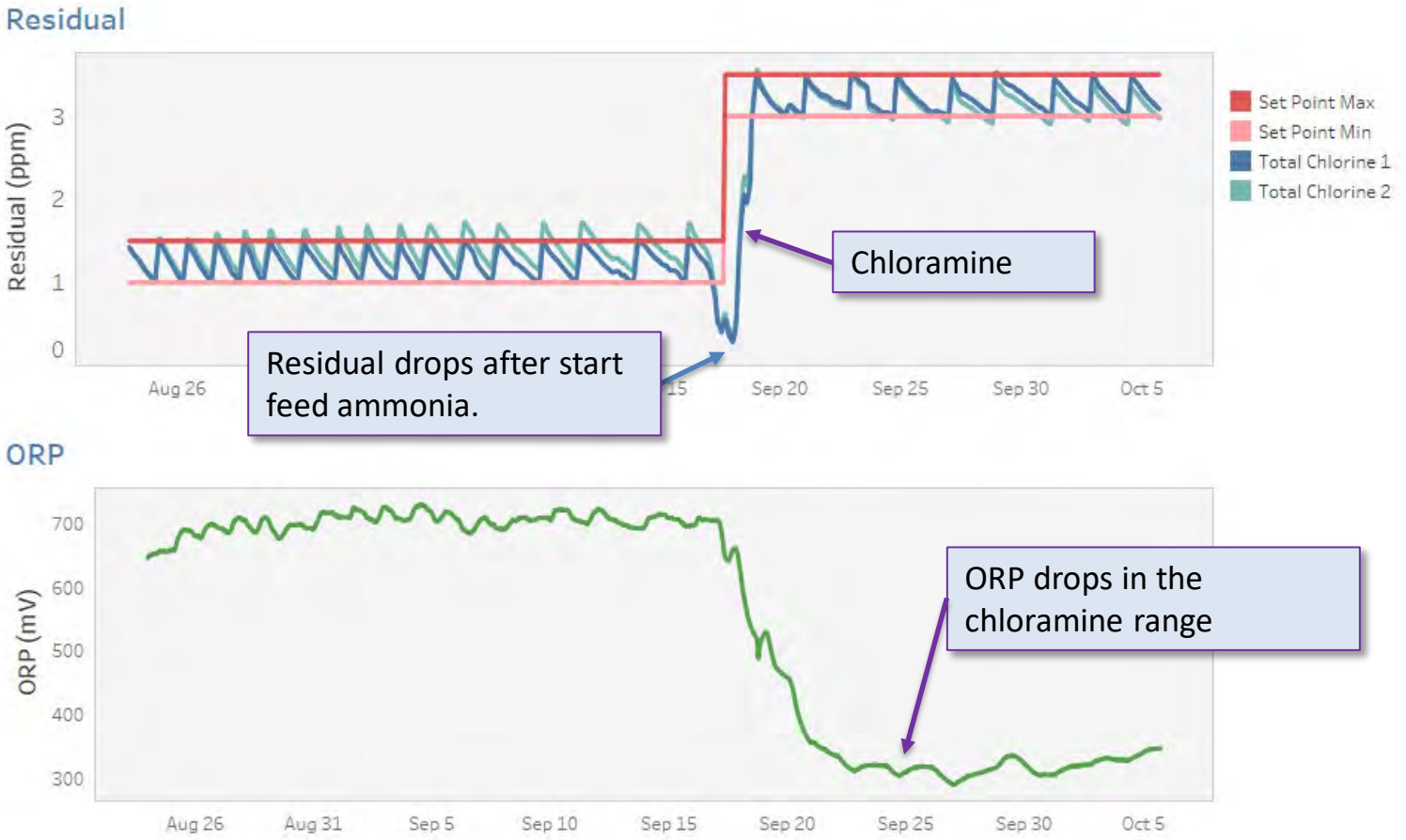
2. Chlorine dose starts (no ammonia)

3. High ORP and free chlorine within setpoint (Jan 20th 10 PM)

# What happened next? Operator decided to dump the tank and restart residual control in chloramine mode.



# Switch to chloramine (reverse breakpoint chlorination)



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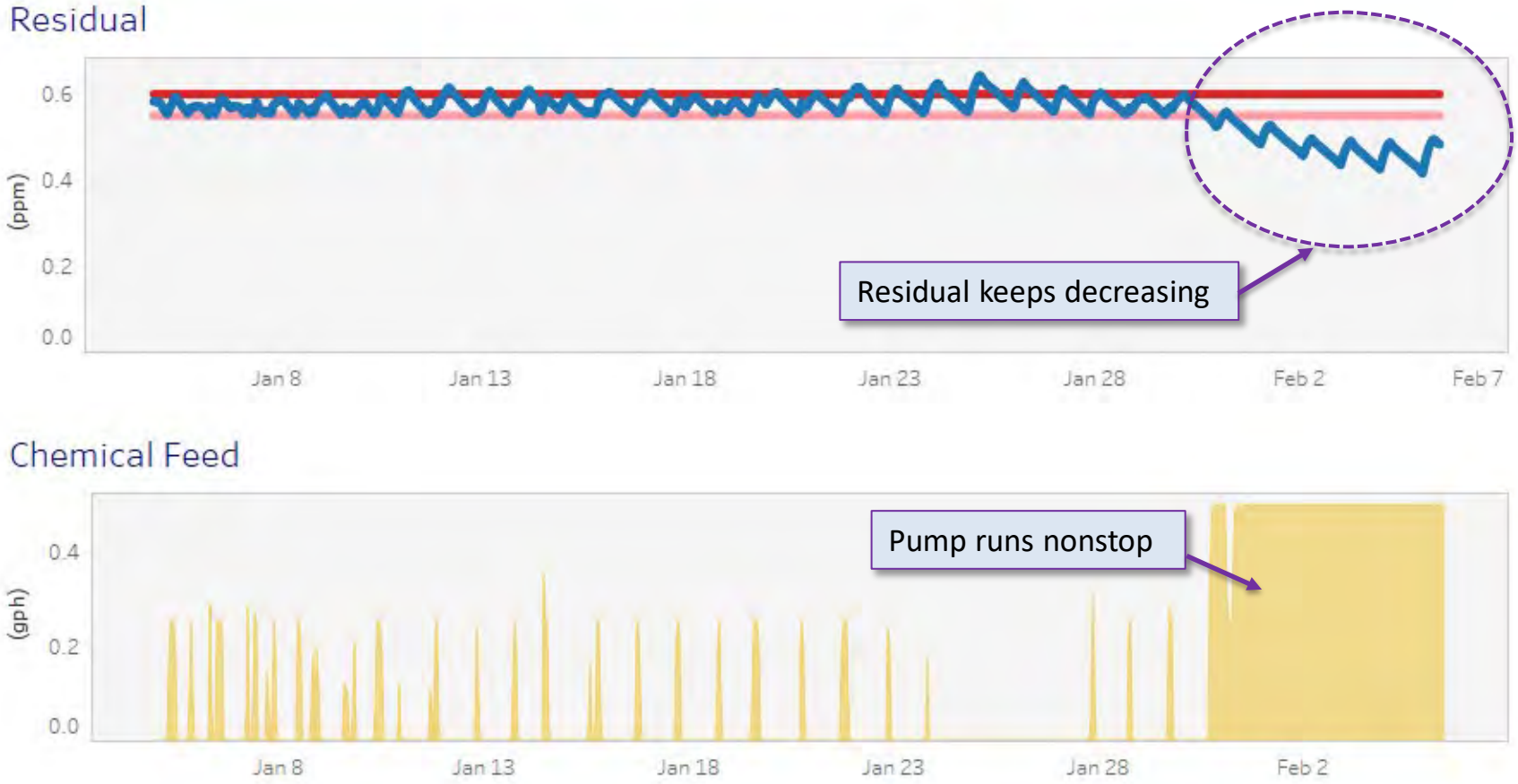
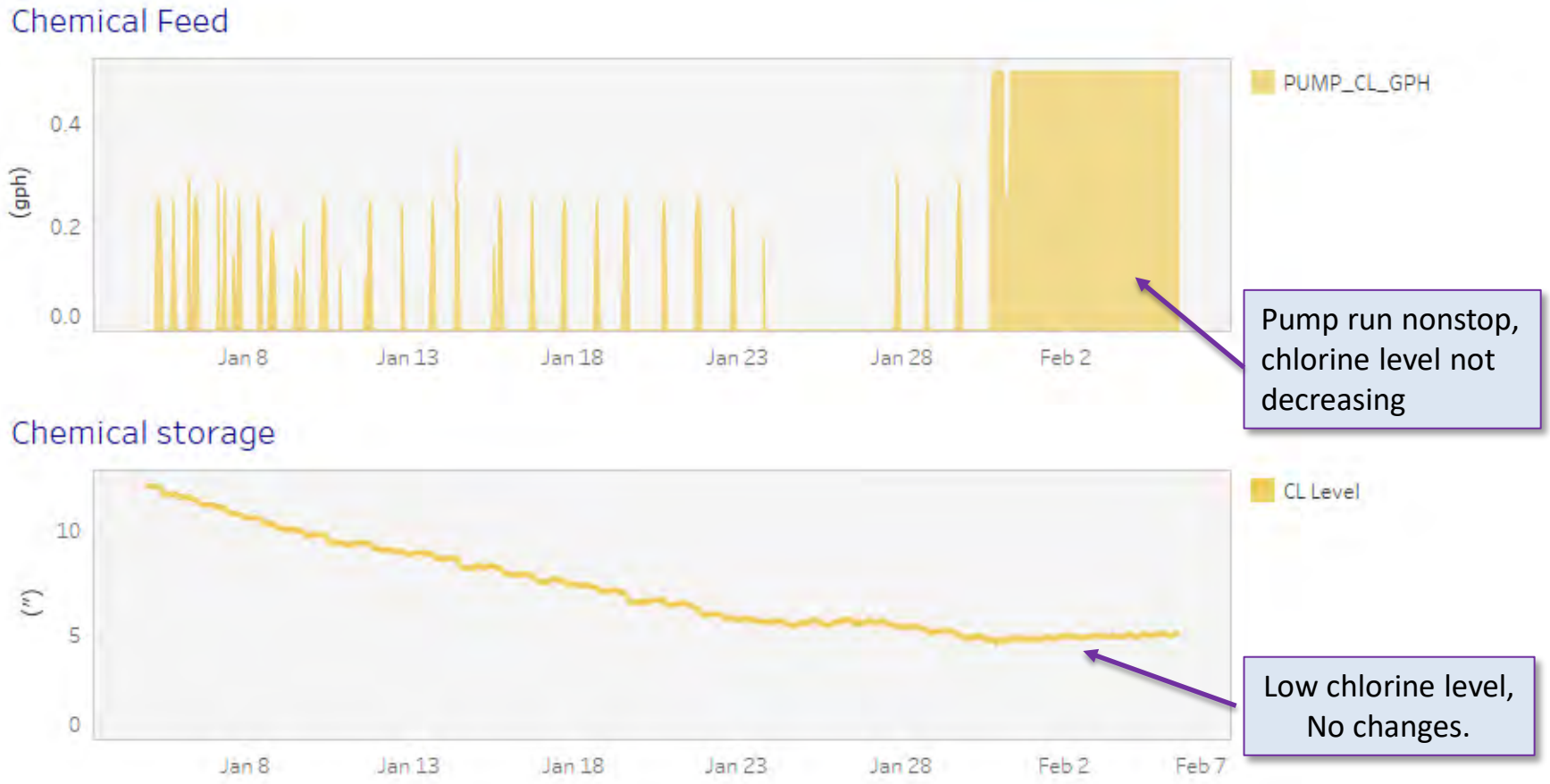
# Troubleshooting

# Troubleshooting starts by looking at chlorine residual: Residual not within target range despite dosing chemical non-stop is abnormal and should be investigated by operator.



# No chemical: Level in storage drum is low (~ 5”) and air is pumped instead of bulk hypo.




Refill drum and review level sensor and/or alarm configuration.

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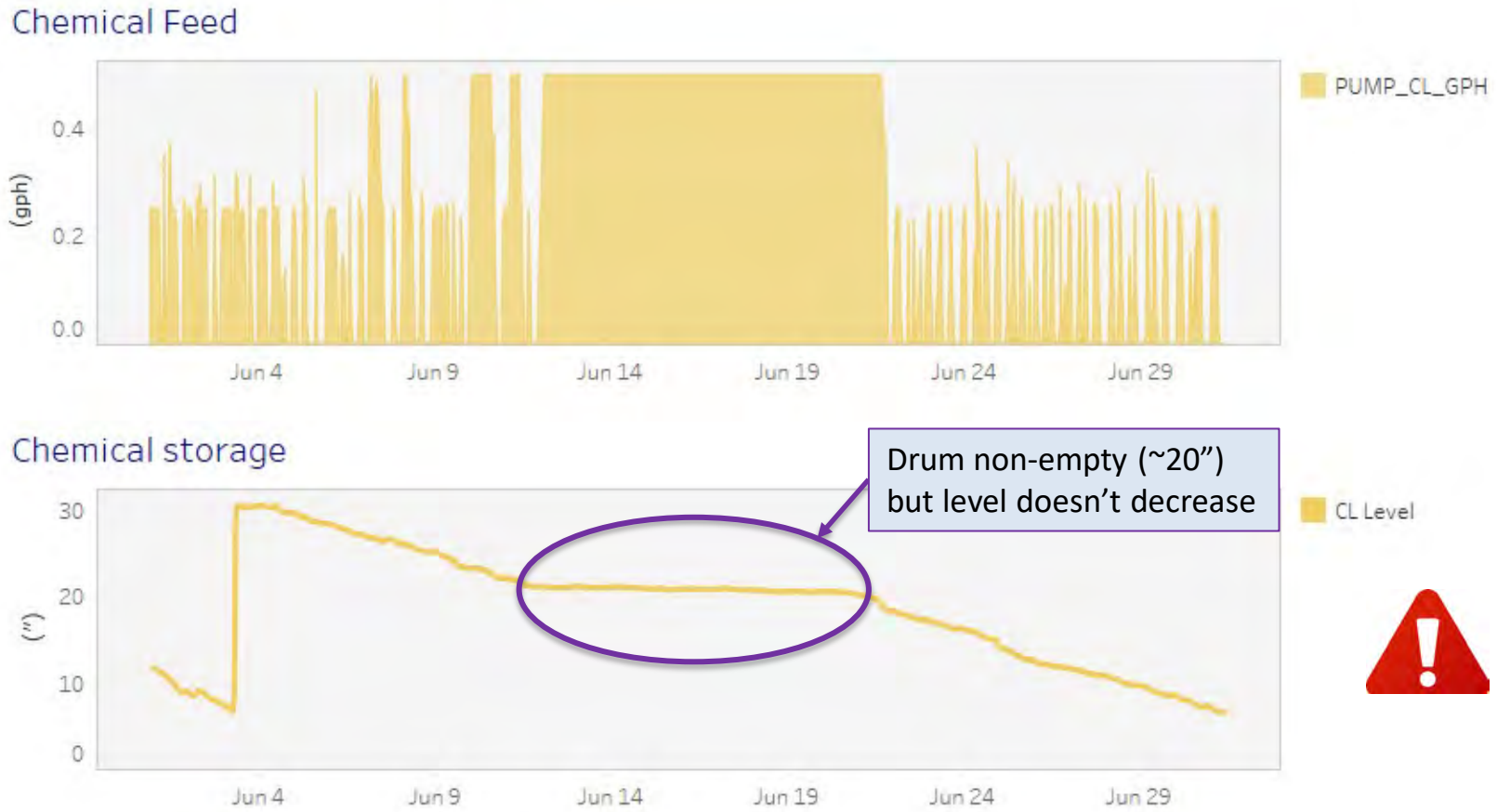
# Another example: Residual dropped despite pump running non-stop.

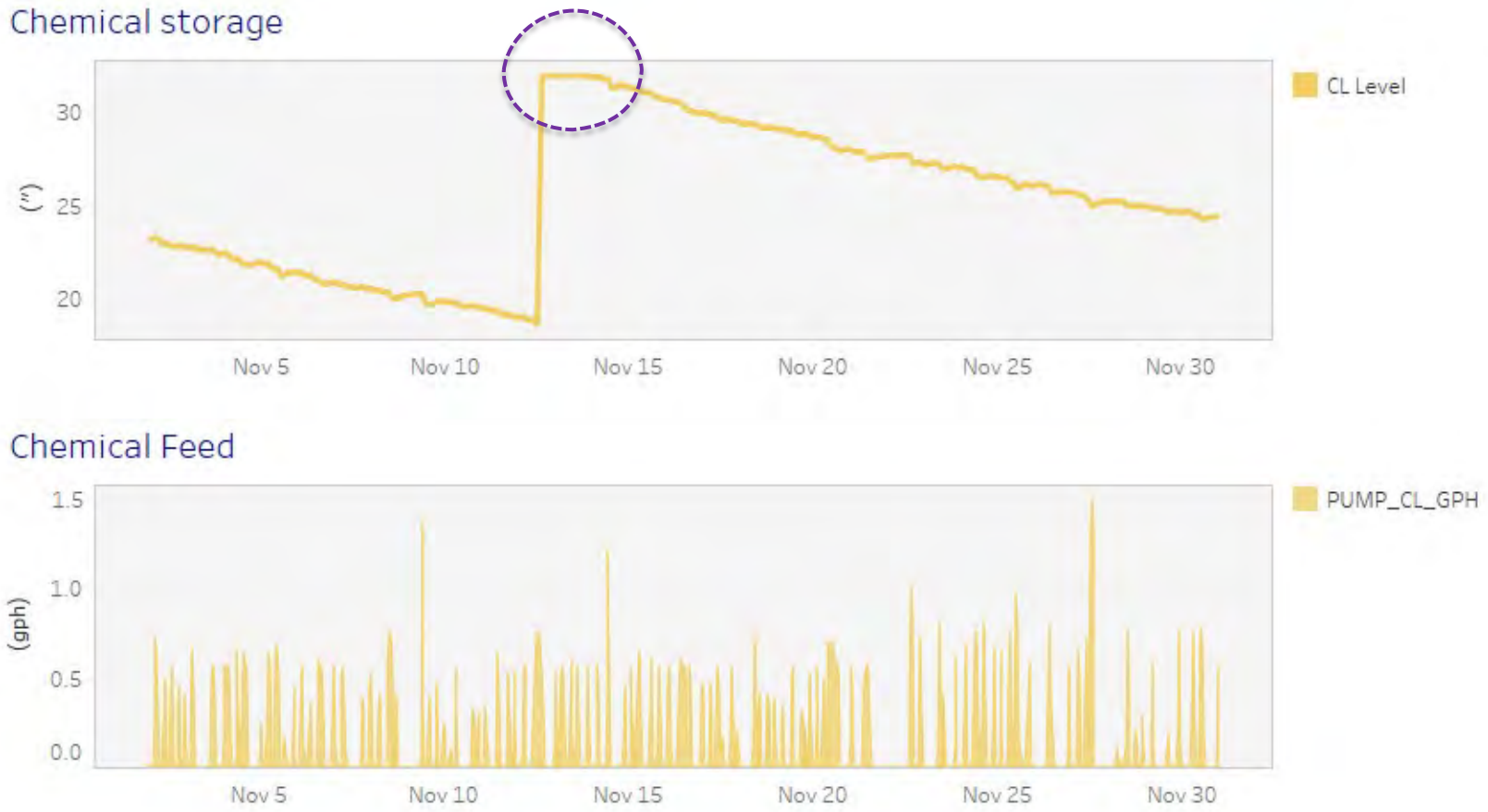

(Free chlorine system).

# Hypo level “stall” despite pump running non-stop. No chemical pumped - likely due to pump tube failure, suction line leak or closed valve.




Problem fixed by replacing peristaltic pump tube

# Another example: “Flat” reading from level sensor after chemical resupply. Chemical level too high and within sensor’s dead band.




Avoid filling drum too high and/or raise level sensor

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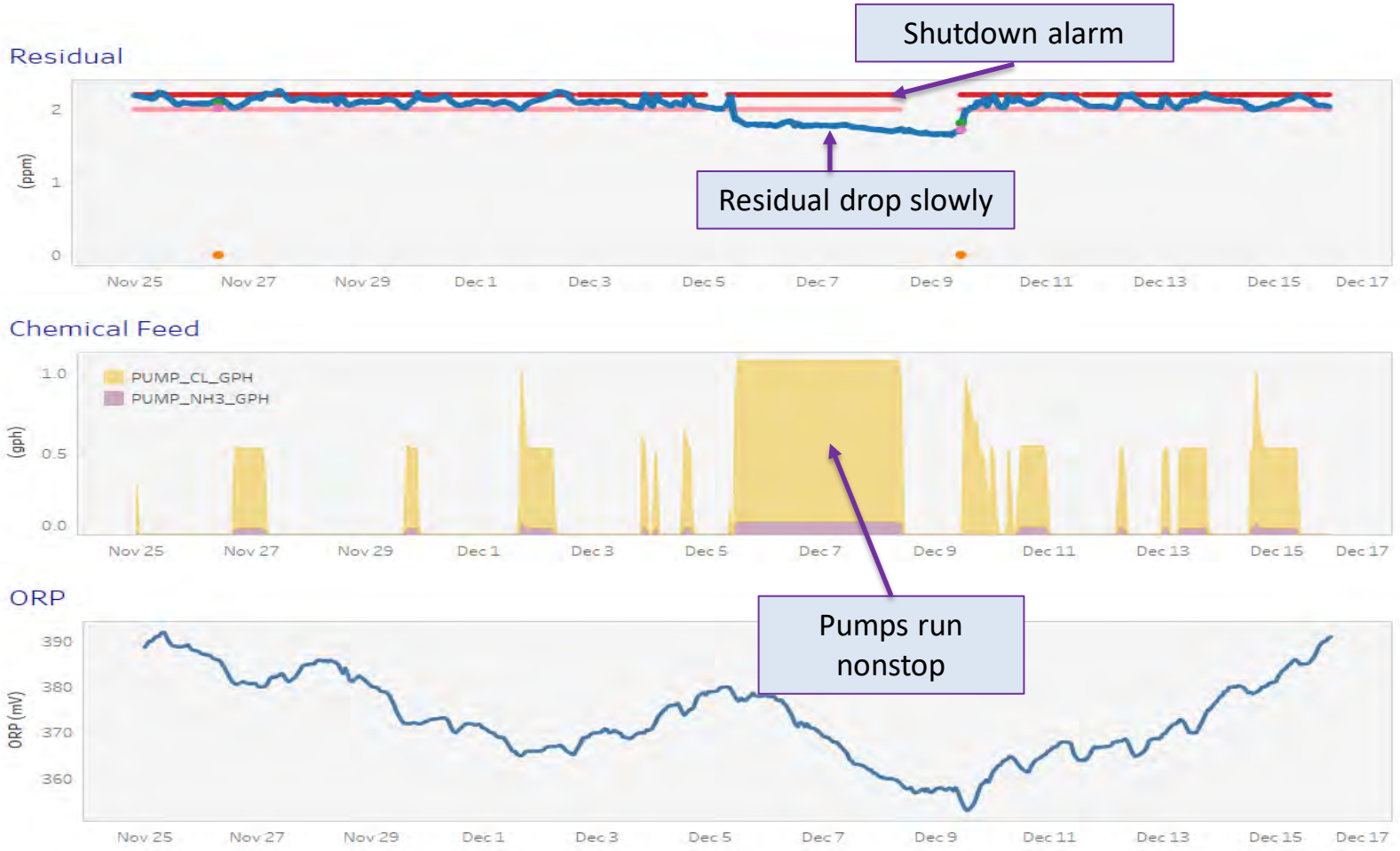
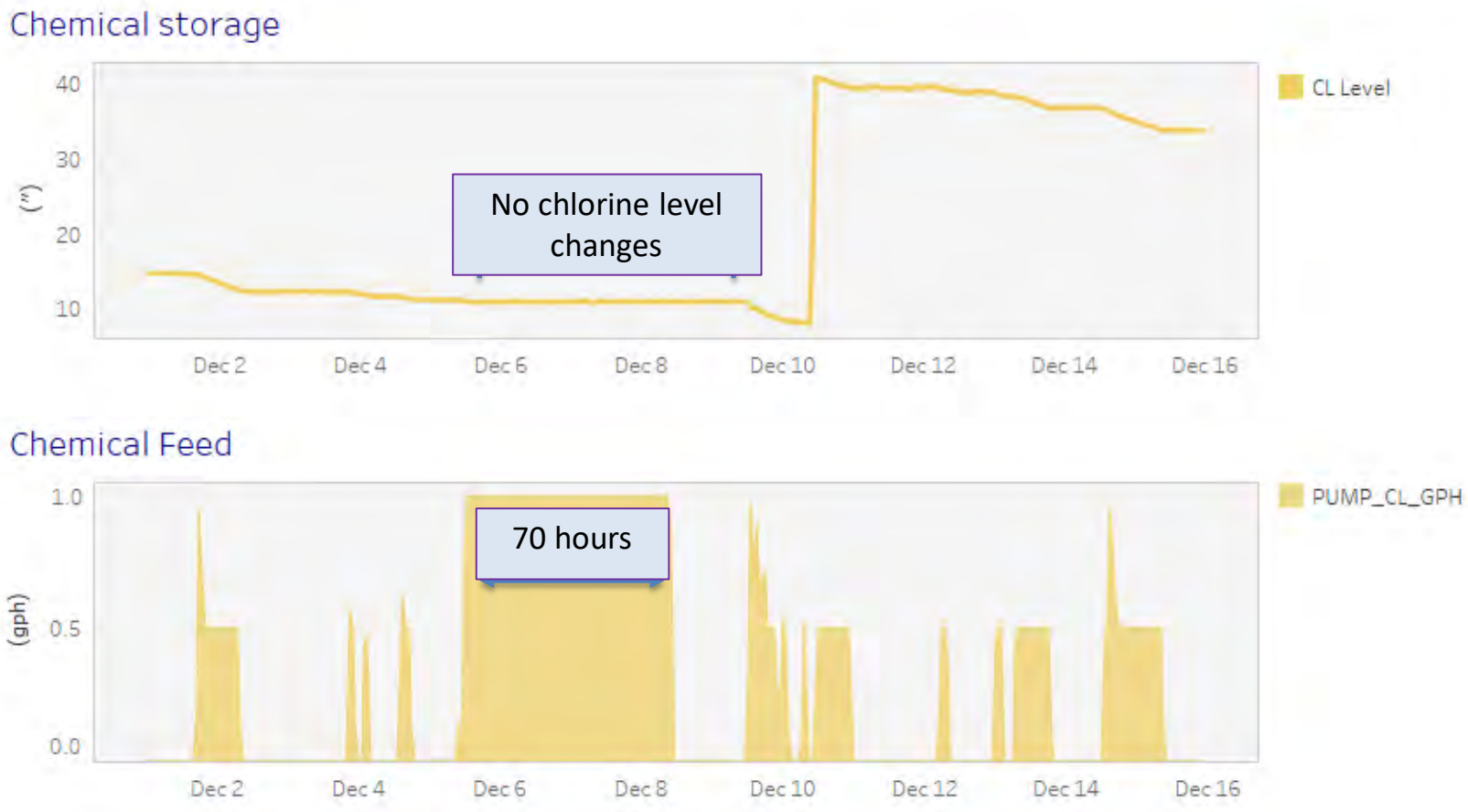
# Chlorine feed anomaly

# Example of chlorine feed anomaly: Residual drops slowly despite pumps running non-stop. ORP remains stable

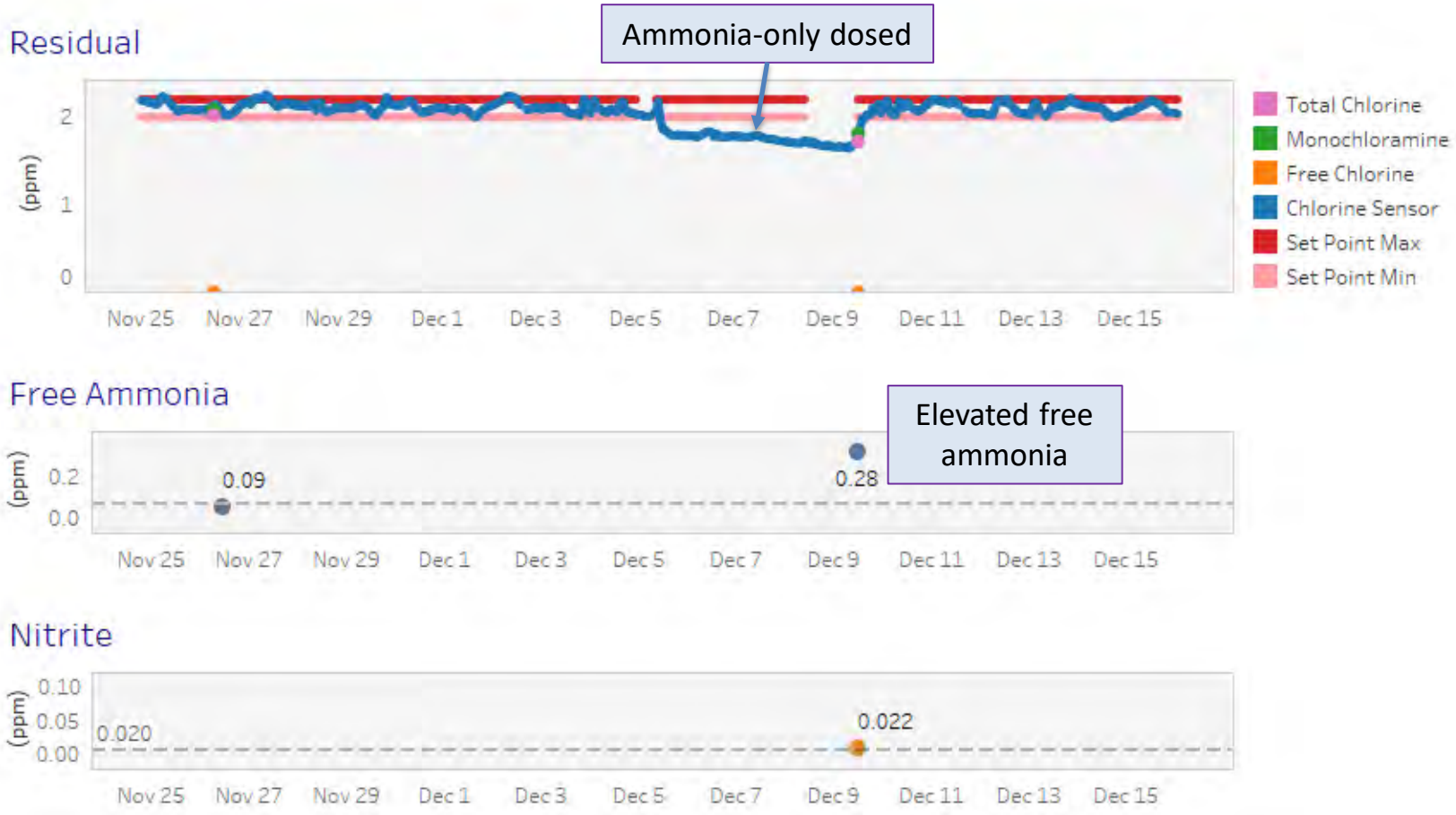


# Example of chlorine feed anomaly: chlorine level in 55-gallon drum remains the same despite pump dosing at 1 gph for about 70 hours.




Chlorine pump defective. Ammonia-only dosed.

# Example of chlorine feed anomaly: lower residual with elevated free ammonia sample due to absence of chlorine feed.



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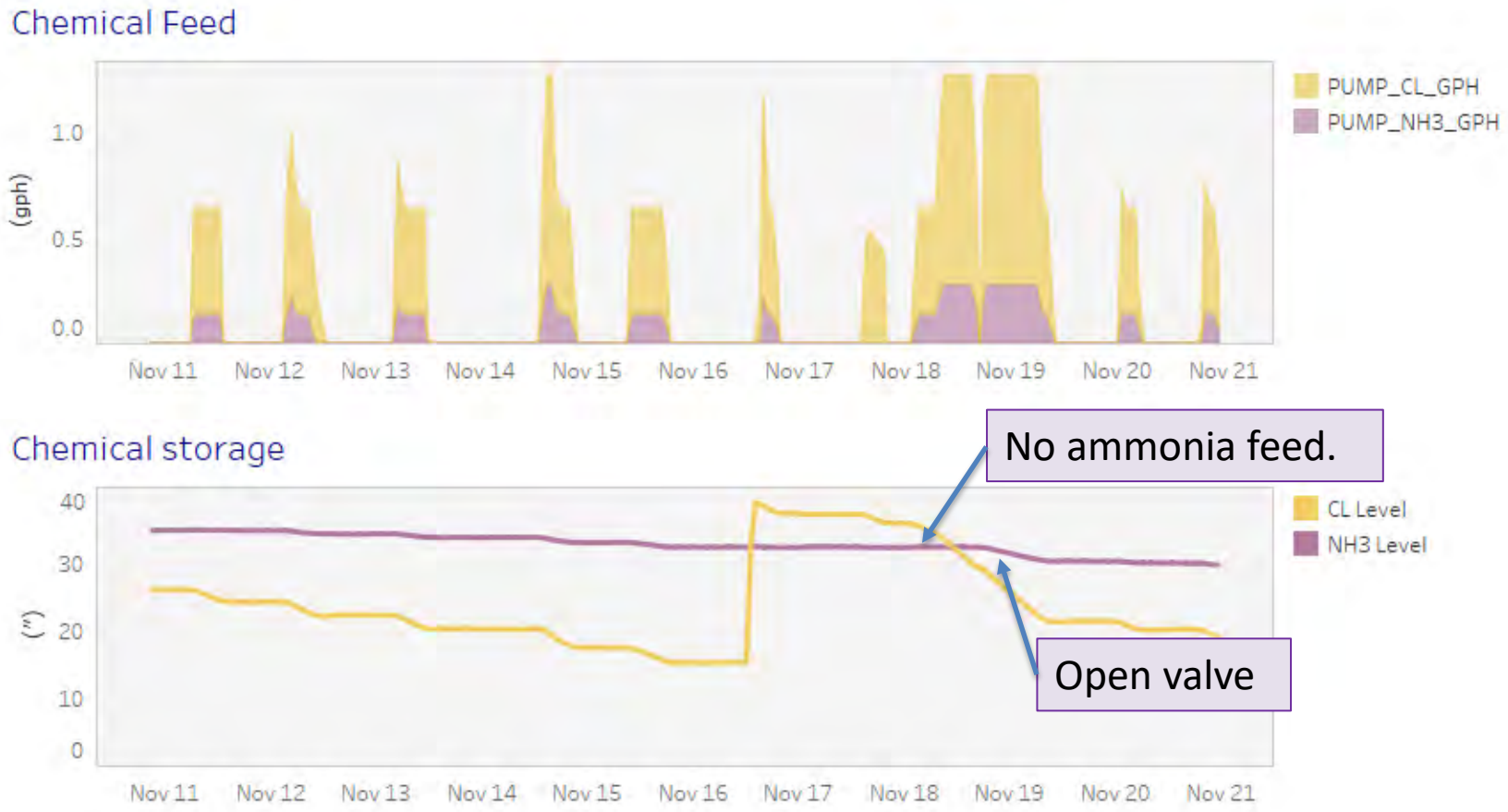
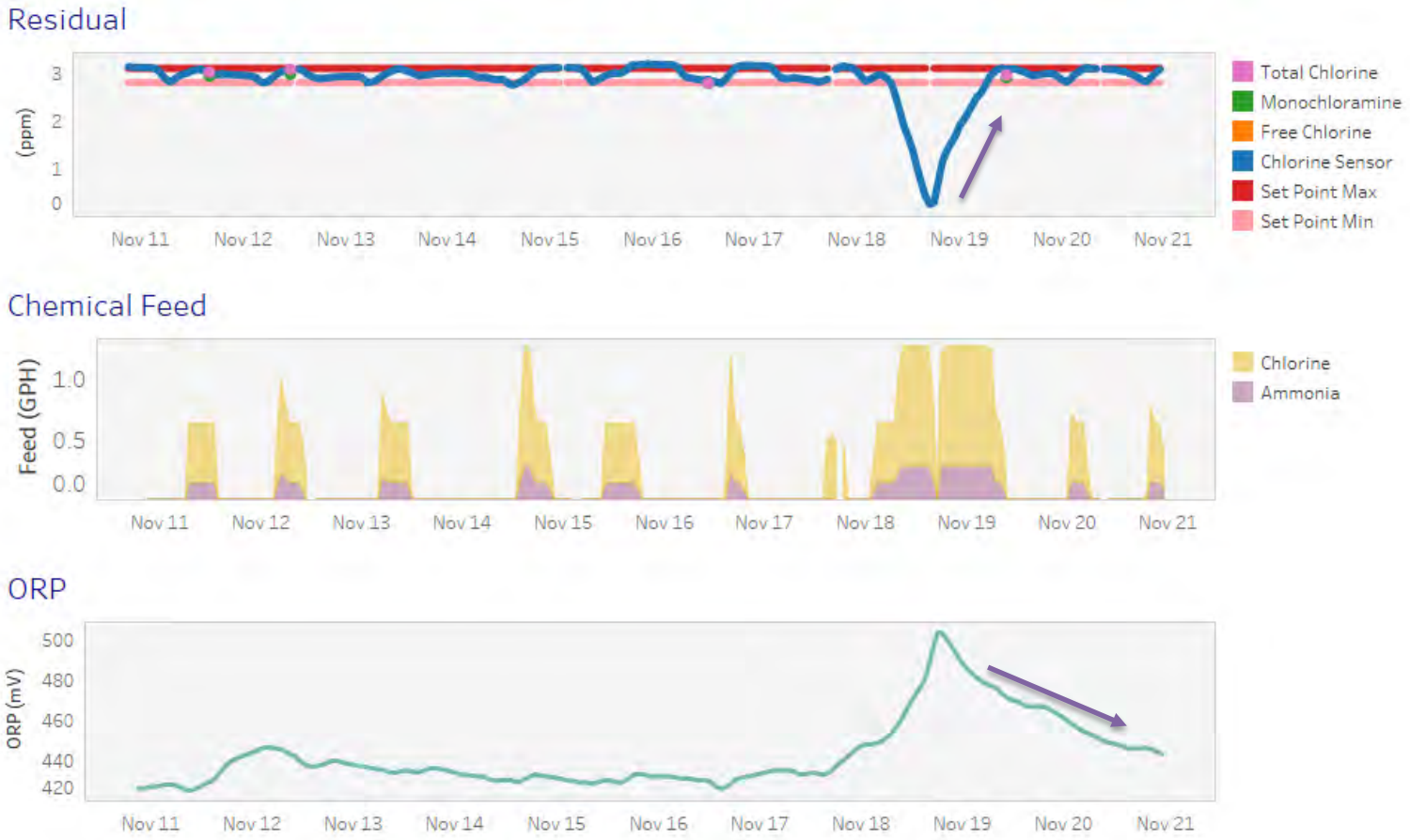
# Ammonia feed anomaly

# Example of ammonia feed anomaly: residual drop and ORP rise are signs of lack of ammonia (right-side of breakpoint curve)

# Discharge valve of ammonia skid left closed by operator.



# System restarted by operator and residual back to target overnight.



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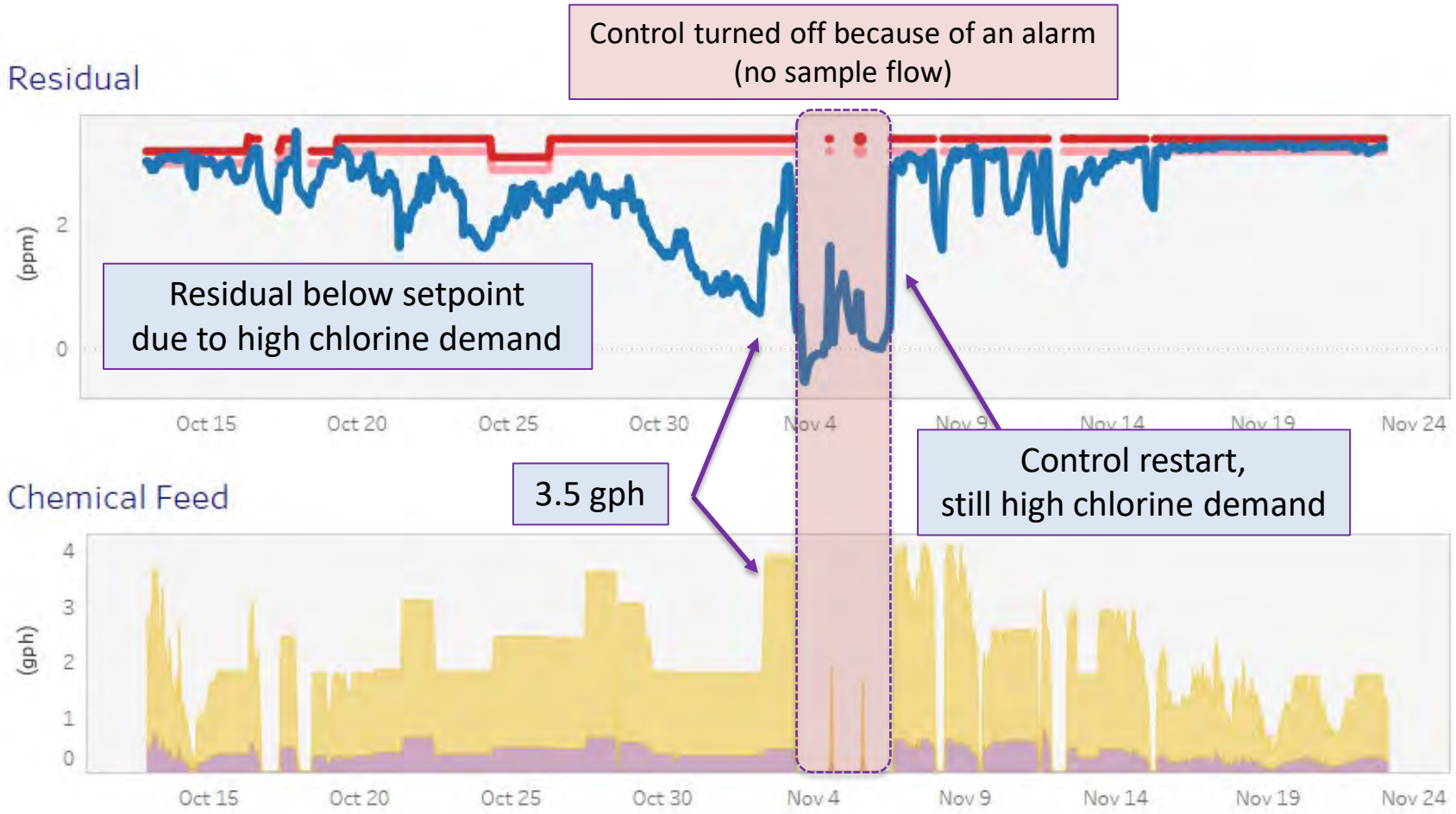
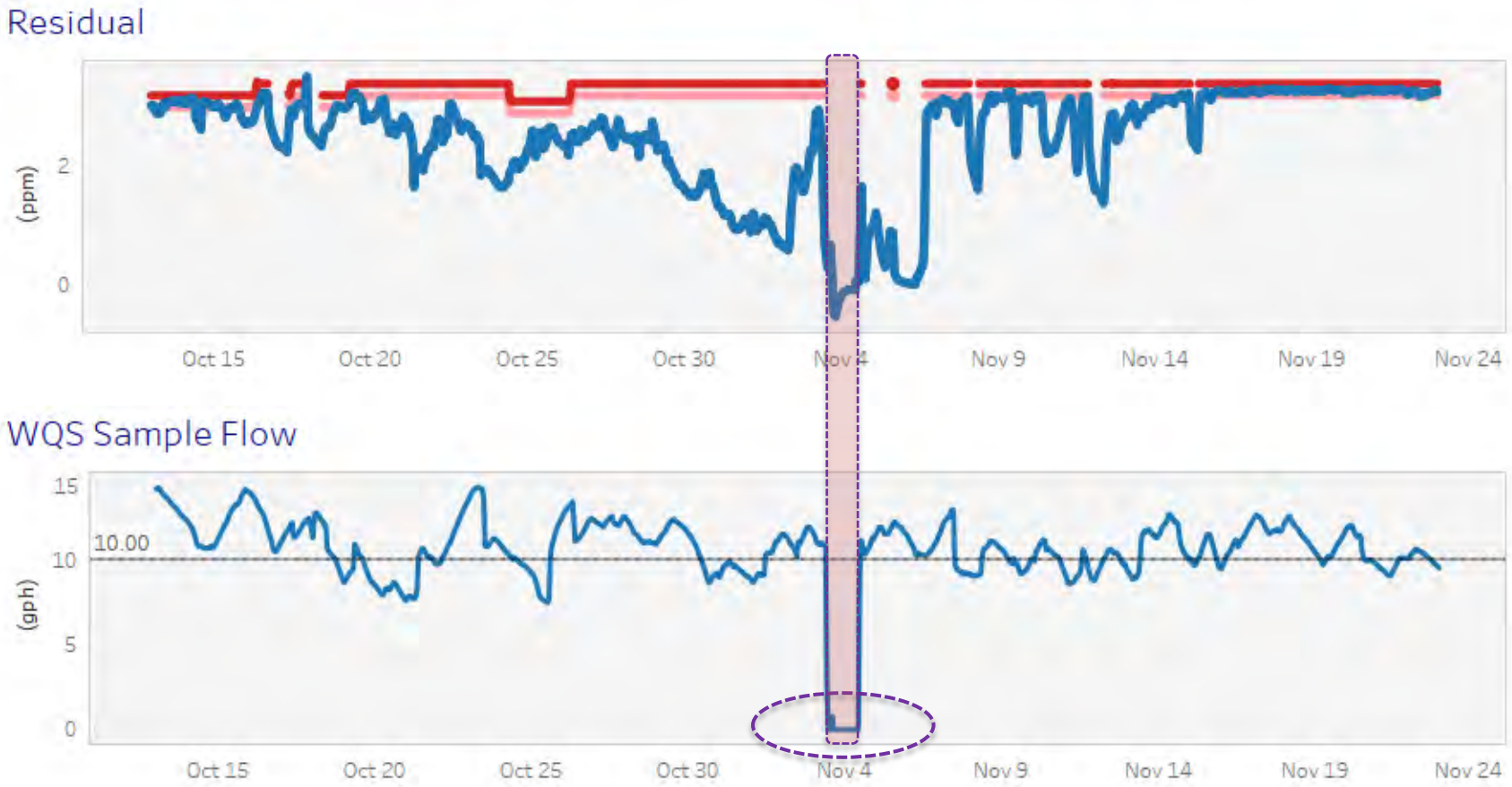
# High chlorine demand

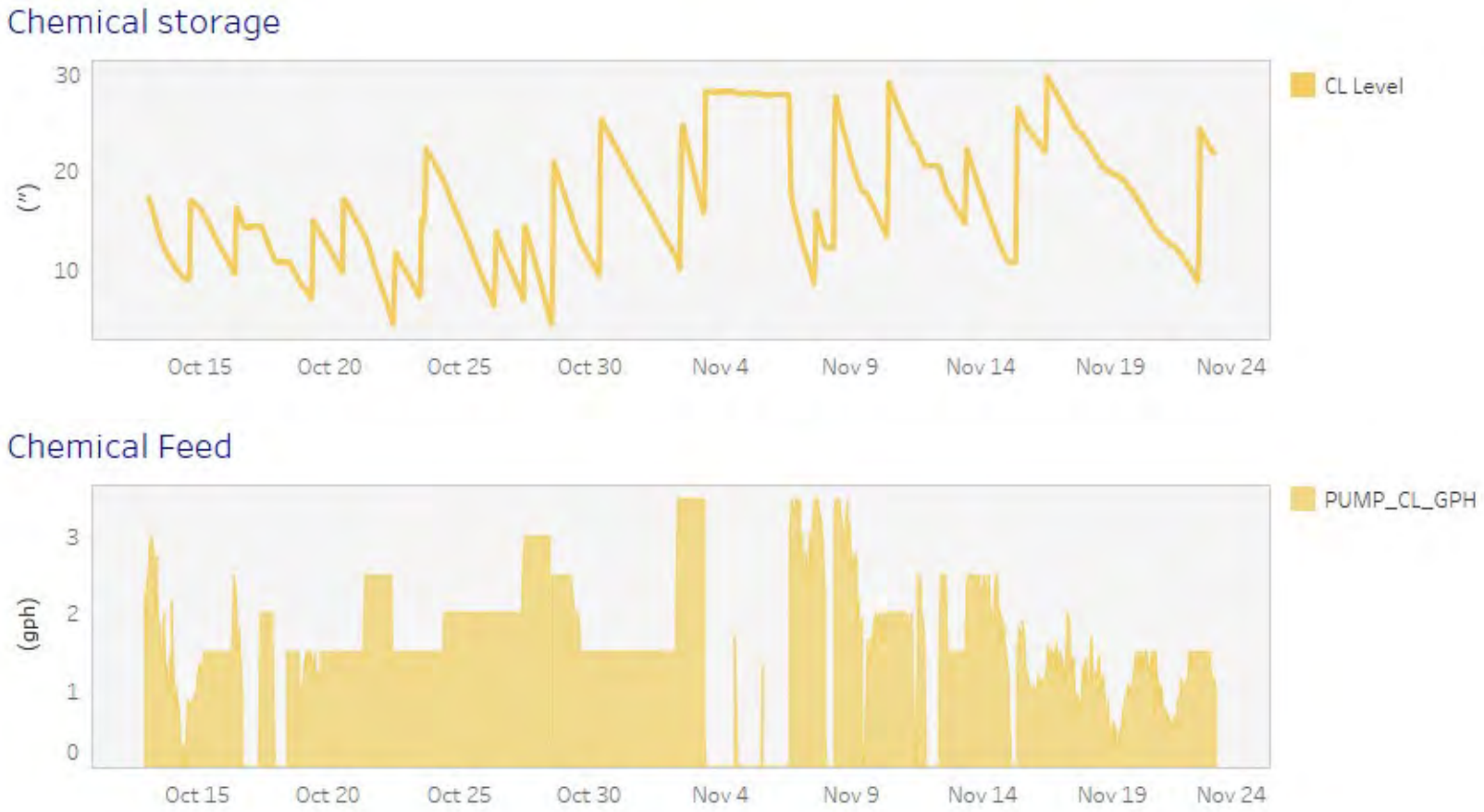
# Example of high chemical demand: Residual not on target despite pumps are running non-stop for over 2 weeks. Chlorine feed rate needed to be raised to 3.5 gph to handle high chlorine demand.



# In the meantime, WQS sample flow goes to zero and triggers and alarm stopping the residual control



# High chlorine demand requires frequent chemical resupply by operator (almost daily in this example – maybe need a bigger chemical tank).



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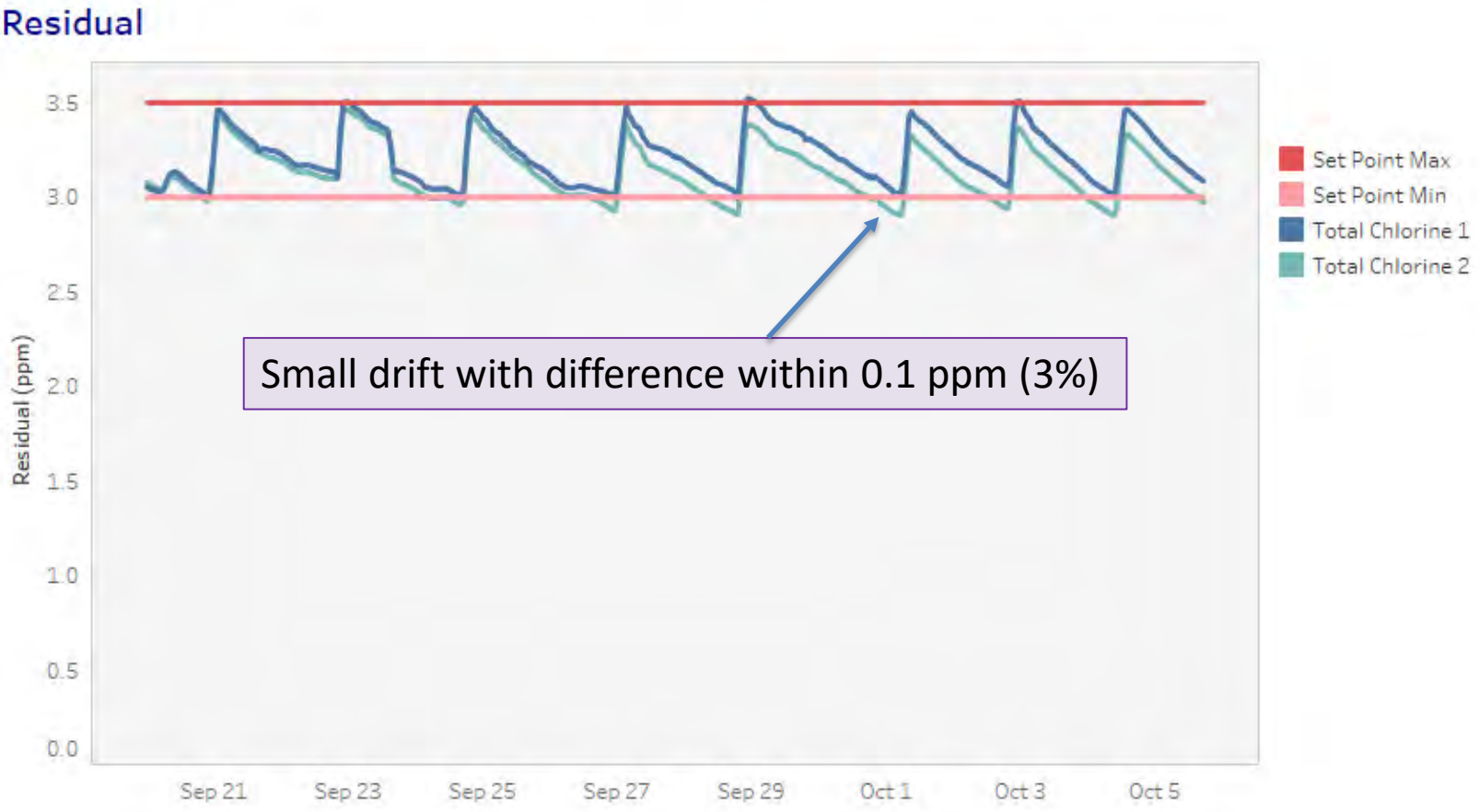
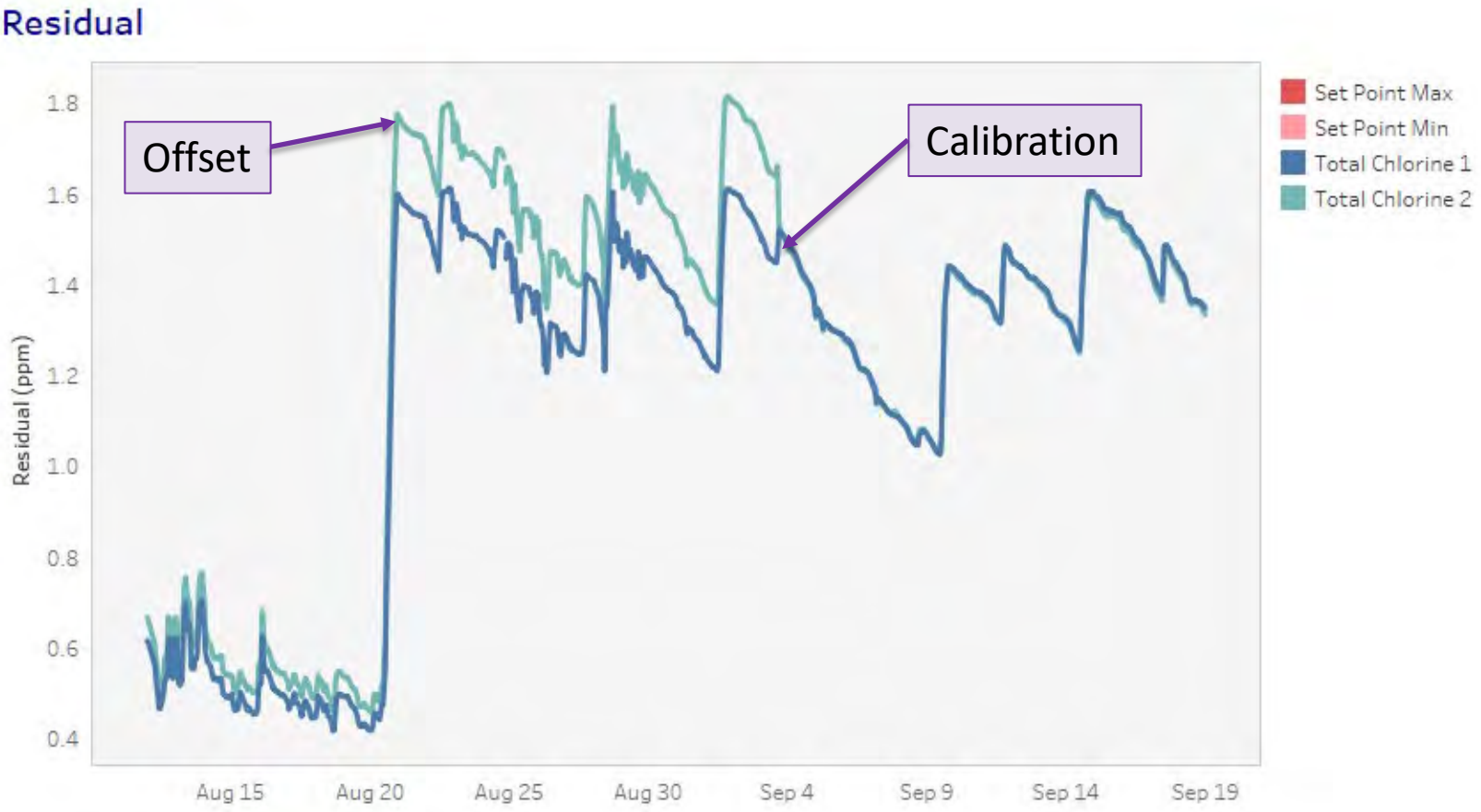
# Water Quality Station

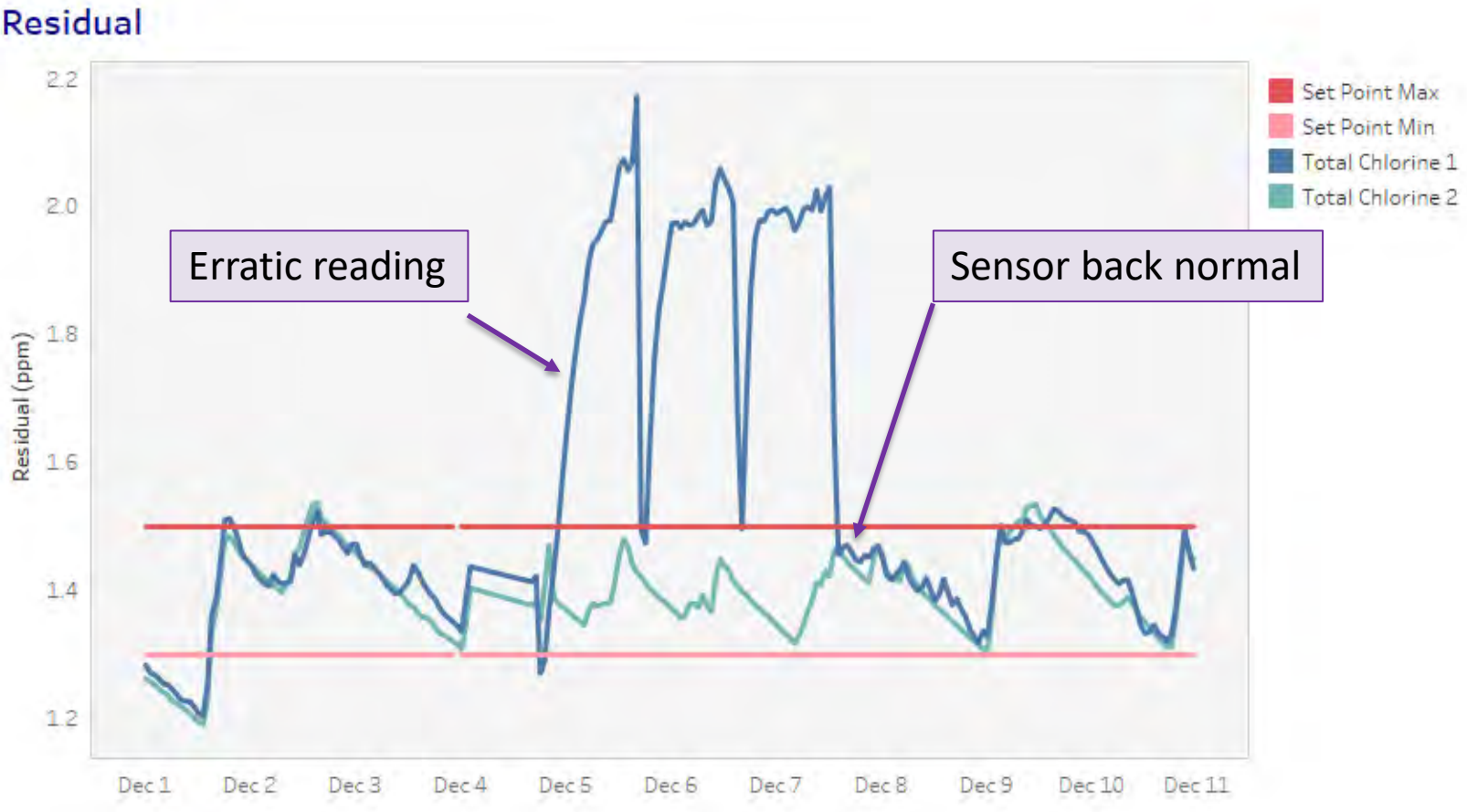
# Example of chlorine sensor drift: RCS has two chlorine sensors



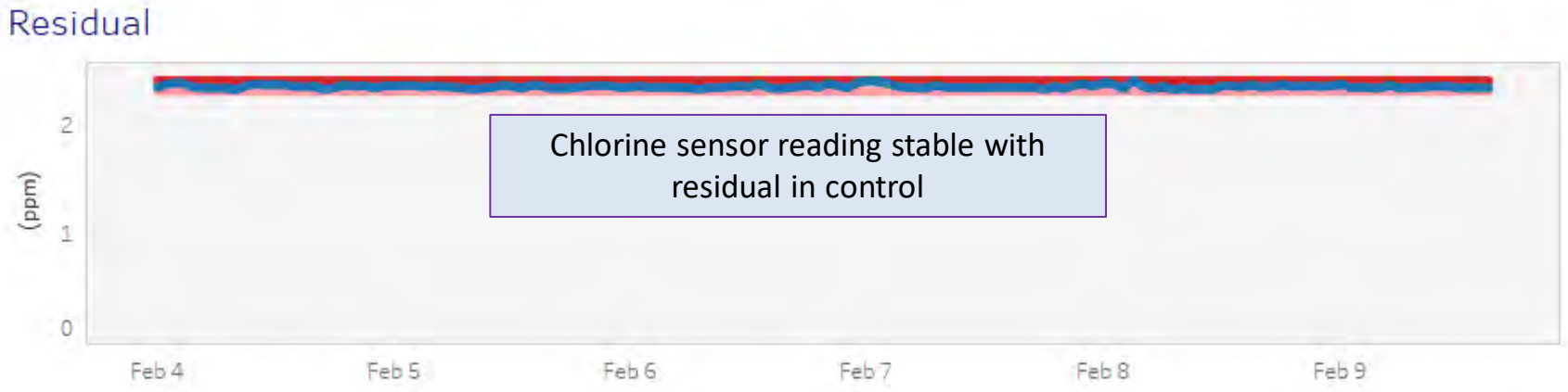
# Example of sensor offset after sudden increase in residual: solved by calibration.

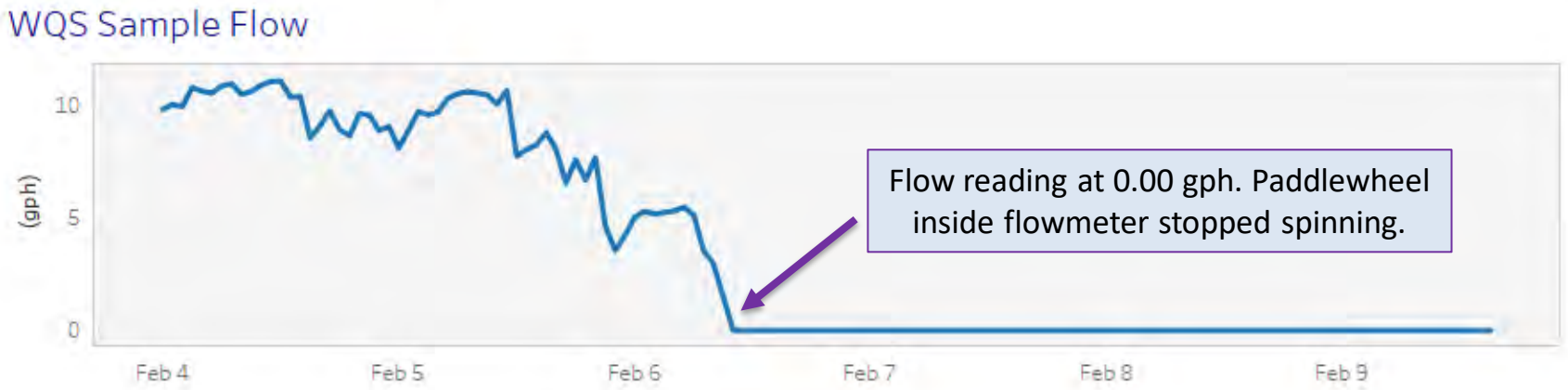


# Example of chlorine sensor anomaly: sensor needed maintenance.

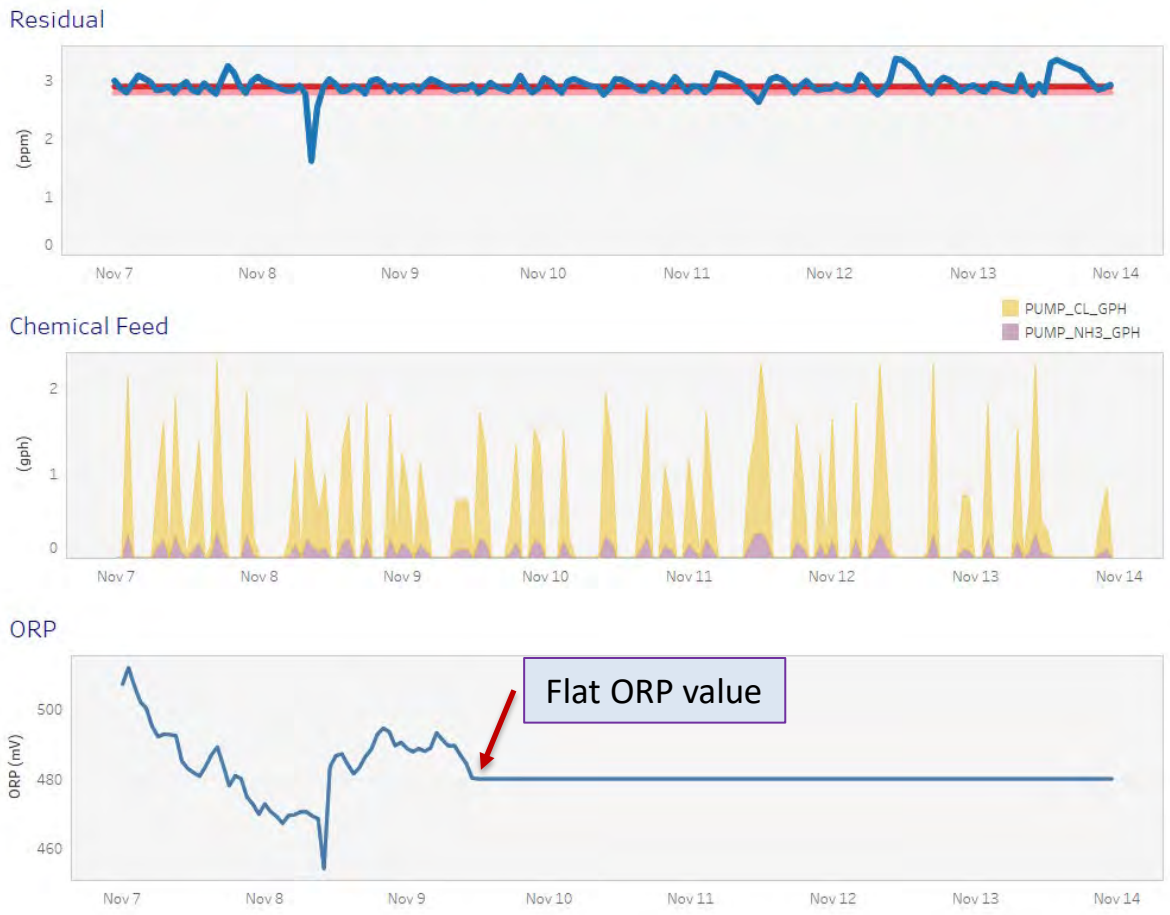


# Sample flow problem. WQS's flowmeter is defective or requires cleaning. Flowmeter may clog and strainer need to be cleaned as needed.



# Example of sensor anomaly: ORP values suddenly stop changing




Could be due to defective probe or WQS misconfiguration

# Summary

- Troubleshooting starts with monitoring residual trend lines.

- What to look for:
  - High chlorine demand (perhaps seasonal)
  - Chemical feed issues
  - Seasonal change in water quality
  - Defective equipment

- Telemetry combined Remote Monitoring Service is useful to track anomalies

## SECTION 6

# TRAINING: REGIME DETECTION ALGORITHM

## Monoclor® Residual Control System

PSI Water Technologies
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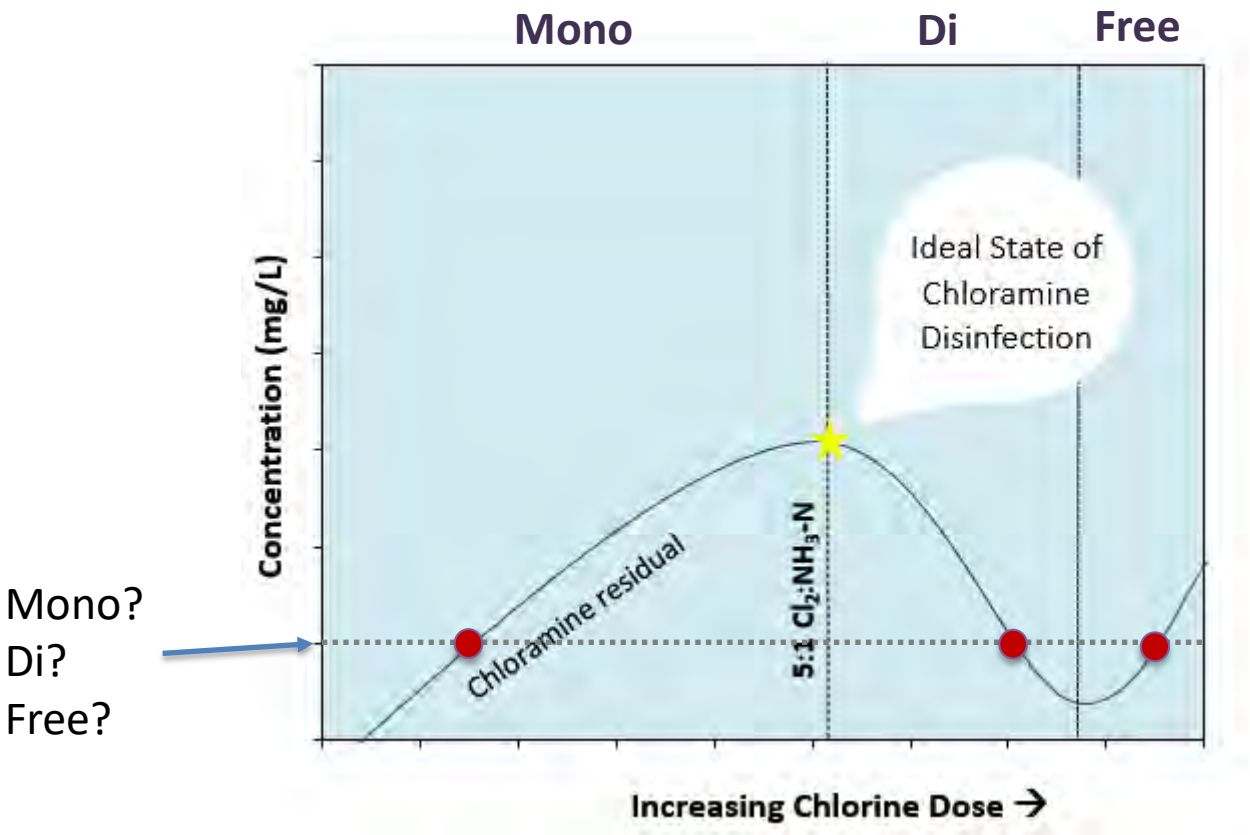
# Monoclor® RCS Training : Regime Detection Algorithm

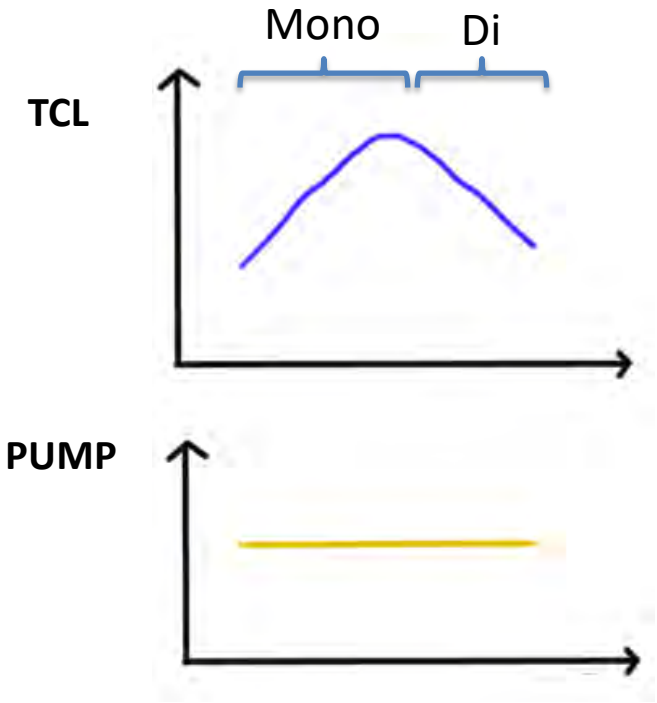
August 2021

# Total chlorine level alone isn't sufficient to know where we are on the breakpoint curve




*Need to know where we are for dosing decision making*

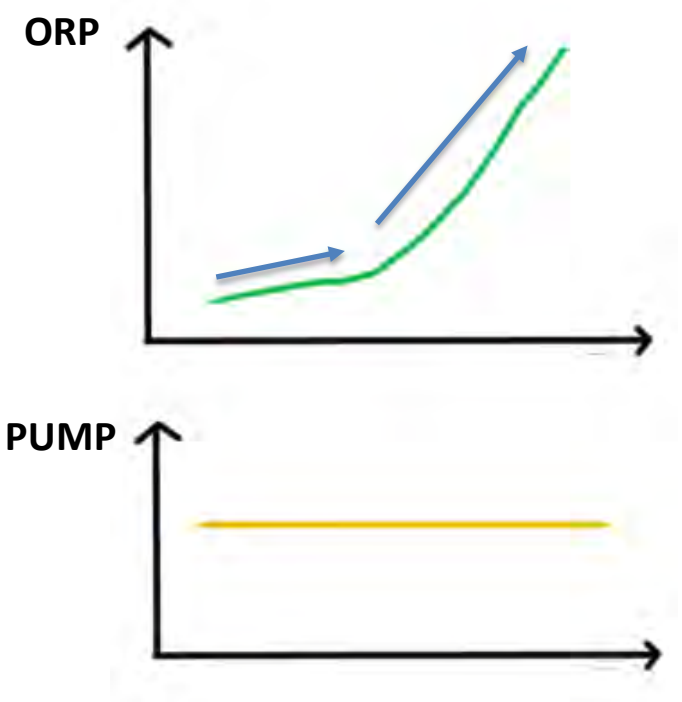
# Regime Detection : CL Slope




Use total chlorine change over time (gain) in response to chemical feed to dynamically determine where the tank is on the curve (good)

| Regime | Residual gain (ppm/hr) |
|---|---|
| Mono | + |
| Di | - |

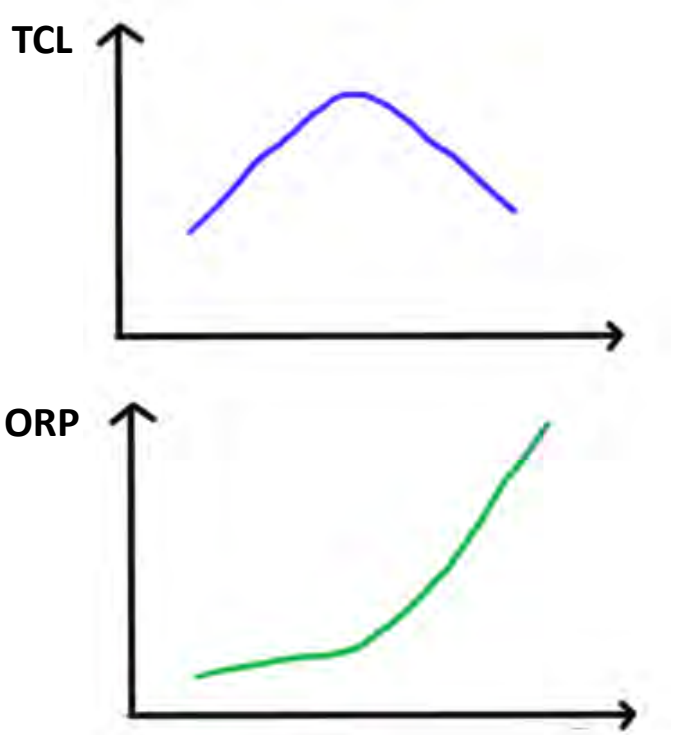
# Regime Detection: ORP Slope




Use ORP change over time in response to chemical feed to dynamically determine where the tank is on the curve (ok)

| Regime | ORP gain (mV/hr) |
|---|---|
| Mono | + |
| Di | +++ |

# Regime Detection: CL and ORP slopes

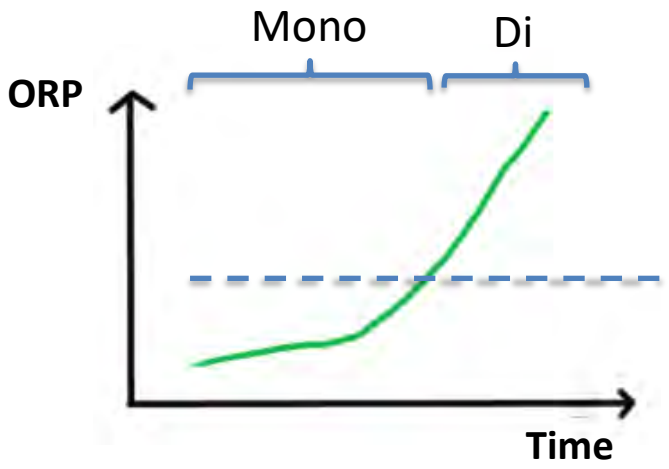



Use both Total Chlorine and ORP change over time to dynamically determine where the tank is on the curve (best practice)*

| Regime | Residual gain (ppm/hr) | ORP gain (mV/hr) |
|---|---|---|
| Mono | + | + |
| Di | - | +++ |

* Patented

# Regime Detection : ORP Level




Use ORP readings to detect regime

| Regime | Typical threshold |
|---|---|
| Mono | ORP < 500 |
| Di | 500 < ORP < 700 |
| Free | 700 < ORP |

May require threshold adjustment by operator when water quality changes

# Regime Detection Overview

| Regime Detection Method | Description | Usage |
|---|---|---|
| CL Slope | Total chlorine change over time (gain) in response to chemical feed | Main method |
| ORP Slope | ORP change over time (gain) in response to chemical feed | Additional method |
| CL and ORP Slope | Total chlorine and ORP change over time (gain) | Advanced method |
| ORP Level | ORP readings to detect regime | Fail-safe |

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**SECTION 7**

**TRAINING: ORP FAQ**

**Monoclor® Residual Control System**

PSI Water Technologies
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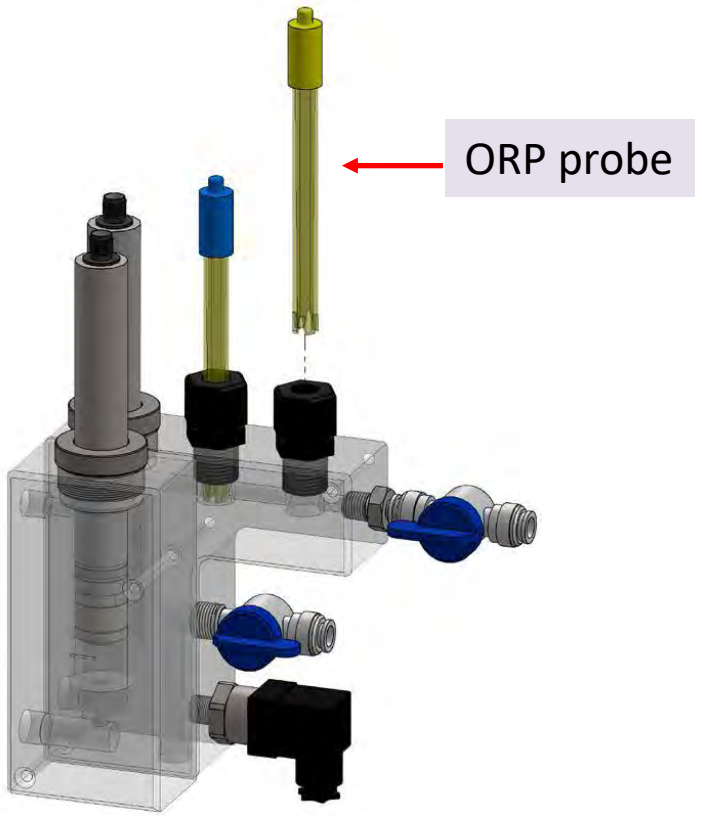
# Monoclor® RCS Training : ORP FAQ

June 2021

# What is ORP?

- **ORP** = Oxidation-Reduction Potential, a measure of disinfectant strength, measured in millivolts (mV).

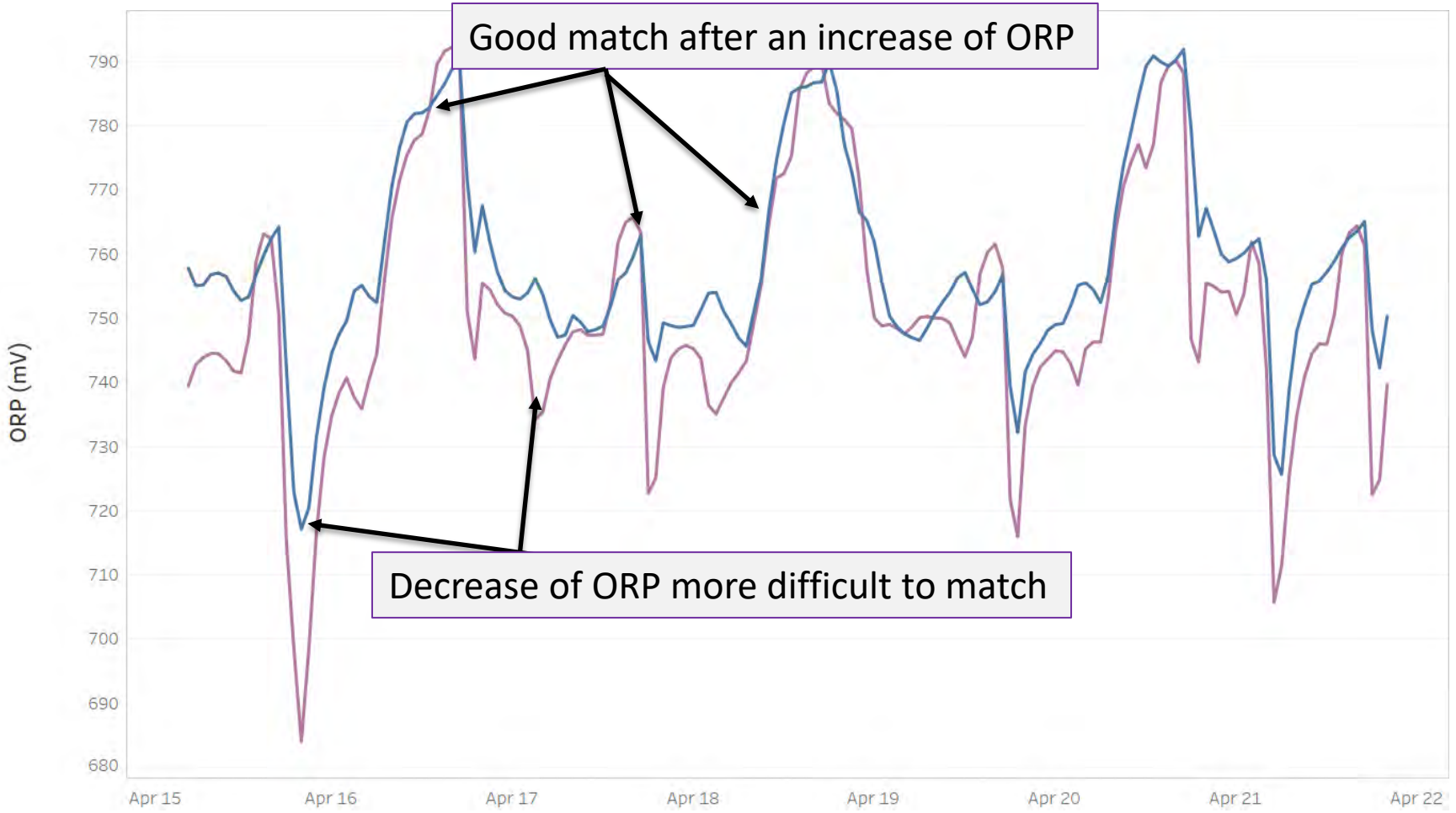
- ORP probes look like pH probes
- Measure a difference in potential (mV) across the electrodes
- Also common in the pool industry



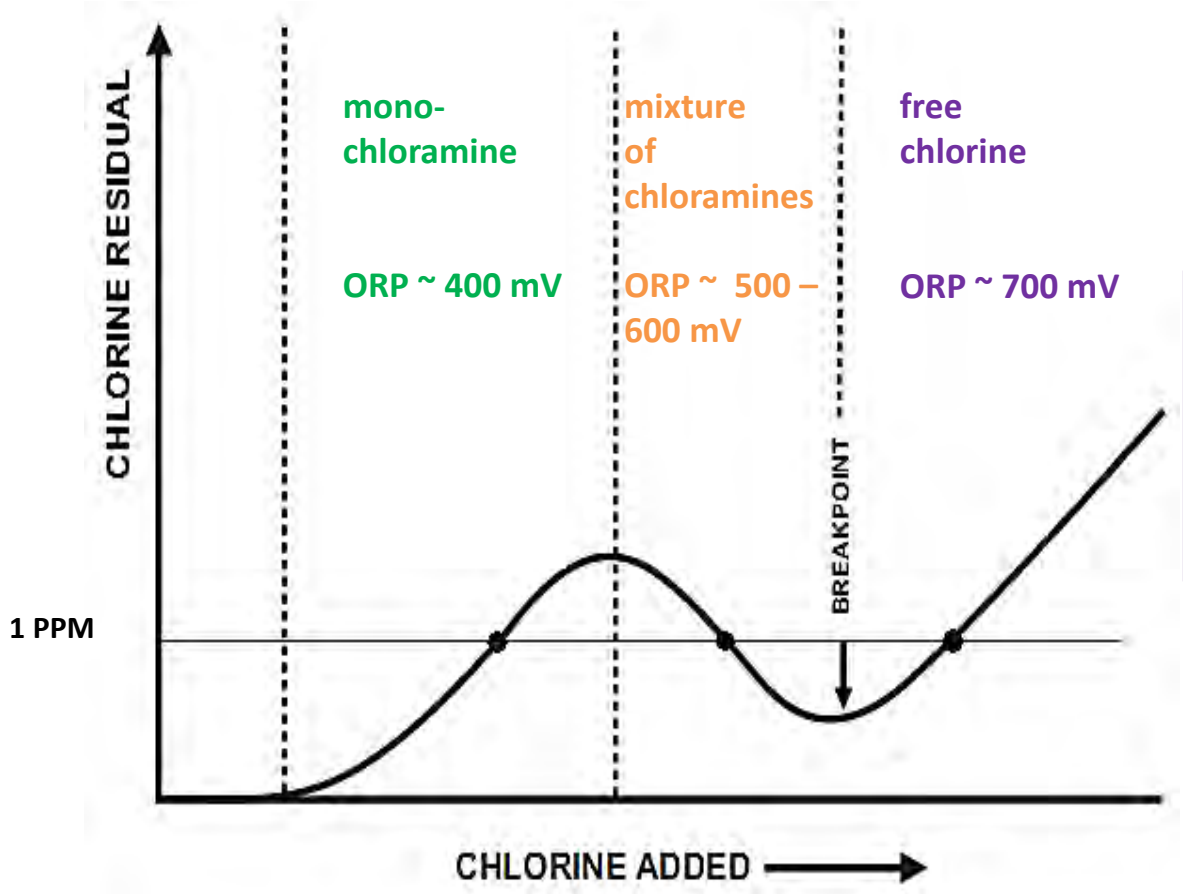
# Considerations (challenges) for measuring ORP in drinking water

- ORP is influenced by temperature & pH.
  - Decrease in pH results in an increase of ORP
  - Non-linear, small change in pH or temperature can result in big change of ORP
- Contaminants in drinking water can also affect ORP.
  - Baseline needs to be established for each water system.
- ORP probes are often slow to respond.
  - Drinking water is not very “active” and ORP probes are usually slow to respond.
  - Hysteresis are common.
    - Change from 450 mV to 750 mV is captured within minutes, but it may take up to 12 hours for ORP to drop from 750 mV to 450 mV
- Calibration is not straightforward, and measurements can vary from probe to probe (even after calibration).
  - ORP standard solution is very active and will dominate the measurement results. Two sensors may agree when measuring a reference standard while they do not agree when measuring natural water.

# Example of hysteresis with 2x ORP probes: Correlations between reading after an increase but not great after a decrease



# Why ORP? It can help to find where we are on the breakpoint curve – but not definitive



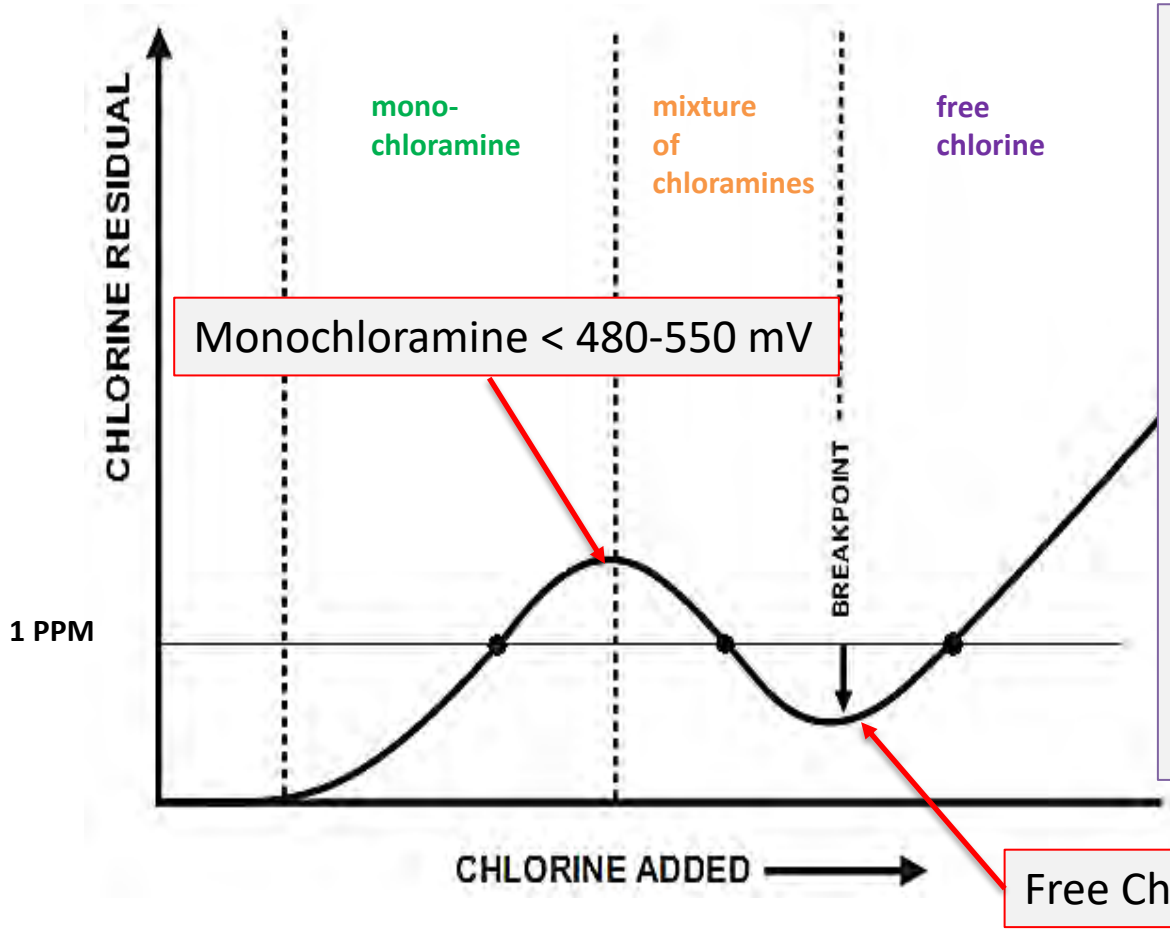

ORP increases when going towards the right side of the breakpoint curve

# Interpreting ORP measurement is not straightforward

- ORP does a great job for finding position on the ends of the curve : chloramine vs free chlorine
  - Low and high ORP values are easy to interpret
    - > 700 mV : free chlorine
    - < 450 mV : monochloramine

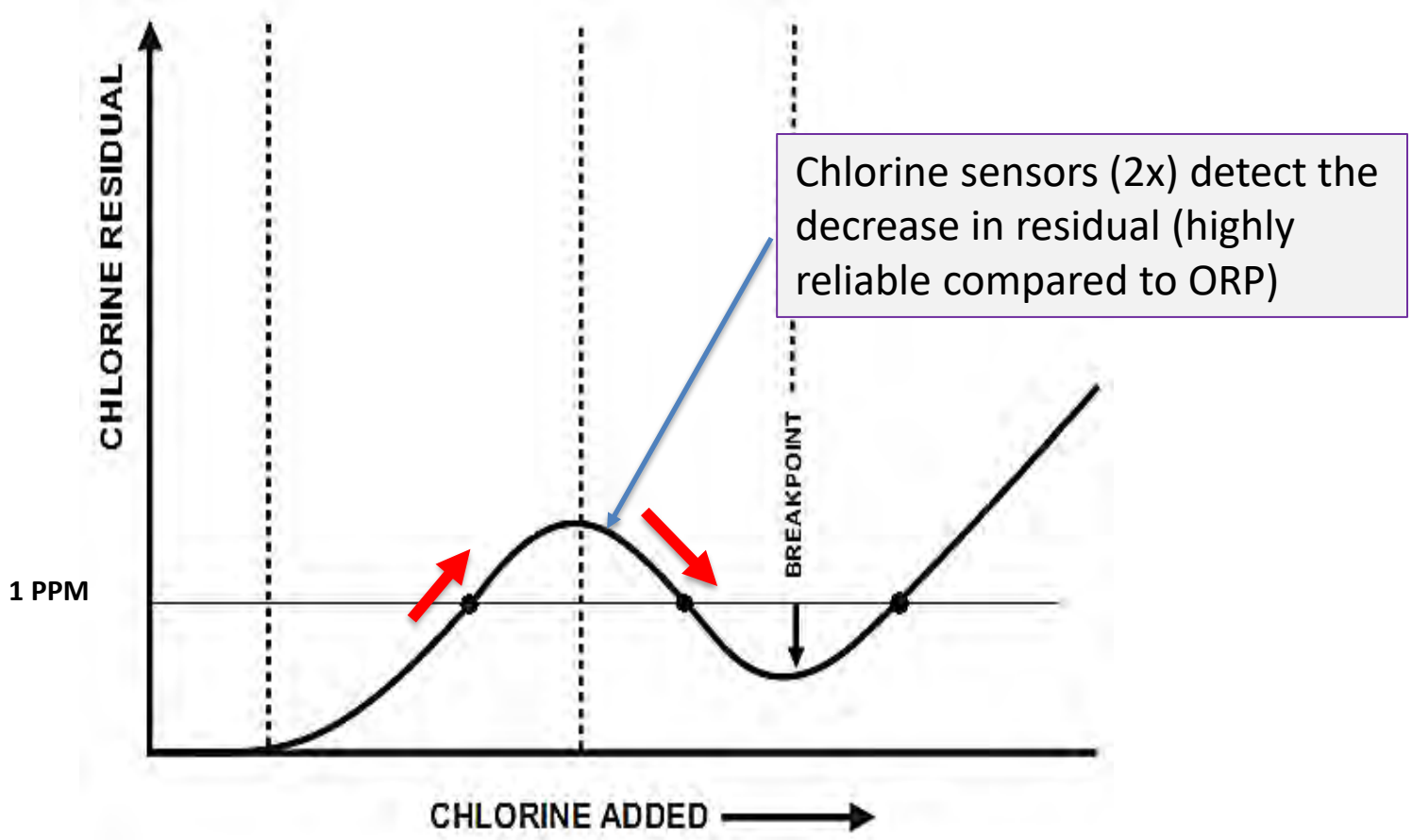
- The challenge is to accurately interpret measurement between the transition from mono- to di- (450 – 650 mV)
  - ORP is influenced by many parameters: water source, pH, T, …
  - Requires fine tuning to choose proper threshold for ORP
    - Trial and error
    - Manual adjustment if WQ changes

# PAX legacy RCS algorithm used ORP as a fail-safe: dosing stops if ORP is above a certain preset threshold.

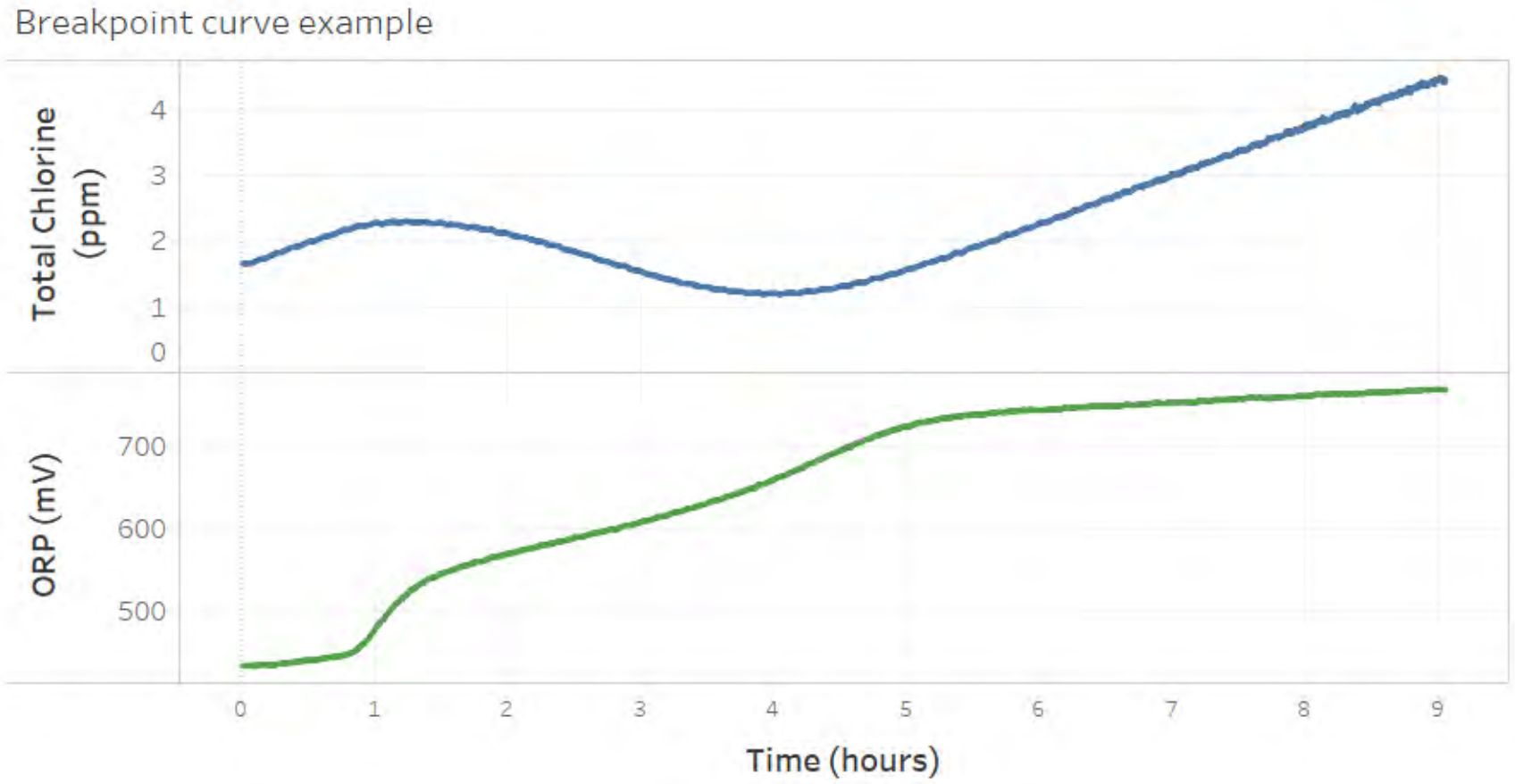



- Tuning of ORP threshold required after each startup and/or if water quality changes
- Doesn't take account of pH, temperature.
- Prone to false positive or false negative

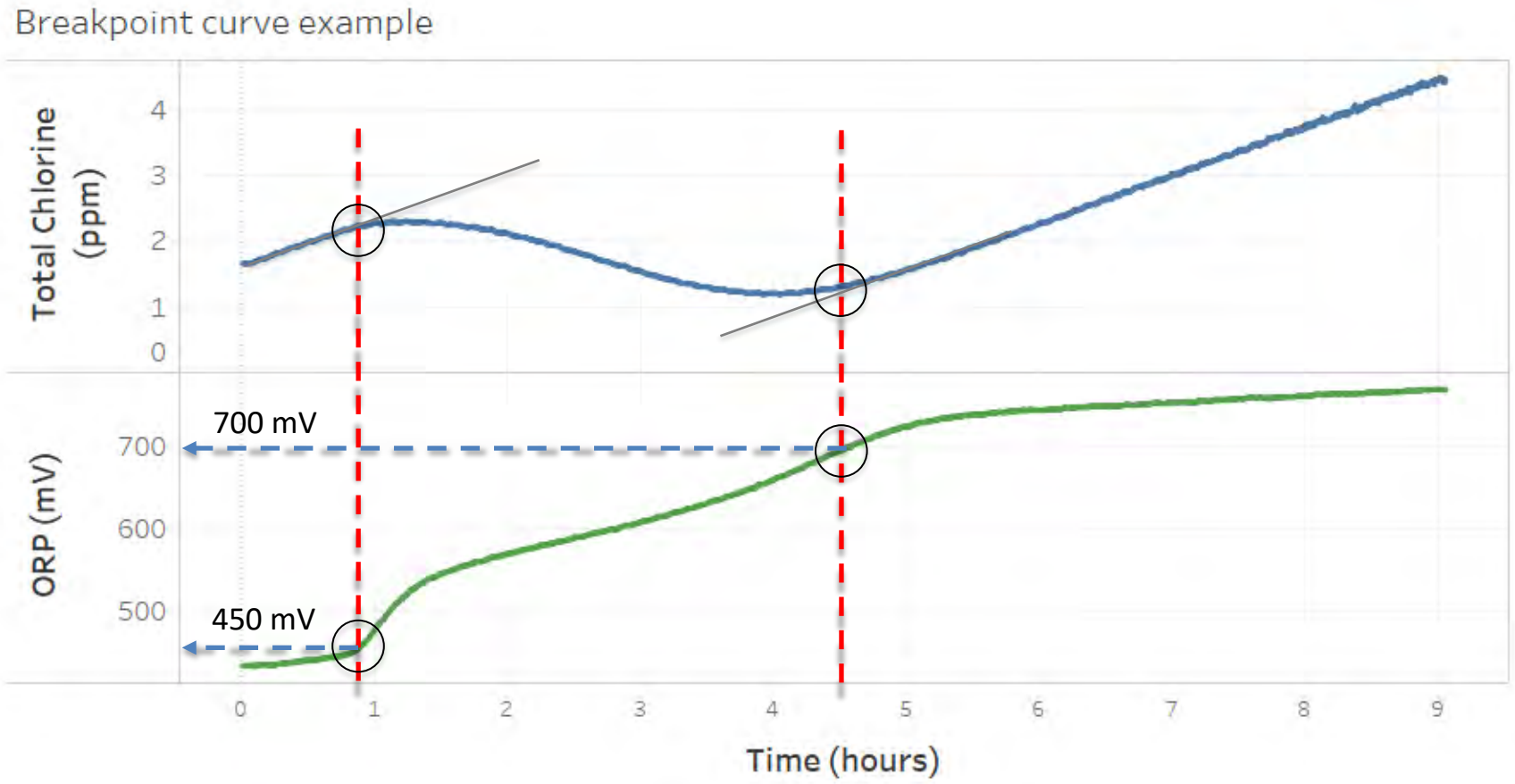
# PSI's Monoclor® RCS algorithm relies primarily on the rate of chlorine residual change to detect position on the breakpoint curve. It also uses ORP as a fail safe.



Breakpoint example from our lab (EBMUD water). Bulk hypo fed continuously into ~500 gallons of chloraminated water (mixed) while total chlorine and ORP are measured over time.



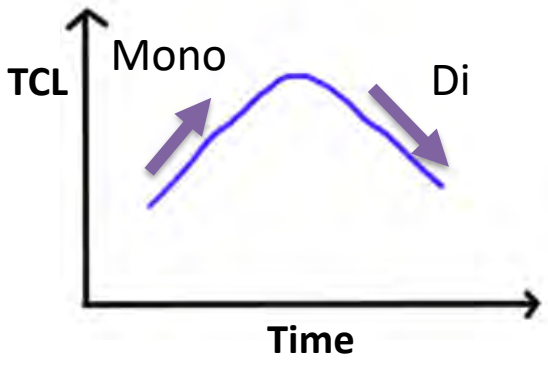
# Chlorine slope analysis allows to calibrate ORP thresholds for regime detection



# Monoclor® RCS algorithm: Regime detection method for transition between mono- and di-chloramine

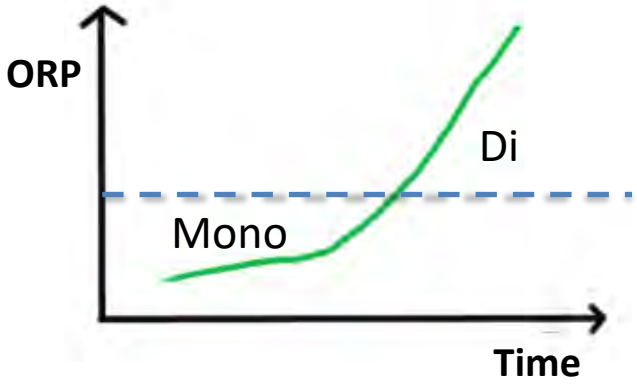
## Chlorine residual (primary)

- Rate of change of chlorine residual below a preset threshold
- Easy to pick a threshold
- No need to adjust threshold based on water quality fluctuations or changes in the dosing strategy




## ORP (fail-safe)

- ORP is above a preset threshold
- Difficult to select the threshold (450-600 mV)
  - Need fine tuning after startup
  - May requires manual adjustment
  - Probe responds slowly



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# Examples of ORP from the field

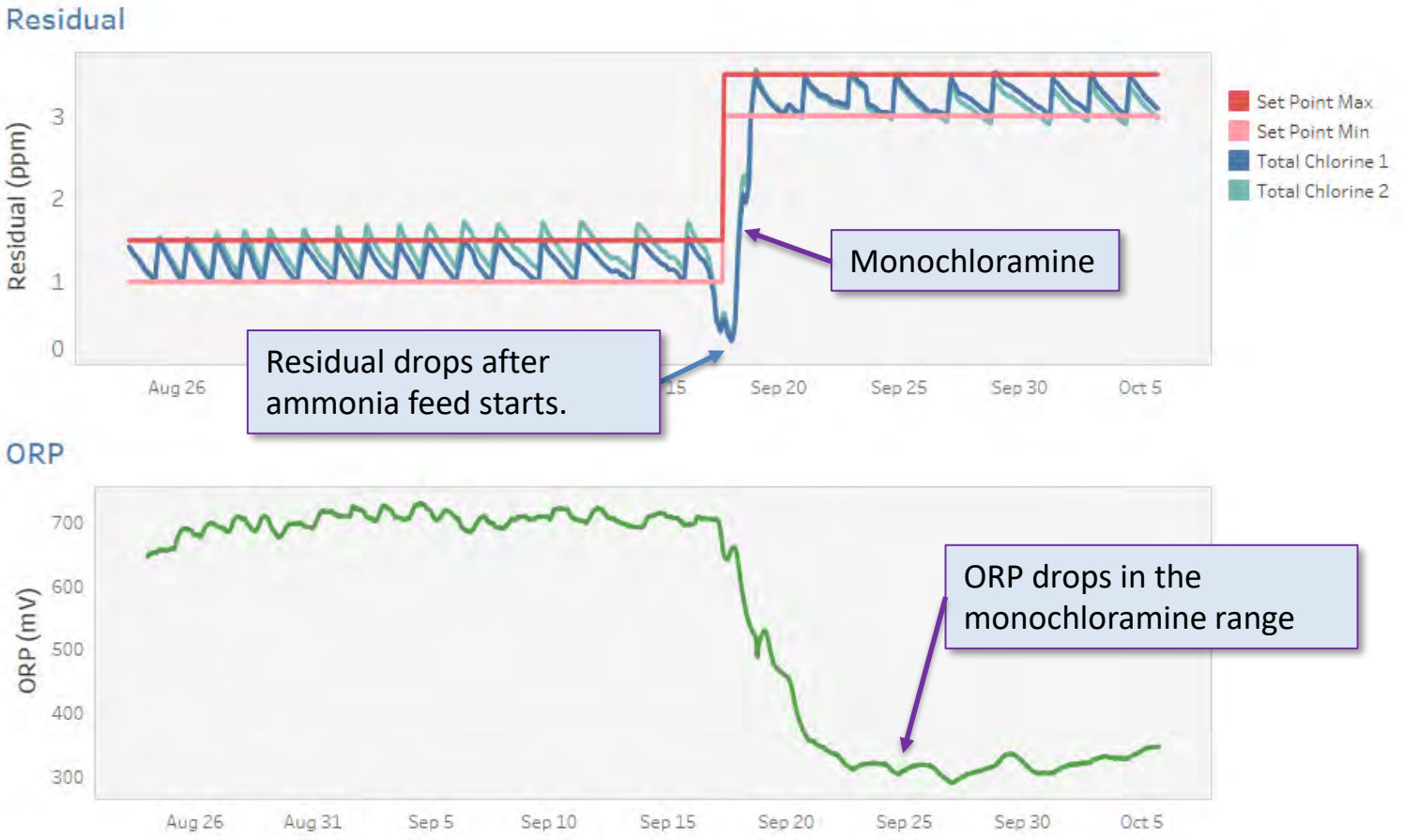
# Breakpoint chlorination example : Operator switched from chloramine to free chlorine mode from the PSC screen (unintended): 9 hours to complete breakpoint chlorination.


1. Operator switched to "Free chlorine mode" (Jan 20th 1 PM)

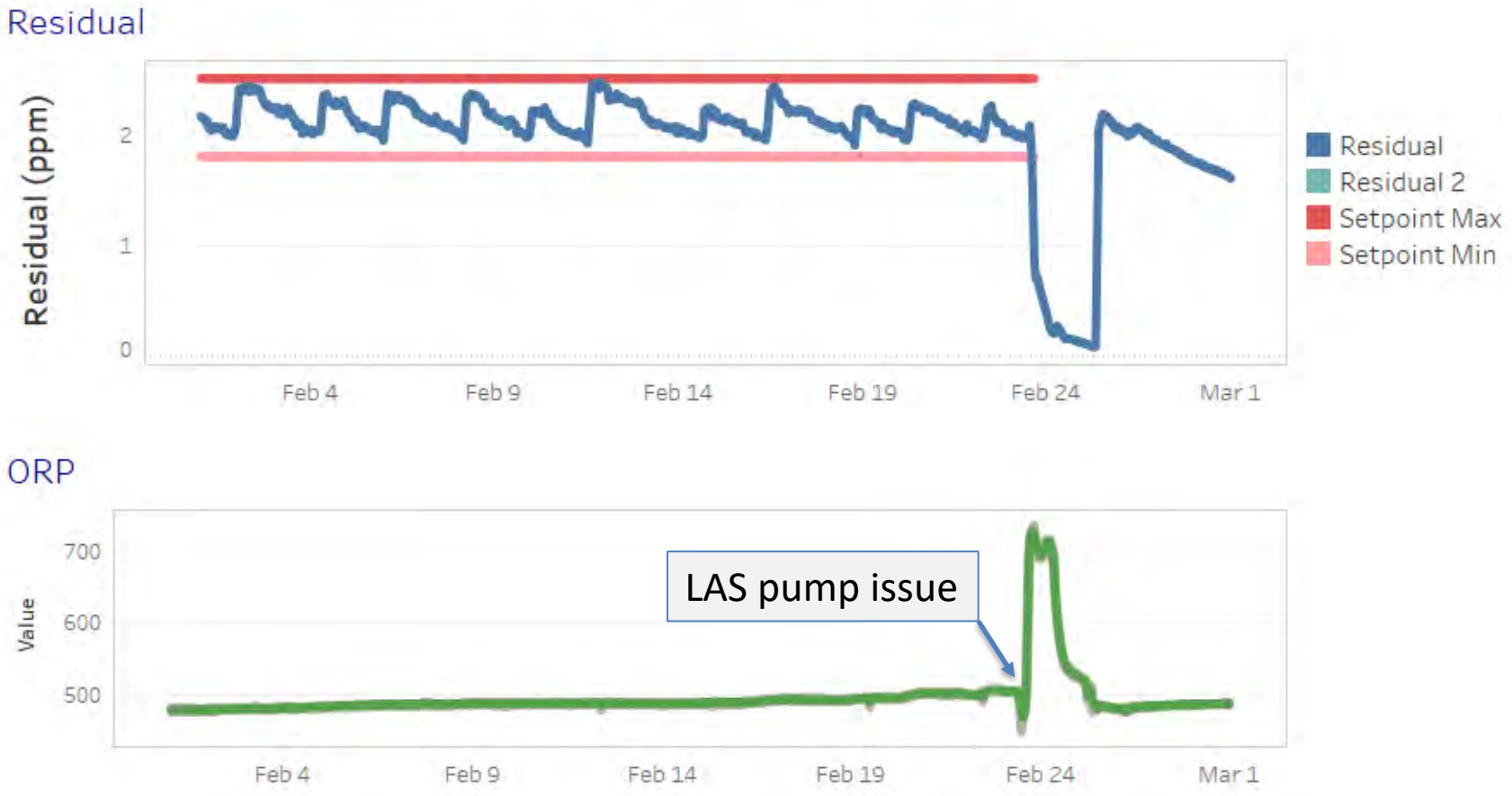
2. Chlorine dose starts (no ammonia)

3. High ORP and free chlorine within setpoint (Jan 20th 10 PM)

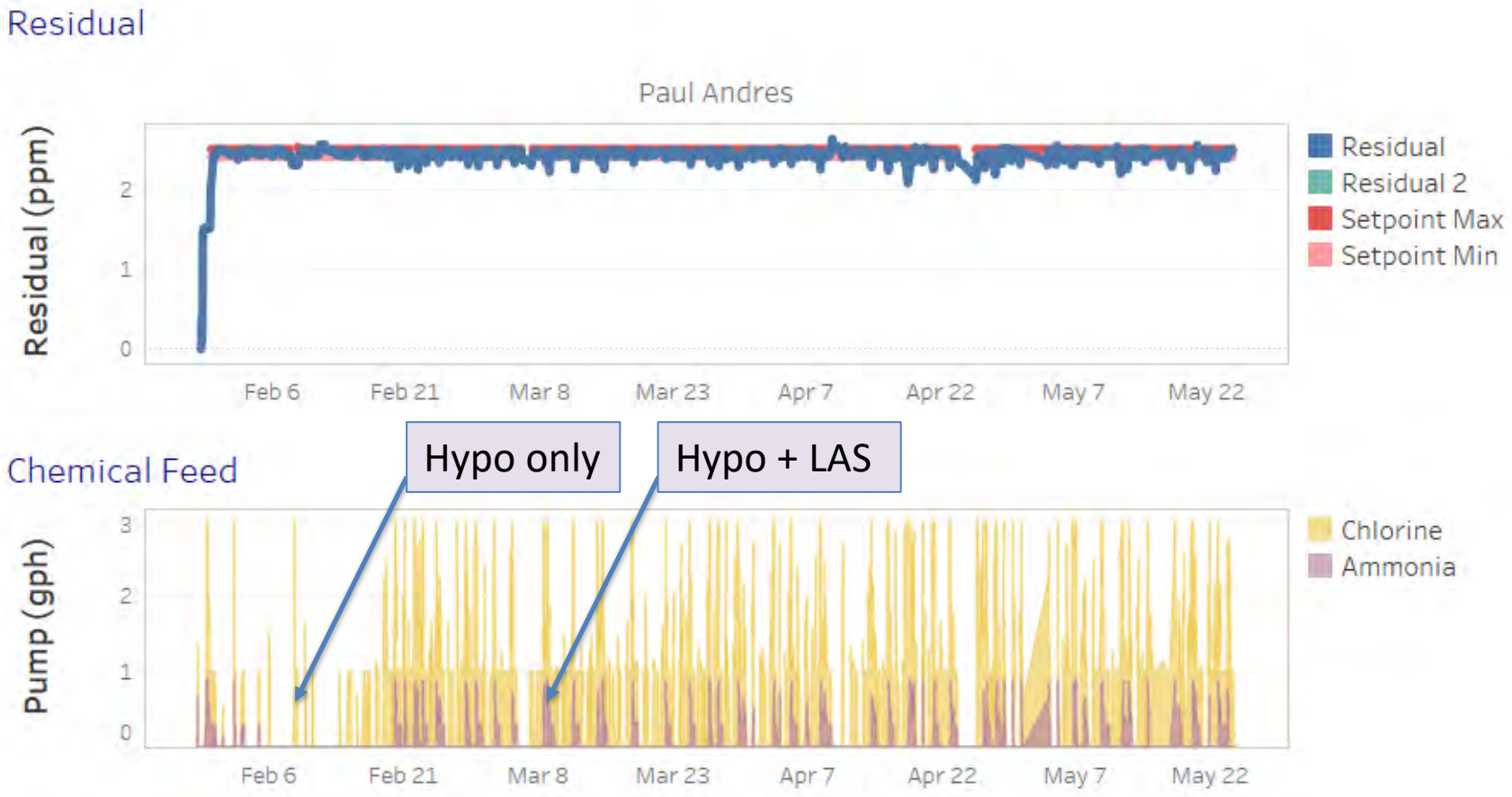
# Switch to chloramine (reverse breakpoint chlorination)



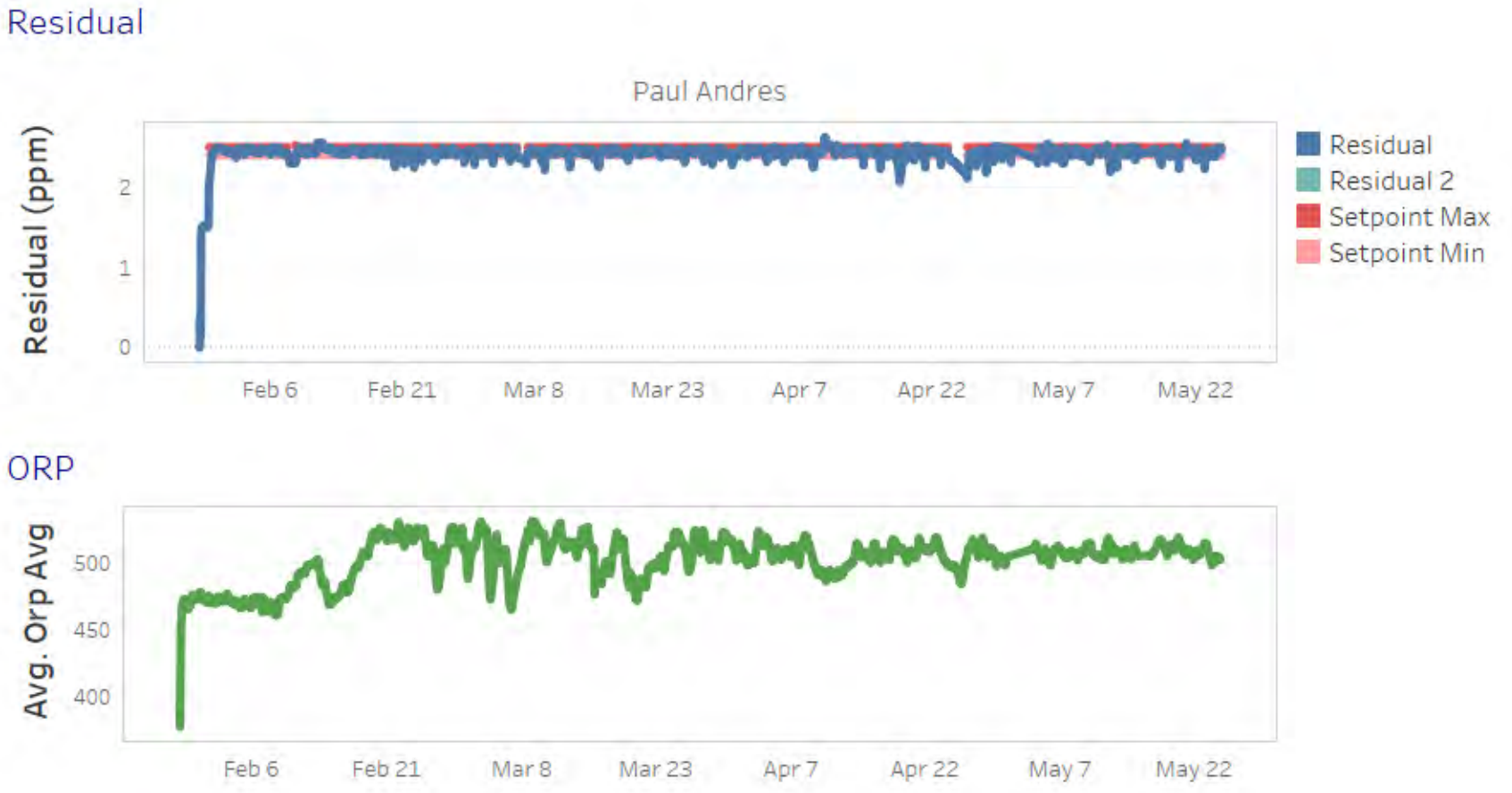
# Example of fail-safe: Dosing stopped by high-high ORP alarm



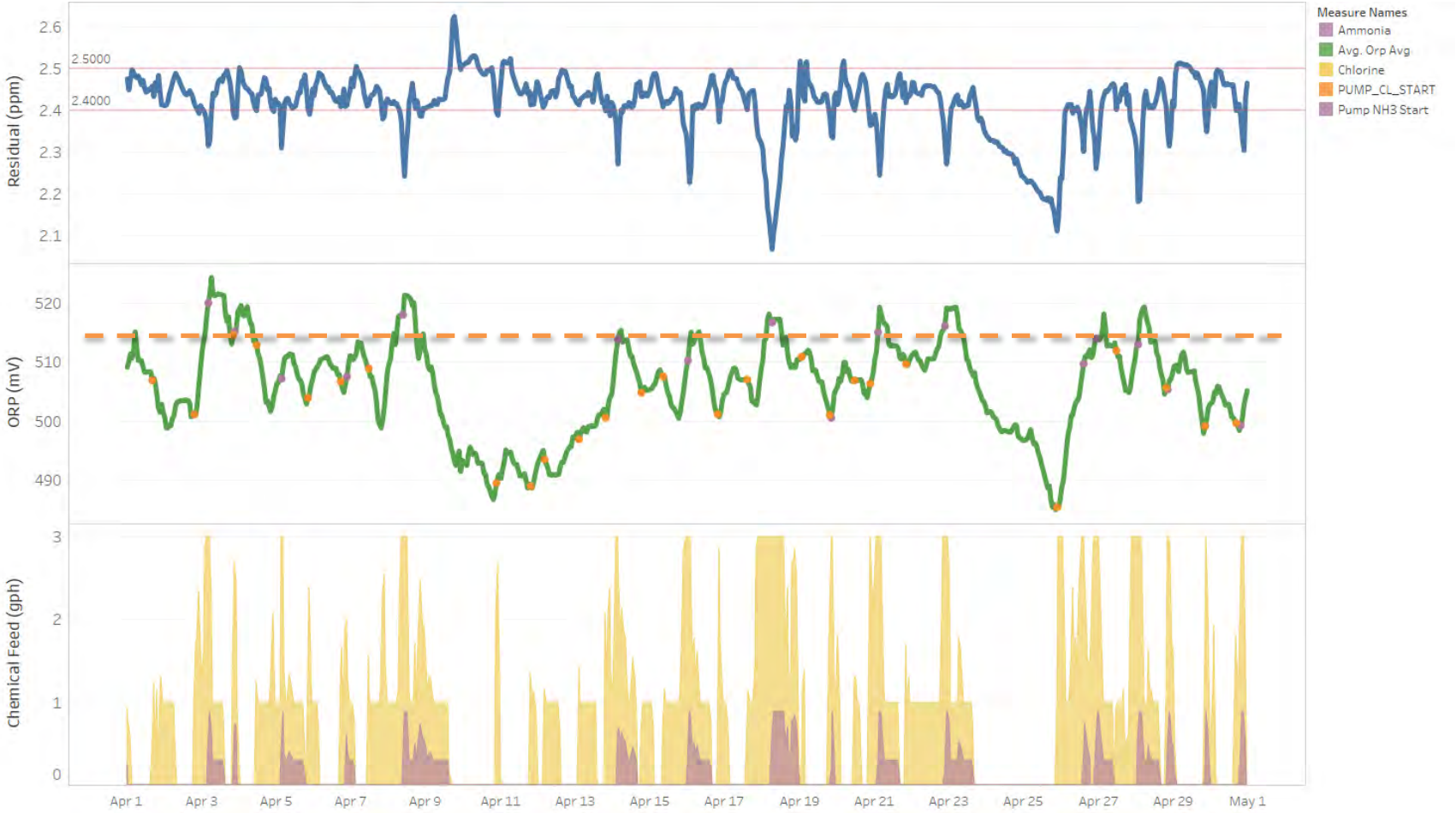
# Example of Monoclor® RCS algorithm's performance from EOC Paul Andres Reservoir (10MG): Dosing hypo first and engaging LAS at 5:1 ratio when residual slope is negative.



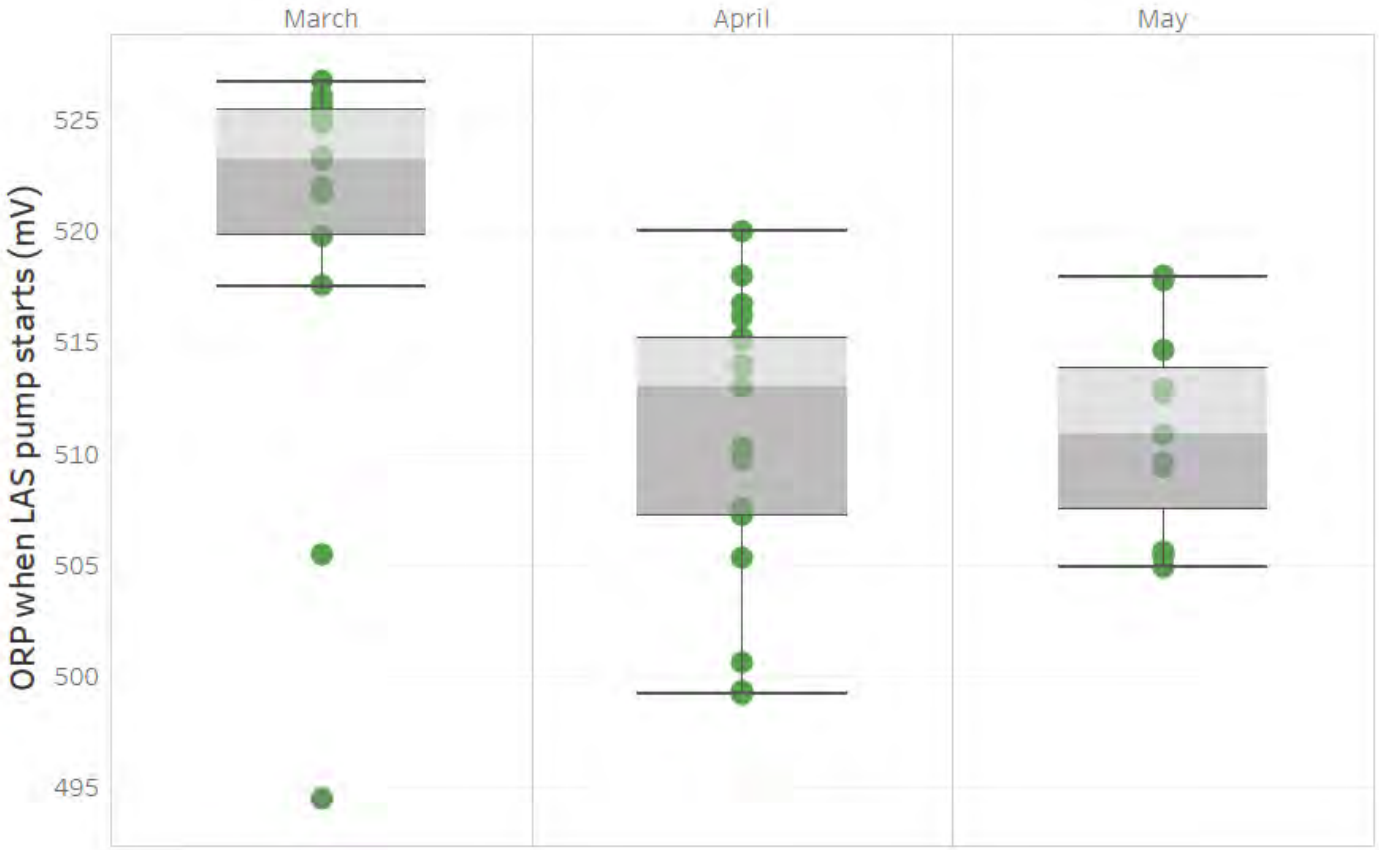
# ORP range from 460 mV to 530 mV during the same period



# Close up on April show challenge of choosing proper ORP threshold to engage the ammonia pump

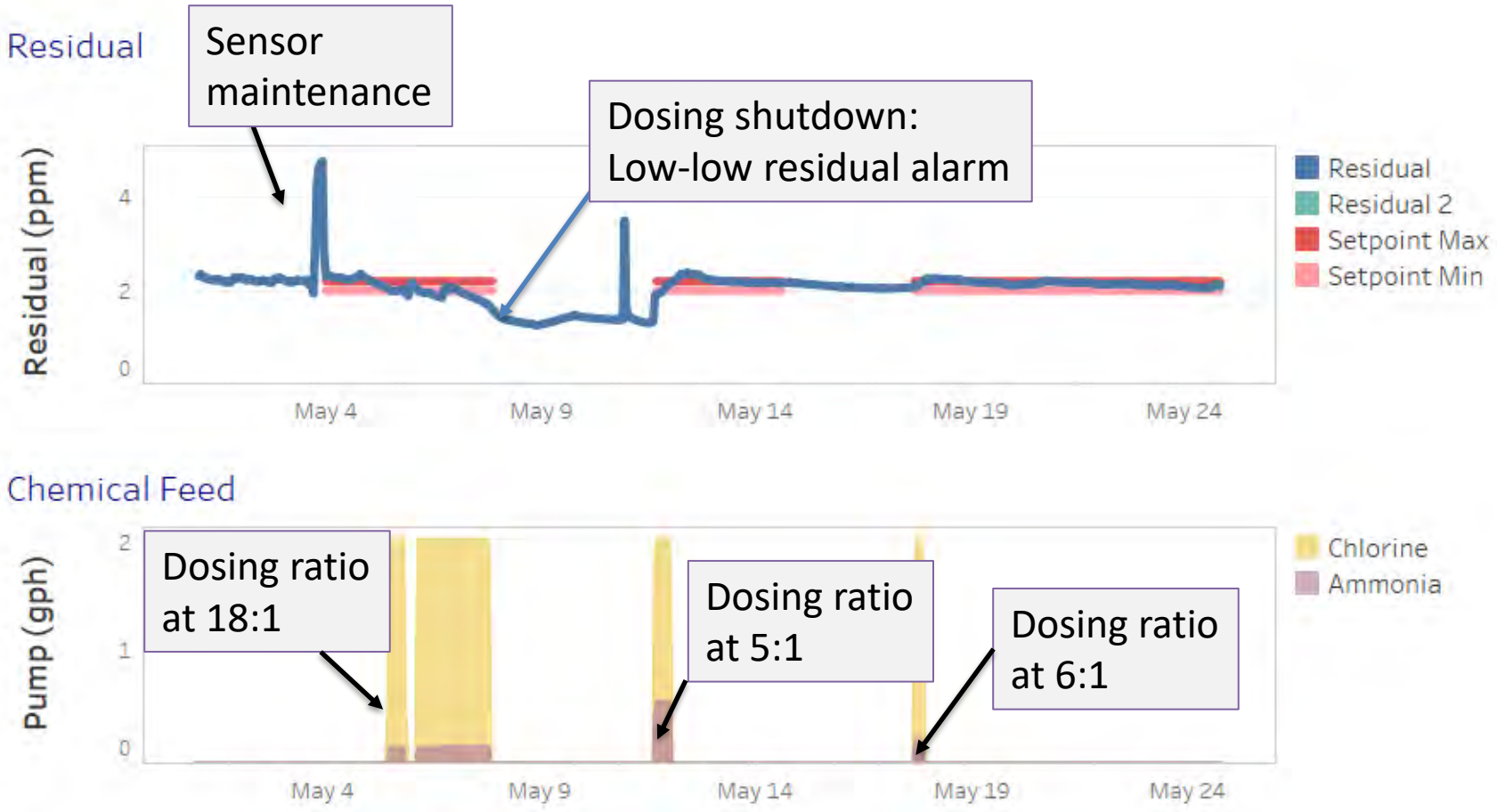


# ORP values when NH3 pump is engaged by Monoclor® RCS algorithm: Range from 495 to 530 mV.

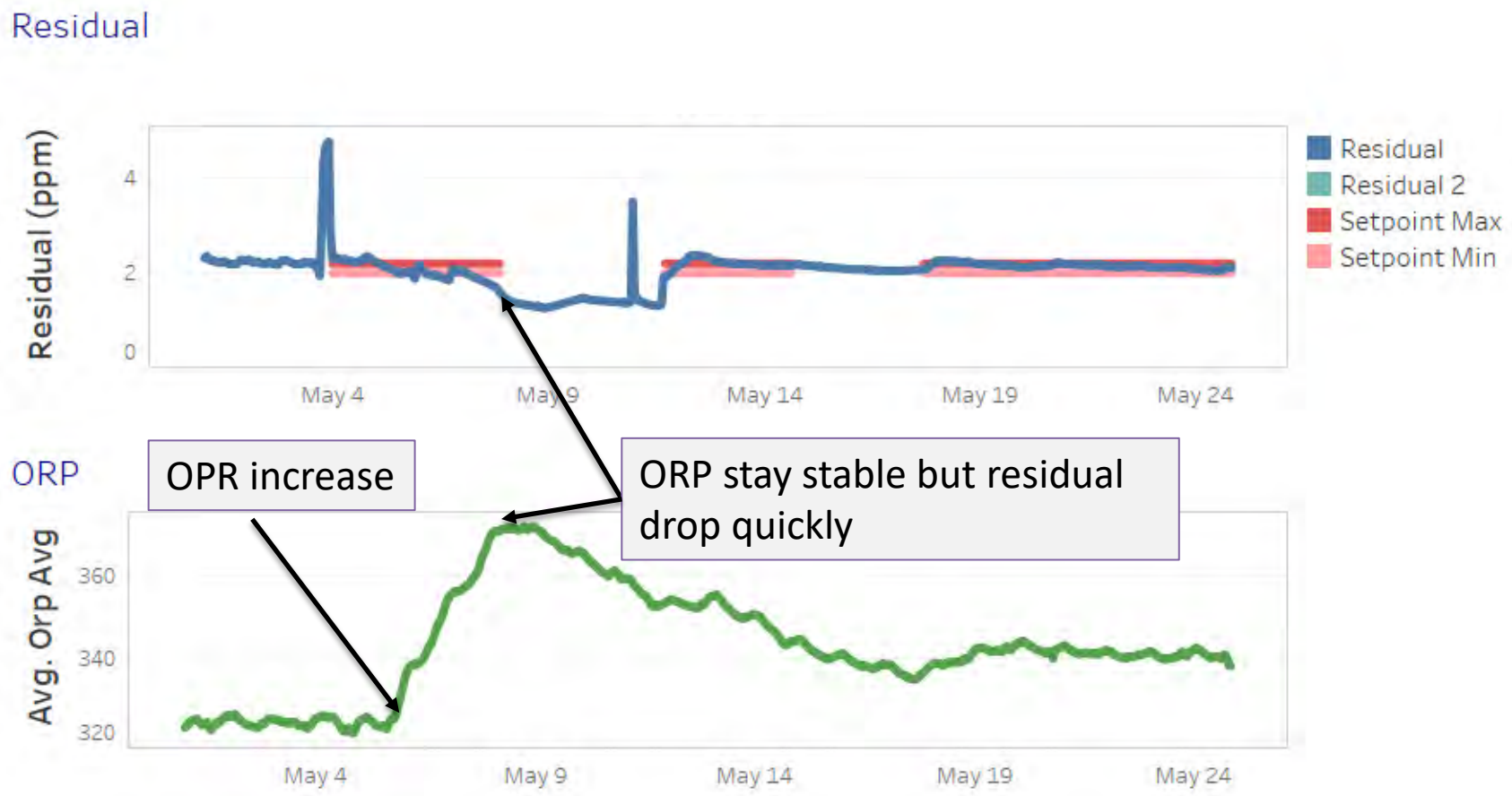



How to choose the right threshold?

# Example of dosing relying only on ORP (chlorine slope option not enabled)



ORP rises but way below default threshold of 480 mV. Pump keeps running at 18:1 ratio despite residual is dropping quickly: ORP probe needs to be maintained or replaced.




Can be difficult for operator to troubleshoot ORP probes when they failed

# Regime detection based on chlorine vs ORP: what are the pros and cons

| | Chlorine probe | ORP probe |
|---|---|---|
| Probe response | Quick response, no hysteresis | Slow response and hysteresis is common |
| Probe calibration | Quick and simple | Possible but rarely done in the field |
| Built-in fail-safe | Dual chlorine probes allow an easy and reliable check on chlorine sensor readings. Shutdown alarm if readings differs more than a preset threshold (10%, 20%) | ORP probe readings fluctuates from probe to probes. Difficult to have a reliable alarm without regular calibration, even in lab conditions. |
| | Quantitative | Qualitative |

# Regime detection based on chlorine vs ORP: what are the pros and cons

| | Chlorine probe | ORP probe only |
|---|---|---|
| Threshold selection for regime detection | Simple: negative vs positive<br>Chloramine degradation can be included too | Trial and Error<br>Vary with pH, temperature and other interferences in the water.<br>May requires frequent adjustment |
| Tank filling | Residual often decreases due to tank filling. Chlorine slope can be negative (false positive). This can be alleviated by increasing the hypo feed rate (fast). | Not impacted by tank filling |
| Impact of incoming water quality fluctuations | Not impacted directly. | Highly impacted. May lead to false positive. Require ORP threshold adjustment as needed |

# Summary

- ORP helps finding where we are on the breakpoint curve – but not definitive
  - Works well to find position on breakpoint curve on the extremity of the curve
    - Low ORP (< 450 mV) : Monochloramine
    - High ORP (> 700 mV) : Free Chlorine
  - ORP is less accurate in the middle of the breakpoint curve (di-chloramine regime)
    - Threshold for ORP is difficult to fine tune
    - Slow probe response and hysteresis are common
    - Chloramine chemistry involved many reaction and equilibrium that can cause ORP to change.
- Chlorine residual reading is accurate in the middle of the breakpoint curve (di-chloramine regime). It can efficiently measure change in chlorine residual with time.

# White's Handbook on ORP

"In a complex mixture, such as a drinking water supply or a municipal or industrial wastewater effluent, the potential measured using an ORP electrode is influenced by all of the redox reactions occurring at the electrode surface, so it is a " mixed potential " that is usually difficult or impossible to fundamentally relate to one particular redox reaction. " [p. 135-136]"

"The indicating electrode measures a ' mixed potential', as noted above; the electrodes are subject to drift, polarization, fouling, and poisoning; and some reactions produce no signal while others may be irreversible. ORP also varies with temperature, pH, and ionic strength, but these effects are predictable and can be compensated for." [p. 137]

# PSI WATER TECHNOLOGIES

A cleanwater1 Company

## Quote

| Date | Quote |
|---|---|
| 1/31/2024 | QTE0005880 |

PSI Water Technologies, Inc.
1901 West Garden Road
Vineland NJ 08360

Tel: 40837065400000
Fax: 40886646600000

| Bill To: |
|---|
| Las Virgenes Municipal Water District - CA<br>4232 Las Virgenes Rd<br>Calabasas CA 91302<br><br>(000) 000-0000 Ext. 0000<br>(000) 000-0000 Ext. 0000 |

| Ship To: |
|---|
| Las Virgenes Municipal Water District - CA<br>ATT: Brett Vollmar 818-292-5706<br>4232 Las Virgenes Rd<br>Calabasas CA 91302 |

**Notes**
**Quote valid for 30 days**
**Shipping cost NOT included**
**Lead time 6-8 weeks**
**Latigo Tank**
**Saddle Peak Tank**

| Customer Phone | Customer Fax | PO No. | Shipping Method | Terms | Due Date | Req Ship Date | Rep |
|---|---|---|---|---|---|---|---|
| (000) 000-0000 Ext. 0000 | (000) 000-0000 Ext. 0000 | TBD | DELIVERY | Net 30 | | | |

| Item # | QTY | Item Number | Description | Unit Price | Ext. Price |
|---|---|---|---|---|---|
| 1 | 2 | 50-01256 | WATER QUALITY STATION 1001, W/ SCADA MODULE | $16,500.00 | $33,000.00 |

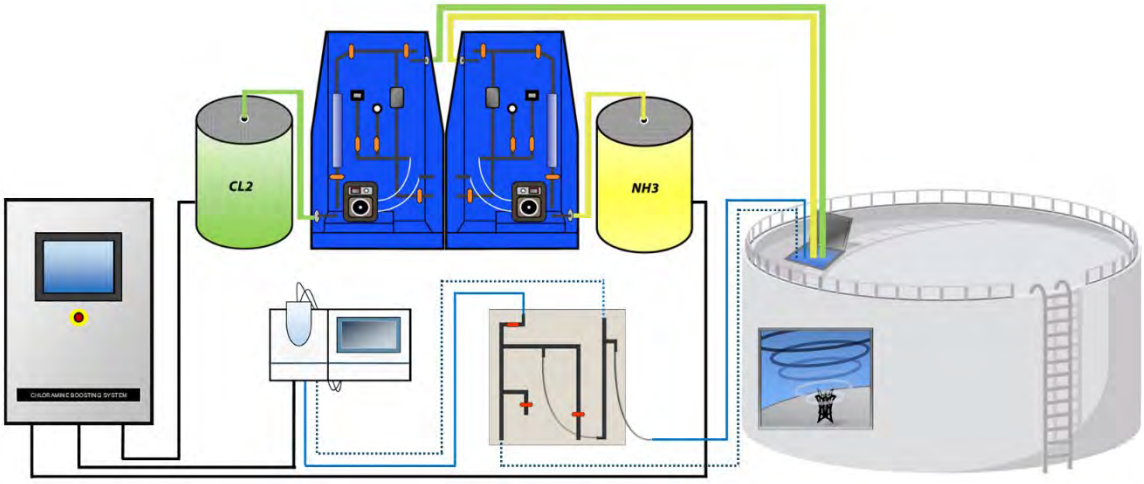
| E-mail | Web Site |
|---|---|
| info@cleanwater1.com | www.cleanwater1.com |

Purchases are subject to PSI Water Technologies, Inc. Terms and Conditions.
Please note all credit card transactions are subject to a 3.0 % processing fee.

| | |
|---|---|
| **Subtotal** | $33,000.00 |
| **Rep Discount** | $0.00 |
| **Tax** | $0.00 |
| **Freight** | $0.00 |
| **Total** | $33,000.00 |

# CHLORAMINE BOOSTING SYSTEM
## PROJECT PROPOSAL

| | |
|---|---|
| **Project Name:** | Saddle Peak Reservoir CBS Trailer |
| **Tank Size:** | 2.3MG |
| **Prepared for:** | Brett Vollmar, LVMWD |
| **Proposal Date:** | September 1st, 2023 |





| | |
|---|---|
| **Prepared by:** | Warren Snyder |
| **Address:** | 603 Seagaze Dr, #241 Oceanside, CA 92054 |
| **Phone Number:** | (760) 805-6611 |
| **Email:** | Warren@dandhwatersystems.com |

August 30th, 2023

Re: Saddle Peak Reservoir CBS Trailer

Dear Brett Vollmar,

Thank you for your interest in the Chloramine Boosting System manufactured by Big Wave Water Technologies, Inc.

**System Features & Advantages**

The Chloramine Boosting System is an automated disinfectant system that gives municipal operators the capability to set and control chlorine residual levels in potable water storage tanks. The Chloramine Boosting System uses water quality instruments, active mixing, and an automated chemical feed system, to set and maintain chlorine residual levels in water storage tanks.

Our Chloramine Boosting System is comprised of all the equipment essential for a complete system, including:

1. High energy mixing to guarantee a uniform water quality throughout reservoirs.
2. Precise chemical dosing at the correct chlorine-to-ammonia ratio.
3. 24/7 monitoring and control logic to react to every water quality in potable water reservoirs.

The Chloramine Boosting System allows operators to:

1. Set and maintain constant chlorine levels within water storage tanks.
2. Continuously blend disinfectant residual and eliminate thermal stratification.
3. Remove the need for manual addition of chemicals.
4. Quickly react to changes in water quality automatically.

The Tidal Wave Mixer is a submersible active mixing system for potable water storage tanks and reservoirs. The Tidal Wave Mixer can quickly eradicate thermal stratification, quickly mix and deliver dosages of residual chlorine, and maintain uniform chemical and temperature conditions throughout the tank.

A comprehensive scope of supply and price for the complete system is listed in **Section 1** of this proposal, the proposal acceptance is in **Section 2**, and the terms and conditions are in **Section 3**.

We look forward to working with you on this project. If we can be of any further assistance, please do not hesitate to contact our sales representative Brent Morgan at Macaulay Controls Company at (817) 372-9442.

**For a period of one year from the installation date, Big Wave Water Technologies offers a full refund if the customer becomes dissatisfied with our equipment for any reason.**

Sincerely,

Kevin Chapa

CC: Warren Snyder, D&H Water Systems

## Section 1

# SCOPE OF SUPPLY

I. Scope of Supply by Big Wave Water Technologies

II. Scope of Work by Others

III. Clarifications

IV. Terms of Payment

V. Delivery

# I. SCOPE OF SUPPLY BY BIG WAVE WATER TECHNOLOGIES – Chloramine Boosting System

The following equipment and services constitute our scope of work. All equipment will be manufactured in accordance with the descriptions below.

| Item | Description | Quantity |
|---|---|---|
| Mixer | **Tidal Wave Mixer (TWM 15VS)**<br>▪ Base Material: HDPE<br>▪ Control Center Power: 120 VAC / 1Ph / 60Hz, 20-amp circuit<br>▪ Motor Type: NSF 61, 1.5 HP, 230 VAC, 3Ph, water-filled, water lubricated<br>▪ RPM: 3100<br>▪ Control Center: Powder-coated steel, Type 3R enclosure<br>▪ Motor Seals: Chlorine/chloramine resistant NBR rubber<br>▪ 50’ AWG 3-wire submersible cable<br>▪ Tidal Wave Mixer UL certified to NSF/ANSI 61 NSF/ANSI 372. | 1 |
| Analyzer | **ProMinent Dulcometer DACb Controller**<br>▪ Reagent-less analyzer<br>▪ Total Chlorine and ORP probe<br>▪ Qty (7) digital outputs<br>▪ Qty (4) frequency outputs<br>▪ Qty (3) analog outputs<br>▪ NEMA 4X enclosure<br>▪ Measured value trend display | 1 |
| Control Panel | **Big Wave Water Technologies CBS Control Panel**<br>▪ 10” LCD Touch Screen<br>▪ CBS Control Logic<br>▪ 24” W x 20.5” H x 14” D, NEMA 4X FRP Enclosure<br>▪ 120 VAC, 10 amp circuit breaker | 1 |

| | | |
|---|---|---|
| Sodium Hypo Chemical Feed Skid | **Big Wave Water Technologies Single Pump Skid**<br>▪ Chemical: 12.5% Sodium Hypochlorite<br>▪ Skid: Blue High Density Marine Grade Chemical Resistant Polyethylene<br>▪ Pump: ProMinent DULCOflex Peristaltic Metering Pump<br>▪ Piping: SCH80 PVC<br>▪ Skid Accessories: Calibration column, flow indicator, pressure relief valve, pressure gauge, pressure switch, check valve, ball valves | 1 |
| Ammonia Chemical Feed Skid | **Big Wave Water Technologies Single Pump Skid**<br>▪ Chemical: Liquid Ammonium Sulfate (LAS)<br>▪ Skid: Blue High Density Marine Grade Chemical Resistant Polyethylene<br>▪ Pump: ProMinent DULCOflex Peristaltic Metering Pump<br>▪ Piping: SCH80 PVC<br>▪ Skid Accessories: Calibration column, flow indicator, pressure relief valve, pressure gauge, pressure switch, check valve, ball valves | 1 |
| Sodium Hypo Chemical Storage Tank | **Sodium Hypochlorite Chemical Storage Tank**<br>▪ DBL Wall 1.9SG XLPE 165GAL 34 1/2” DIA X 66” HGT<br>▪ 7” Threaded Cap with Gasket<br>▪ 3/4” Double Wall 316 SS Double Male FTG/Viton<br>▪ 1” PVC Bulkhead FTG/Viton<br>▪ 3” PVC SCH 80 U-Vent ASSY/Viton<br>▪ 1” PVC Bulkhead Fitting for Level Sensor<br>▪ Level Sensor:<br>o 4 – 20mA output<br>o 5 meters FEP cable<br>o PP HT housing | 1 |
| Ammonia Chemical Storage Tank | **Ammonia Chemical Storage Tank**<br>▪ DBL Wall 1.9SG XLPE 65GAL 26 1/8” DIA. X 48” HGT<br>▪ 7” Threaded Cap with Gasket<br>▪ 3/4” Double Wall 316 SS Double Male FTG/EPDM<br>▪ 1” PVC Bulkhead FTG/EPDM<br>▪ 3” PVC SCH 80 U-Vent ASSY/EPDM<br>▪ 1” PVC Bulkhead Fitting for Level Sensor<br>▪ Level Sensor: | 1 |

- 4 – 20mA output
- 5 meters FEP cable
- PP HT housing

| | | |
|---|---|---|
| Analyzer Sample Return | **Sample Return System**<br>▪ 28" W x 24" H panel with ¾" PVC SCH80 PVC plumbing<br>▪ Centrifugal Jet Pump:<br>o Built-in ejector with guide vanes ensures optimum self-priming properties<br>o 0.3HP, 115/230 V, 60 Hz<br>o Maximum flow rate: 15gpm<br>o Nominal flow rate: 13gpm | 1 |
| CBS Trailer | **6' x 12' Loadrunner Cargo Trailer**<br>▪ 6' x 12' trailer to house all the equipment for the chloramine boosting system | 1 |
| Submittal | **Sent Electronically** | 1 |
| O&M Manual | **Sent Electronically** | 1 |
| FOB | **Factory, Oceanside, CA, with Full Freight Allowed to Jobsite** | 1 |

## Pricing

| | |
|---|---|
| Subtotal | $140,980.00 |
| Freight Cost (FOB Oceanside, CA) | $3,600.00 |
| Startup & Training | $4,320.00 |
| **Total Lot Price** | **$148,900.00** |

## II. SCOPE OF WORK BY OTHERS

1. Installation, inspection.
2. Receiving and unloading of equipment.
3. External and secondary containment of piping.
4. Chemical supply.
5. Labeling of chemical storage tanks. Check local regulations and requirements for safest environment.
6. Proper distance between chemical storage tanks must be maintained according to local regulations.
7. Any and all civil, underground, or structural work.
8. Supply, design, and calculations for anchor bolts and necessary restraints.
9. Interconnecting pipe between chemical feed skids and chemical storage tanks.
10. Power to control panels, metering pumps, and analyzer. All conduit for electrical needs.
11. Any support for tubing or conduit.
12. Anything pertaining to freeze protection.
13. All electrical conduit, wiring, disconnect switches.
14. Any penetrations or modifications to reservoir hatch.
15. Any room ventilation, AC/heat, or lighting.
16. All taxes, fees, lien waivers, bonds, and licenses.
17. Permitting or regulatory approval.
18. **Any items not explicitly listed under Scope of Supply by Big Wave Water Technologies.**

## III. CLARIFICATIONS

1. All equipment, excluding Tidal Wave Mixers, must be installed in an indoor location with proper ventilation.
2. Sample water flow required is 10 GPH for analyzer.
3. Reservoir Low Water Level must be above 6’ for the Tidal Wave Mixer to function properly.
4. The water sample after passing the Analyzer is presumed to be drained to a nearby drain.
5. A change in the selection of the chlorine analyzer may delay the delivery schedules spelled out in this scope of supply.
6. Big Wave Water Technologies, Inc., recommends adding secondary containment to Hypochlorite and Ammonia chemical tanks.
7. Installation inspection, startup, and operator training can be provided by a Big Wave Water Technologies, Inc., representative for a mutually agreed fee if they are not included in Big Wave Water Technologies Scope of Supply above. Whether or not Big Wave Water Technologies, Inc., is providing start-up services, Big Wave Water Technologies, Inc., will provide a startup checklist.
8. Big Wave Water Technologies, Inc., requires a minimum of three (3) weeks’ notification prior to performing onsite installation inspection, system start-up and training. Big Wave Water Technologies, Inc., will work with you to attempt to facilitate scheduling needs.
9. Once the onsite service has been scheduled, Big Wave Water Technologies, Inc., requires a minimum of one (1) week notification in the event of a delay. Notice of delay received less than one (1) week prior to a scheduled site visit may result in a change fee.
10. Do not mix sodium hypochlorite and ammonia, as toxic vapors will be produced.

## IV. TERMS OF PAYMENT

- Net 30 Days
- Price Valid for 90 Days

## V. DELIVERY

- Submittal: 3-4 Weeks After Receipt of Fully Executed Order
- Equipment Shipment: 12 – 14 Weeks After Approval of Submittals (expediting is available under certain circumstances)

## Section 2

# PROPOSAL ACCEPTANCE

Chloramine Boosting System
Big Wave Water Technologies, Inc.

I. Big Wave Water Technologies, Inc., Seller (D&H Water Systems) proposes to furnish the equipment described in this proposal. Any items not shown above as detailed under "Scope of Supply by Big Wave Water Technologies" are EXCLUDED. In addition:

   A. Seller's price will be held valid for a period of 90 days from the date of this proposal (8/30/23). Seller shall have the right to reprice this proposal if the Buyer's (Las Virgenes Municipal Water District) order is received more than 90 days beyond the Proposal Date or delivery more than 365 days after commercial agreement or if the scope of supply has changed.

   B. Prices are in US dollars.

   C. Local or state taxes are not included in this proposal.

II. This proposal by Seller is conditional upon: (i) Seller's written receipt of the signed proposal, a purchase order; and (ii) Buyer's acceptance to the terms and conditions contained in this proposal, such positions to take precedence in the event of conflict with any other terms or documents incorporated into the contract arising out of this proposal unless otherwise agreed in a writing, signed by Seller; and (iii) satisfactory completion of an anti-corruption due diligence review, if applicable.

III. All of the information supplied by Seller in connection with this proposal (including drawings, designs, and specifications) is confidential and proprietary and has been arranged for Buyer's use in evaluating the purchase of the equipment and services described here. Broadcast of all or any part of the material to others or use by Buyer for any purpose other than such evaluation, is expressly prohibited without Seller's prior written consent.

IV. Please return a signed copy of this proposal and send your purchase order to:

**D&H Water Systems**
603 Seagaze Dr, #241
Oceanside, CA 92054

Phone: (760) 805-6611
E-mail: Warren@dandhwatersystems.com

Thank you for your interest in Big Wave Water Technologies, Inc. We are dedicated to meeting your expectations.

**Proposal Acceptance**

An authorized signature indicates Buyer's acceptance of this proposal, including without limitation Seller's Terms and Conditions below.

_____
Company Name

_____
Buyer's Name (Printed)

_____
Buyer's Authorized Signature

_____
Date

## Section 3

# TERMS AND CONDITIONS

**Chloramine Boosting System**

1. **Applicable Terms.** Big Wave Water Technologies, Inc., Seller (D&H Water Systems) will sell, and the buyer (Las Virgenes Municipal Water District) will purchase, the products and/or services referred to in Seller's proposal or quotation (collectively, the "Products"), subject to these terms and conditions, including the Warranty Attachments hereto (the "Warranty Attachments," and such Warranty Attachments, together with these Terms and Conditions, being referred to herein as the "Terms"). The front page of Buyer's purchase order (disregarding any reference to terms and conditions and any provisions that conflict with the Terms), if any, together with the description of the Products in Seller's proposal or quotation and the Terms, constitute the complete and exclusive agreement between the parties related to the purchase and sale of the Products (the "Agreement"). All prior communications, documents, negotiations, and representations, if any, are merged herein. Whether the Terms are included in an offer or an acceptance by Seller, such offer or acceptance is conditioned on Buyer's assent to the Terms. Any additional, different, or conflicting terms contained in Buyer's request for proposal, specifications, purchase order or any other written or oral communication from Buyer shall not be binding in any way on Seller, whether they would materially alter this document, and Seller hereby objects thereto. All orders are subject to prior credit approval by Seller.

2. **Pricing.** The prices shall be as stated in Seller's proposal or order acknowledgment.

3. **Payment.** Unless otherwise stated, all payments shall be net 30 days from invoice date payable in United States Dollars. Unless provided otherwise in Seller's proposal, 20% of the purchase price will be invoiced on approved submittals, and 80% will be invoiced on shipment. If Buyer fails to make any payment to Seller when due, Buyer's entire account(s) with Seller will become immediately due and payable without notice or demand. Buyer will pay 1½% interest per month, compounded monthly, on all amounts not received by the due date. Buyer hereby grants Seller a purchase money security interest in the Products until such time as Seller is fully paid. Buyer will assist Seller in acting to perfect and protect Seller's security interest. Seller may make partial shipments, in which case, Buyer shall pay for each shipment in accordance with the terms hereof.

4. **Taxes, Shipping, Packing.** Except to the extent expressly stated otherwise in Seller's proposal, prices do not include any freight, storage, insurance, taxes, excises, fees, duties or other government charges, and Buyer shall pay such amounts or reimburse Seller for any such amounts Seller pays. 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. Prices include the costs of Seller's standard domestic packing only. Any deviation from standard packing (domestic or export) shall result in extra charges. All increases, changes, adjustments, or surcharges (including fuel surcharges) which may arise in connection with the freight charges, rates or classification included as part of the Agreement, shall be for the Buyer's account.

5. **Delivery.** Products shall be delivered F.O.B. Seller's point of shipment. All delivery dates are estimated and are dependent in part upon prompt receipt of all necessary information from Buyer, including submittal approvals, if applicable, and all required commercial documentation. Seller will make a good faith effort to complete delivery of the Products on the date and to the location specified in writing by Buyer, but Seller assumes no liability for loss or damage due to delay or inability to deliver, whether such loss or damage was made known to Seller. If Buyer causes or requests a shipment delay, or if Seller ships or delivers the Products erroneously because of inaccurate, incomplete, or misleading information supplied by Buyer or its agents or representatives, storage and all other additional costs and risks will be borne solely by Buyer. Any claims for Products damaged or lost in transit ("Transit Losses") must be made by Buyer to the carrier and reported to Seller within one business day following delivery to Buyer.

6. **Inspection and Acceptance.** Buyer will have seven days from the date Buyer receives any Products to inspect such Products for defects and nonconformance which are not due to Transit Losses, and to notify Seller, in writing, of any defects, nonconformance or rejection of such Products. After such seven-day period, Buyer will be deemed to have irrevocably accepted the Products, if not previously accepted. After such acceptance, Buyer will have no right to reject or revoke acceptance of the Products for any reason; if Buyer retains all rights in respect of the warranties in, or referred to in, Section 9 below.

7. **Returns and Cancellation.** Buyer may not return custom engineered Products. Buyer may return other Products only with Seller's prior written approval, which may be withheld in Seller's sole discretion. Any authorized return will be subject to payment of a restocking charge and will be allowed only if the subject Product: (i) is in new condition, suitable for resale, and (ii) has not been used, installed, modified, altered, or damaged. The restocking charge for authorized returns will be

no less than (a) 25% of the purchase price, net of any freight charges included in the purchase price, plus (b) 100% of freight costs incurred by Seller. Buyer is responsible for the payment or reimbursement of return freight charges. Returns will be shipped F.O.B. Seller's location. Seller may, but will not be obligated to, treat any cancellation of an accepted order as an authorized return.

8. **Force Majeure.** Seller will have no liability for any breach caused by extreme weather or other act of God, strike or other labor shortage or disturbance, fire, accident, war or civil disturbance, delay of carriers, failure of normal sources of supply, act of government, or any other cause beyond Seller's reasonable control.

9. **Warranty.** Seller warrants (i) the principal components of the Chloramine Boosting System(s) identified in the applicable Warranty Attachment as set forth in such Warranty Attachment, and (ii) the Tidal Wave Mixer(s) as set forth in the applicable Warranty Attachment. Seller warrants that all other Products will be free from defects in material and workmanship for 12 months from initial operation or 18 months from shipment, whichever is earlier (the "Warranty Period"). Seller's warranties are conditioned on (i) the Product being stored, installed, operated and maintained in accordance with Seller's instructions; (ii) no repairs, modifications or alterations being made to the Product other than by Seller or its authorized representatives; (iii) Buyer providing prompt written notice of any warranty claims within the Warranty Period; (iv) Seller's verification of the claimed breach of warranty; and (v) at Seller's discretion, Buyer either removing and shipping the Product or non-conforming part thereof to Seller, at Buyer's expense, or Buyer granting Seller access to the Product at all reasonable times and locations to assess the warranty claims. Seller's warranties do not apply to software and do not cover ordinary wear and tear. If the claimed breach of warranty is verified by Seller, then, as the sole and exclusive remedy of Buyer or the initial end-user of the Product, Seller will, at Seller's sole option (a) repair the applicable Product or component free of charge, or (b) replace the applicable Product or component free of charge F.O.B. Buyer's facility. The warranty on repaired or replaced Products or component parts is limited to the remainder of the original Warranty Period. Buyer shall be responsible for (1) any labor required to gain access to the Product or component or so that Seller can assess the available remedies; and (2) all costs of installation of repaired or replacement Products or components.

   THE WARRANTIES SET FORTH IN THIS SECTION 9 AND IN THE WARRANTY ATTACHMENTS ARE INTENDED TO BE SELLER'S SOLE AND EXCLUSIVE WARRANTIES WITH RESPECT TO THE PRODUCTS AND SELLER'S WARRANTIES ARE SUBJECT TO SECTION 10 BELOW. SELLER MAKES NO OTHER WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH RESPECT TO THE PRODUCTS, INCLUDING

WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR PURPOSE, OR ANY WARRANTIES THAT MIGHT ARISE FROM COURSE OF DEALING OR USAGE OF TRADE. NOTWITHSTANDING THE FOREGOING, IF IT IS ALLEGED OR DETERMINED THAT SELLER HAS MADE ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BY COURSE OF DEALING OR USAGE OF TRADE, SUCH OTHER WARRANTIES SHALL BE SUBJECT TO ALL THE CONDITIONS, LIMITATIONS AND PROCEDURES SET FORTH IN THIS SECTION 9, THE WARRANTY ATTACHMENTS, AND SECTION 10 BELOW.

10. **LIMITATION OF LIABILITY.** NOTWITHSTANDING ANYTHING ELSE TO THE CONTRARY, SELLER WILL 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 PRODUCTS WILL NOT EXCEED THE PURCHASE PRICE PAID FOR THE PRODUCTS. THESE LIMITATIONS APPLY WHETHER THE LIABILITY IS BASED ON CONTRACT, TORT, STRICT LIABILITY OR ANY OTHER THEORY. THE REMEDIES SET FORTH IN THIS AGREEMENT ARE INTENDED TO CONSTITUTE A COMPLETE ALLOCATION OF THE RISKS BETWEEN THE PARTIES, AND BUYER ACKNOWLEDGES THAT IT IS KNOWINGLY LIMITING THE REMEDIES THAT MIGHT OTHERWISE BE AVAILABLE TO BUYER. BECAUSE THIS AGREEMENT AND THE PRICE PAID REFLECT SUCH ALLOCATION, THE REMEDIES PROVIDED TO BUYER HEREUNDER WILL NOT HAVE FAILED OF THEIR ESSENTIAL PURPOSE EVEN IF THEY OPERATE TO BAR RECOVERY FOR CERTAIN DAMAGES THAT BUYER MAY INCUR.

11. **Remedies of Seller.** Any of the following will constitute an event of default which will enable Seller, at its option and without liability to Buyer, to cancel any unexecuted portion of the order that is the subject of this Agreement and to exercise any other right or remedy expressed herein or otherwise available at law or in equity: (i) the failure of Buyer to make any payment required hereunder when due ("Payment Default") or to perform any other term or condition contained herein; (ii) the insolvency of Buyer or its failure to pay its debts as they mature, an assignment by Buyer for the benefit of its creditors, the appointment of a receiver for Buyer or for the materials covered by this Agreement, or the filing of any petition to adjudicate Buyer bankrupt; (iii) a failure by Buyer to provide adequate assurance of performance within ten days after a justified demand by Seller; or (iv) if Seller, in good faith, believes that Buyer's prospect of performance under this Agreement is impaired. Seller's obligations under Section 9 hereof and the Warranty Attachments will be suspended during the pendency of any Payment Default. No such suspension will extend Seller's obligations under Section 9 or the Warranty Attachments beyond the period provided therein. Seller's election of any remedy in the event of a default by Buyer will not preclude Seller from exercising any other remedy available to Seller hereunder or at law or in equity for the same or any other default. In the event it becomes necessary to incur any expense for collection of any overdue

account, Seller's collection charges, including attorneys' fees and expenses, will be added to the balance due and Buyer will pay all such charges together with interest thereon from the date incurred in accordance with Section 3.

12. **Equal Employment Opportunity.** Seller is an equal opportunity employer. The parties shall, as applicable, abide by the requirements of 41 CFR 60-1.4(a), 41 CFR 60-300.5(a), 41 CFR 60-741.5(a) and Executive Order 13496 (29 CFR Part 471, Appendix A to Subpart A) (relating to the notice of employee rights under federal labor laws), and these laws are incorporated herein by reference.

13. **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 Products provided under the Agreement, including any export license requirements. Buyer agrees that such Products 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 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 always maintained. BUYER WILL INDEMNIFY, DEFEND AND HOLD SELLER HARMLESS FROM ANY AND ALL COSTS, LIABILITIES, PENALTIES, SANCTIONS AND FINES RELATED TO NON-COMPLIANCE WITH APPLICABLE EXPORT LAWS AND REGULATIONS.

14. **Miscellaneous.** No part of this Agreement may be changed or cancelled except by a written document signed by Seller and Buyer. As used in this Agreement, "including" and its variants mean "including without limitation" and its variants. No course of dealing or performance, usage of trade, or failure to enforce any term will be used to modify the Agreement. Buyer acknowledges that it has not relied upon any letters of intent, agreements, promises, negotiations, statements, or representations other than those expressly set forth in this Agreement and that no such extraneous document or other communication shall be of any force or effect. Buyer agrees and warrants that in entering into this Agreement, Buyer is relying solely upon the information contained in this Agreement and not in reliance upon any other information. If any of the Terms is unenforceable, such Term will be limited only to the extent necessary to make it enforceable, and all other Terms will remain in full force and effect. Buyer may not assign this Agreement without Seller's prior written consent. This Agreement will be governed by the laws of the State of California without regard to its conflict of law's provisions. The application of the United Nations Convention on Contracts for the International Sale of Goods is excluded. Any bond issued by Seller in connection with the sale of the Products shall remain in effect for a maximum of two (2) years after acceptance of the Products, and the only warranty, guaranty or Product performance obligations covered thereby shall be those at

Section 9 above and in the Warranty Attachments. All Product performance obligations of Seller are contingent on the design criteria and the condition of the influent and the raw materials being as specified by Seller and will be considered satisfied and discharged upon successful completion of the initial Product performance testing. EACH OF THE PARTIES IRREVOCABLY AND UNCONDITIONALLY WAIVES ITS RIGHT TO TRIAL BY JURY IN RESPECT OF ANY LEGAL PROCEEDING DIRECTLY OR INDIRECTLY ARISING IN CONNECTION WITH THE TRANSACTION CONTEMPLATED HEREBY.

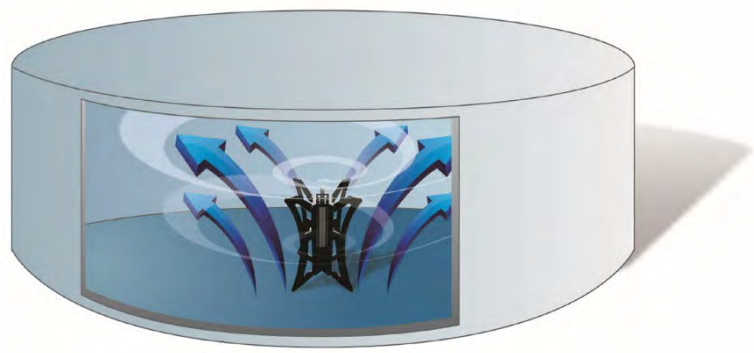
BIG WAVE
WATER TECHNOLOGIES

# TIDAL WAVE MIXER

**We are proud to offer our new active water mix that meets or exceeds industry standards, outperforms the competition, and is economically priced.**

- Improves water quality in storage tanks
- Performs in tanks up to 10 million gallons or more
- Eliminates stratification
- Reduces nitrification in chloraminated systems
- Exceeds mixing requirements for addition of chemistry
- Reduces bacteria growth and lowers DBPs (disinfection byproducts)
- Improves water taste and odor
- Improves water tank longevity
- Helps prevent ice damage in cold climates
- Lowered through hatch, no diver required
- May improve energy efficiency
- Solar options available
- **3-year warranty**

**We've brought to market an active water mixer that greatly improves water quality and storage tank longevity at a very competitive price.**



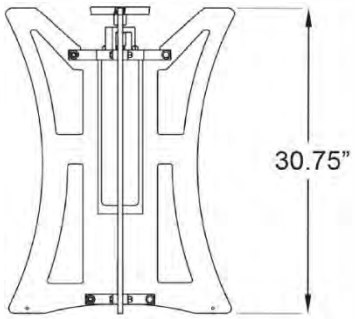
For more information or to schedule a presentation, please call **667-244-9283 (667-BIG-WAVE)** or visit **BigWaveWater.com**.

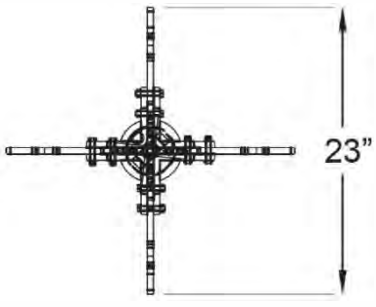
CLASSIFIED c UL us WATER QUALITY
NSF/ANSI 61
NSF/ANSI 372

MADE IN USA

## Tidal Wave Water Mixer Specifications

| Model | TWM05-115-12-XX060-2<br>TWM05-115-12-XX170-2 | TWM05-115-12-I4X060-2<br>TWM05-115-12-I4X170-2 | TWM05-230-33-V3R050-3<br>TWM05-230-33-V3R075-3<br>TWM05-230-33-V4050-3<br>TWM05-230-33-V4075-3<br>TWM05-230-33-V4X050-3<br>TWM05-230-33-V4X075-3 | TWM15-230-12-NV4060-2<br>TWM15-230-12-NV4170-2<br>TWM15-230-12-NV4X060-2<br>TWM15-230-12-NV4X170-2 | TWM15-230-33-V3R050-3<br>TWM15-230-33-V3R075-3<br>TWM15-230-33-V4050-3<br>TWM15-230-33-V4075-3<br>TWM15-230-33-V4X050-3<br>TWM15-230-33-V4X075-3 |
|---|---|---|---|---|---|
| **Motor Type** | 4" Submersible Motor, 0.5 HP, 115 V, 1PH, 2-Wire, Water-Cooled, Water-Lubricated, ANSI/NSF 61 Certified | 4" Submersible Motor, 0.5 HP, 115 V, 1PH, 2-Wire, Water-Cooled, Water-Lubricated, ANSI/NSF 61 Certified | 4" Submersible Motor, 0.5 HP, 230 V, 3PH, 3-Wire, Water-Cooled, Water-Lubricated, ANSI/NSF 61 Certified | 4" Submersible Motor, 1.5 HP, 230 V, 1PH, 2-Wire, Water-Cooled, Water-Lubricated, ANSI/NSF 61 Certified | 4" Submersible Motor, 1.5 HP, 230 V, 3PH, 3-Wire, Water-Cooled, Water-Lubricated, ANSI/NSF 61 Certified |
| **RPM** | 3,450 | 3,450 | 3,450 | 3,450 | 3,450 |
| **Power Requirements** | 120 VAC, 1 PH, 60 Hz, 15-Amp Circuit | 120 VAC, 1 PH, 60 Hz, 20-Amp Circuit | 120 VAC, 1 PH, 60 Hz, 20-Amp Circuit | 230 VAC, 1 PH, 60 Hz, 20-Amp Circuit | 120 VAC, 1 PH, 60 Hz, 20-Amp Circuit |
| **Power Draw** | 10 Amps, 670 Watts | 10 Amps, 670 Watts | 15 Amps, 1800 Watts | 10 Amps, 2300 Watts | 15 Amps, 1800 Watts |
| **Footprint Diameter** | 23" (58.42 cm) | 23" (58.42 cm) | 23" (58.42 cm) | 23" (58.42 cm) | 23" (58.42 cm) |
| **Height** | 30.75" (78.10 cm) + 10" (25.4 cm) handle | 30.75" (78.10 cm) + 10" (25.4 cm) handle | 30.75" (78.10 cm) + 10" (25.4 cm) handle | 30.75" (78.10 cm) + 10" (25.4 cm) handle | 30.75" (78.10 cm) + 10" (25.4 cm) handle |
| **Weight** | 35 lbs (15.87 kg) | 35 lbs (15.87 kg) | 35 lbs (15.87 kg) | 35 lbs (15.87 kg) | 35 lbs (15.87 kg) |
| **Control Center Dimensions** | | 7 lbs (3.18 kg) 8.5" x 8.5" x 6" (21.59 cm x 21.59 cm x 15.24 cm) | 52 lbs (23.59 kg) 20" x 16" x 10" (50.8 cm x 40.64 cm x 25.4 cm) | 53 lbs (24.04 kg) 20" x 20" x 13" (50.8 cm x 50.8 cm x 33.02 cm) | 52 lbs (23.59 kg) 20" x 16" x 10" (50.8 cm x 40.64 cm x 25.4 cm) |
| **Material: Control Center** | | Nonmetallic Polycarbonate | Powder-Coated Steel or Stainless Steel | Powder-Coated Steel or Stainless Steel | Powder-Coated Steel or Stainless Steel |
| **Material: Stand** | HDPE | HDPE | HDPE | HDPE | HDPE |
| **Material: Motor Seals** | Chlorine/Chloramine-Resistant NBR Rubber | Chlorine/Chloramine-Resistant NBR Rubber | Chlorine/Chloramine-Resistant NBR Rubber | Chlorine/Chloramine-Resistant NBR Rubber | Chlorine/Chloramine-Resistant NBR Rubber |
| **Wiring** | UL-Certified to NSF/ANSI 61 & 372, 14 AWG 2-Wire Submersible Cable Wired to 15-Amp Plug | UL-Certified to NSF/ANSI 61 & 372, 14 AWG 2-Wire Submersible Cable | UL-Certified to NSF/ANSI 61 & 372, 14 AWG 3-Wire Submersible Cable | UL-Certified to NSF/ANSI 61 & 372, 14 AWG 2-Wire Submersible Cable | UL-Certified to NSF/ANSI 61 & 372, 14 AWG 3-Wire Submersible Cable |



# DULCOMETER® DACb Controller

## Intelligent measuring and control


***ProMinent®*** *introduces its latest multi-parameter controller, the* ***DACb****. Built on the existing DACa platform, the DACb now offers one, two or three channels for the continuous measurement and control of process variables in water and wastewater applications.*

*The large screen HMI allows for easy viewing of process events and changes color when faults occur. Datalogging and SD card storage allows the operator to keep valuable information for over a year!*

*Packaged in a NEMA 4X enclosure, the DAC offers more flexibility for industrial and municipal projects by offering measurement of 14 process variables, pH and temperature compensation, feed forward and up to three analog outputs. Create a complete packaged system by adding sensors, flow cell, plumbing and backpanel.*

### Features & Benefits

- One, two or three channels
- 2-way PID control
- Data and event logging with SD Card *(optional)*
- Three analog outputs
- Seven digital inputs
- Four frequency outputs
- Two powered relays
- Measured value trend display
- pH compensation for Free Chlorine
- Temperature compensation for pH, conductivity, and fluoride
- NEMA 4X enclosure
- LAN/ Ethernet Connectivity available Q2 2018
- Profibus®-DP, Modbus RTU
- Optional 24V DC power

# DULCOMETER® DACb Controller

## Specifications

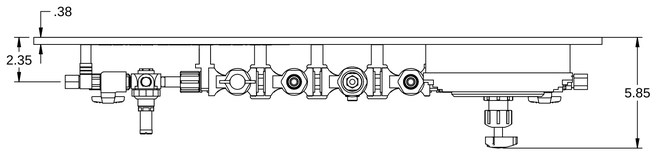
| | |
|---|---|
| **Measuring range** | |
| mV connection type | pH: 0.00 - 14.00 |
| | ORP voltage: -1,500 - +1,500 mV |
| Connection type mA (amperometric measured variables, measuring ranges corresponding to sensors) | Chlorine, Chlorine dioxide, Chlorite, Bromine, Ozone, Hydrogen peroxide (PER sensor), Hydrogen peroxide (PEROX sensor with PEROX transducer V2 Order No. 1047979), Peracetic acid |
| Connection type mA (potentiometer measured variables, measuring ranges corresponding to the transmitter) | pH, ORP voltage, Fluoride |
| Conductivity (measuring ranges corresponding to the transmitters) | via Transmitter 0/4 - 20 mA |
| Temperature | via Pt 100/Pt 1000, measuring range 0 - 302 °F |
| **Resolution** | pH: 0.01 |
| | ORP voltage: 1 mV |
| | Temperature: 32 °F |
| | Amperometric analysis (chlorine etc.): 0.001/0.01 ppm, 0.01 vol. %, 0.1 vol. % |
| **Accuracy** | 0.3 % based on the full-scale reading |
| **Measurement input** | pH/ORP (input resistance > 0.5 x 1012 Ω) |
| **Temperature compensation** | Pt 100/Pt 1000 for pH, conductivity, and fluoride sensors |
| **Correction range** | 0 - 212 °F |
| **pH compensation range for chlorine** | Sensor CLE 3 and CLE 3.1; 6.5 - 8.5, sensor CBR 6-5 - 9.5 |
| **Disturbance signals/feed forward** | Flow via 0/4-20 mA or contact water meter 1 - 500 Hz, the interference variable acts on both channels |
| **Control characteristic** | P/PID control |
| **Control** | 2 x bidirectional control |
| **Analog outputs** | 3 x 0/4-20 mA electrically isolated, max. load 450 Ω, range and assignment (measured, correction, control variable) can be set |
| **Control outputs** | 4 x 2 pulse frequency outputs for metering pump control, 2 relays (limit value, 3-point step or pulse length control) |
| **Alarm relay** | 250 V ~3 A, 700 VA contact type changeover contact |
| **Digital control inputs** | (7) as a remote control input for the functions pause control / sample water fault, parameter set switch-over, level monitoring of chemical tanks |
| **Electrical connection** | 90-253 V, 50/60 Hz, 25 VA or 24 V DC |
| **Field bus connection** | PROFIBUS - DP, Modbus RTU |
| **Ambient temperature** | 0 - 122° F (for indoor installation or with a protective enclosure) |
| **Enclosure rating** | Wall mounted: IP 67 (NEMA 4X) |
| | Installation in the control cabinet: IP 54 for control cabinet door |
| **Tests and approvals** | CE, MET (corresponding to UL according to IEC 61010) |
| **Housing material** | PC with flame proofing equipment |
| **Dimensions** | 9.84 x 8.66 x 4.80 in. (WxHxD) |
| **Weight** | 3 lbs. |

**ProMinent Fluid Controls, Inc.**
136 Industry Drive • Pittsburgh, PA 15275 USA
(412) 787-2484 • Fax: (412) 787-0704
email: sales-US@prominent.com **www.prominent.us**

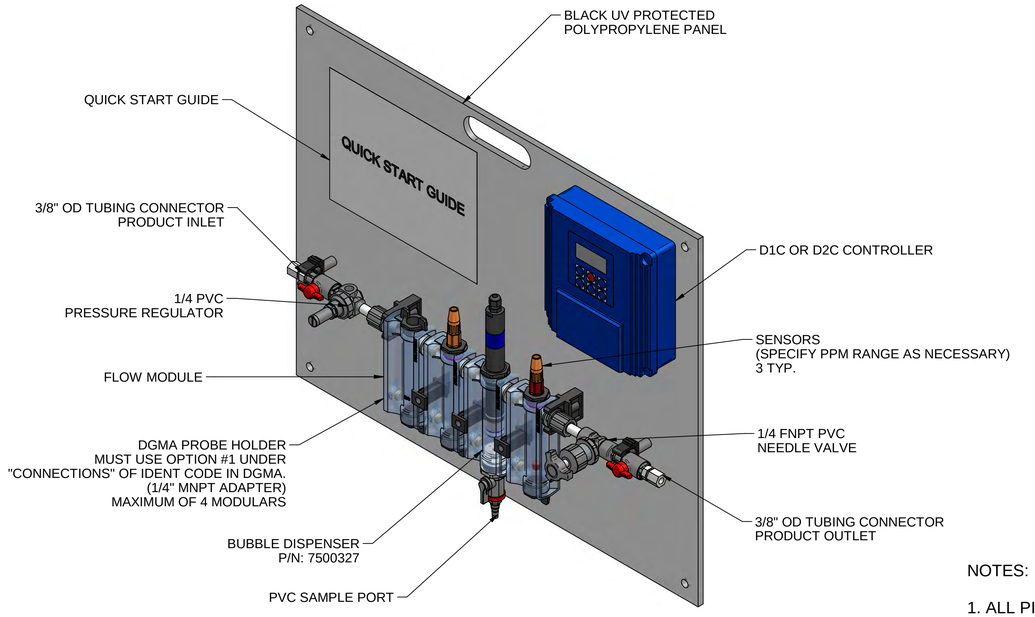


PN: 7750242
DACb.indd rev0 01/10/2018

| DWG No | REV |
|---|---|
| 7746658-200 | A |



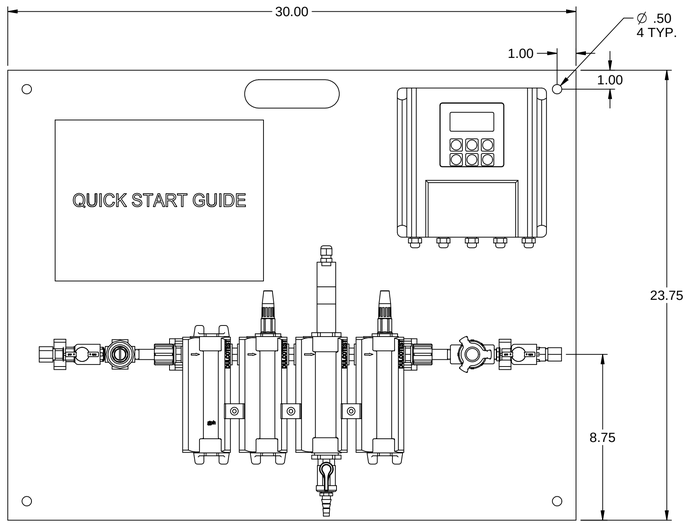

PLAN VIEW



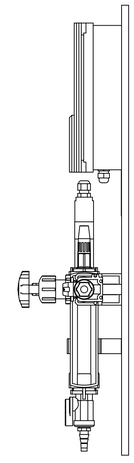

ISOMETRIC VIEW

NOTES:

1. ALL PIPING AND FITTINGS SHALL BE 1/4" SCH. 80 PVC SOCKET WELD WITH VITON SEALS UNLESS OTHERWISE REQUIRED BY COMPONENTS.
2. INLET AND OUTLET SHALL BE 3/8" TUBE FITTING. QTY. OF 30 FT. OF 3/8" PE TUBING TO SHIP LOOSE WITH PANEL.
3. SENSORS, DGMA & D1C OR D2C TO BE ORDERED SEPERATELY.
4. ALL DIMENSIONS ARE IN INCHES AND ARE SHOWN FOR REFERENCE ONLY.




FRONT VIEW



SIDE VIEW

| REV | DATE | DESCRIPTION | BY | APPD | REVD |
|---|---|---|---|---|---|
| A | 07/24/18 | UPDATED PANEL AND REGULATOR | TJB | | |
| 0 | 06/09/10 | FIRST ISSUE | JDB | | |

REVISIONS

CUSTOMER: PROMINENT FLUID CONTROLS INC. (STANDARD CONTROL PACKAGE)

JOB No: 7746658 | PURCHASE ORDER No: N/A

TITLE: D1C/D2C CONTROL PACKAGE (LOADED) GENERAL ARRANGEMENT



ENGINEERS SEAL

ProMinent®
THE PROMINENT GROUP OF COMPANIES

PITTSBURGH, PA USA WWW.PROMINENT.US

PROMINENT FLUID CONTROLS LTD.
490 SOUTHGATE DRIVE.
GUELPH, ONTARIO, CANADA
N1H 6J3
TEL. 519 836 5692 FAX. 519 836 5226

PROMINENT FLUID CONTROLS INC.
RIDC PARK WEST
136 INDUSTRY DRIVE,
PITTSBURGH P.A., USA. 15275
TEL. 412 787 2484 FAX. 412 787 0704

| | | | |
|---|---|---|---|
| DESIGNED | JDB | APPROVED | |
| DRAWN | JDB | SCALE | N.T.S. |
| CHECKED | GJS | DATE | 06/09/10 |

| DWG No | REV | PAGE |
|---|---|---|
| 7746658-200 | A | 1/1 |

# Control Panel

## Product Specifications

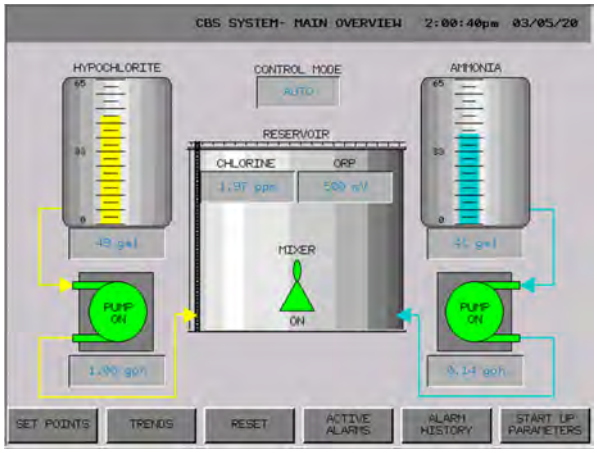
### CBS CONTROL PANEL

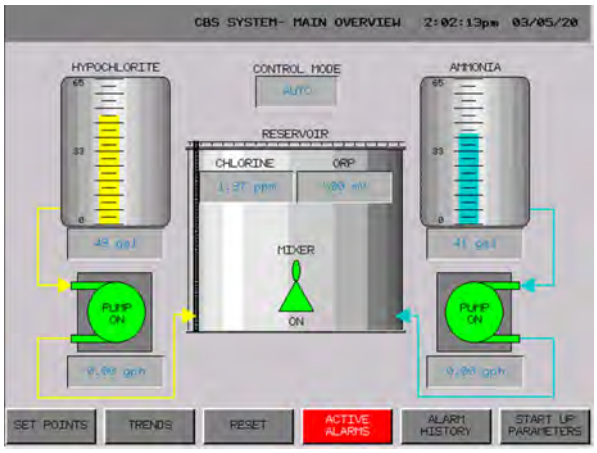

### PRODUCT INFORMATION

**The CBS Control Panel gives operators the ability to program residual level setpoints, chlorine to ammonia ratios, chemical feed rates, and alarms**

- 24/7 water quality analysis
- Remote monitoring
- Touch screen enabled

| CONTROL PANEL SPECIFICATIONS | |
|---|---|
| Power Requirement | 120VAC, 10 amp circuit breaker |
| Remote Connectivity | Yes |
| SCADA Connectivity | Yes |
| Safety Features | Emergency stop button on panel |
| Data Trending | Yes |
| Internal Memory Backup | Yes |
| Screen | 10” LCD Touchscreen |
| Enclosure | NEMA 4X FRP |
| Dimensions | 24” W x 30.5” H x 14” D |



# Chemical Feed Skids

## Product Specifications

### CHEMICAL FEED SKIDS

### PRODUCT INFORMATION:

- Manufactured out of Marine Grade High Density Polyethylene
- Built-in spill containment
- Chemical flow verification by ultrasonic flow meter
- Pressure relief valve
- Pressure gauge, calibration column, pressure switch
- Socket welded joints to eliminate threaded connections
- Multiple unions for ease of maintenance
- Built-in leak detection
- Multiple pump options
- Built to your specification

| CHEMICAL FEED SKID SPECIFICATIONS | |
|---|---|
| Skid | High Density Polyethylene |
| Pump | Blue-White Flex-Pro M3 peristaltic pump |
| Piping | Schedule 80 PVC |
| Tubing | 3/8" O.D PFA NSF 61 Certified |
| Ball Valves | True Union, PVC Body |
| Pressure Relief Valve | PVC Body, adjustable pressure range 10– 150 PSI |
| Calibration Cylinder | PVC body, end caps, 250 ml / GPH |
| Pressure Gauge | 2 1/2" dial, liquid filled stainless steal gauge |
| Pressure Switch | 0-100 PSI, N.O / N.C. |
| Check Valve | PVC body, cracking pressure 1.0—1.5 PSI |
| Secondary Containment | 9 gallons secondary containment |
| Dimensions | 24" W x 50" H x 20" D |

# Small Double Wall Tanks

This system consists of a primary inner tank and secondary containment, with a capacity of 120% of the inner tank, exceeding EPA standards and complies with 40 CFR-264.193.

- Inner tank dome overlaps outer tank sidewall to help prevent rainwater, snow, and debris from entering secondary containment, making system ideal for outdoor storage of chemicals.
- Molded 7" threaded top access opening is standard. This access opening is chemically resistant and fume tight. Larger access openings available.
- Small footprints of 34½" & under will fit through standard 36" doorway to allow convenient system location within tight manufacturing areas.
- Molded in pump shelf is ideal for installing chemical pumps and metering equipment. This pump shelf is recessed in the top of the tank to contain small chemical spills.
- Recessed lower fitting flat will allow fittings to penetrate through the secondary containment wall and into the primary tanks sump. This feature allows full flooded suction for outlet assemblies.
- Interstitial leak detection systems option available.

Inner tank dome overlaps outer tank to prevent contamination.

Molded in pump shelf is recessed in the top of the tank. Shown w/optional metering pump.

Molded in sump in the primary tank is located directly below the pump shelf. Suction lines can be lowered onto the sump area, which will allow for maximum drainage of chemical with top discharge assemblies.

| Model Number | Cap. (US Gals) | Dimensions (inches) | | Weight (lbs) Linear Polyethylene | | | | | | Weight (lbs) Crosslink Polyethylene | | | | | | Access Open. (in) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Primary Sp.Gravity | | | Secondary Sp. Gravity | | | Primary Sp. Gravity | | | Secondary Sp. Gravity | | | |
| | | Dia. | Hgt. | 1.5 | 1.9 | 2.2 | 1.5 | 1.9 | 2.2 | 1.5 | 1.9 | 2.2 | 1.5 | 1.9 | 2.2 | |
| **IMT 20** | 20 | 26⅛ | 21 ⅜ | N/A | 17 | N/A | N/A | 17 | N/A | N/A | 17 | N/A | N/A | 17 | N/A | 7 |
| **IMT 40** | 40 | 26 ⅛ | 33 ½ | N/A | 26 | N/A | N/A | 26 | N/A | N/A | 26 | N/A | N/A | 26 | N/A | 7 |
| **IMT 65** | 65 | 26 ⅛ | 47 ¾ | N/A | 36 | N/A | N/A | 36 | N/A | N/A | 36 | N/A | N/A | 36 | N/A | 7 |
| **IMT 85** | 85 | 34 ½ | 38 ½ | N/A | 45 | N/A | N/A | 45 | N/A | N/A | 45 | N/A | N/A | 45 | N/A | 7 |
| **IMT 120** | 120 | 34 ½ | 51 | N/A | 56 | N/A | N/A | 56 | N/A | N/A | 56 | N/A | N/A | 56 | N/A | 7 |
| **IMT 150** | 150 | 47 | 44 | N/A | 65 | N/A | N/A | 65 | N/A | N/A | 65 | N/A | N/A | 65 | N/A | 7/16 |
| **IMT 165** | 165 | 34 ½ | 66 | N/A | 69 | N/A | N/A | 69 | N/A | N/A | 69 | N/A | N/A | 69 | N/A | 7 |
| **IMT 250** | 250 | 47 | 61 | N/A | 95 | N/A | N/A | 95 | N/A | N/A | 95 | N/A | N/A | 95 | N/A | 7/16 |
| **IMT 405** | 405 | 47 | 76 | N/A | 74 | 82 | N/A | 77 | 90 | N/A | 74 | 77 | N/A | 77 | 82 | 7/16 |

Model number availability and individual specifications subject to change without notice.
Gallonage and weights are approximate. All wall thicknesses conform to ASTM D-1998.

Assmann Corporation of America

Phone: 888-357-3181 • Fax: 888-Tank Fax (826-5329)
Phone: 260-357-3181 • Fax: 260-357-3738
E-mail: info@assmann-usa.com • www.assmann-usa.com

# Model 59P

**PVC Submersible Level Transmitter**

## A submersible level transmitter for aggressive media!

- A variety of sealing materials are available to suit your particular application.
- The Viatran Model 59P is a submersible transmitter specifically designed to meet the challenging demands of aggressive liquid measurement. Its less costly PVC body and Ceramic sensor can resist very harsh fluids while maintaining an economical price.
- Available in ranges from 0-13 Feet W.C. to 0-335 Feet W.C. or equivalent in Meters or PSI
- Polyurethane (PUR) cable is the most popular, Polyvinyl Chloride (PVC) & Fluorinated Ethylene-Propylene (FEP) cables are also offered.
- Liquid Level & Depth, Water & Wastewater, Lift Stations, Reservoirs & Dams, Rivers, Holding Ponds, Wells, In-ground/Above Ground Tanks, and Inventory Tank Gauging.

CE

### Performance

| | |
|---|---|
| Pressure Ranges From | 0-13 Feet W.C. to 0-335 Feet W.C. or equivalent in Meters or PSI. |
| Accuracy [Combined Non-Linearity (BFSL), Hysteresis & Repeatability] | ≤ +/-0.5% FSO |
| Compensated Temperature Range | -13° to 158° F (-25 to 70° C) |
| Operating Temperature Range | 32° to 122° F (0 to 50° C) Note: Medium must not freeze near sensor |
| Storage Temperature Range | 14° to 122° F (-10 to 50° C) |
| Long Term Stability (%FSO) | ≤ +/- 0.1% FSO / year at reference conditions |
| Thermal Effect on Zero | ≤ +/- 0.12% FSO per 100° F |
| Thermal Effect on Span | ≤ +/- 0.12% FSO per 100° F |

### Electrical

| | |
|---|---|
| Output Signal | 4-20 mA |
| Supply Voltage | 8-32 Vdc |
| Power Supply Regulation | < +/- .005% FSO per volt |
| Circuit Protection | Reverse polarity protected, CE marked |
| RFI/EMI | CE EMC compliant as per IEC EN 61326 |
| Voltage Spike Protection | Withstand 1000 volt spike per EN 61000 |
| Response Time | < 10 mSec |

### Mechanical

| | |
|---|---|
| Pressure Connection | Protective POM Cap (Removable) |
| Ingress Protection | IP 68 |
| Overpressure Limit | 1.6x Minimum |
| Weight | 0.5 lbs. (without cable) |

### Materials of Construction

| | |
|---|---|
| Housing | PVC |
| Sensor Diaphragm | Ceramic $Al_2O_3$ 96% |
| Cable | PUR, PVC, or FEP (customer must specify) |
| Seals | FKM or EPDM (customer must specify) |

**Viatran**
199 Fire Tower Drive
Tonawanda, New York 14150 USA

Hotline: 1-800-688-0030
Phone: 1-716-629-3800
Fax: 1-716-693-9162

Email: solutions@viatran.com
Web: www.viatran.com

## How to Order

| MODEL | UNITS OF PRESSURE (1 digit) | PRESSURE RANGE (4 digits) | SEALS (2 digits) | CABLE FORMAT (2 digits) | CABLE LENGTH (3 digits) | OPTIONS (2 digits) |
|---|---|---|---|---|---|---|
| *59P* | | | | | | |

### Units of Pressure

| | |
|---|---|
| F | Feet of Water Column |
| I | Inches of Water Column |
| M | Meters of Water Column |
| P | PSI (Whole numbers only) |

### Pressure Range

Any Range from 0-13 Feet W.C. up to 0-335 Feet W.C. or equivalent can be specified at no additional cost.

*Consult factory for range code

**Please advise if specific gravity is other than 1

*Example of Four Digit Codes:*

| Range | | Four Digit Codes for Range | |
|---|---|---|---|
| 5 | = | 5000 | Insert Range Code 5000 |
| 10 | = | 1001 | Insert Range Code 1001 |
| 15 | = | 1501 | Insert Range Code 1501 |
| 50 | = | 5001 | Insert Range Code 5001 |
| 100 | = | 1002 | Insert Range Code 1002 |
| 250 | = | 2502 | Insert Range Code 2502 |
| 835 | = | 8352 | Insert Range Code 8352 |

### Seals

| | |
|---|---|
| GK | Fluoroelastomer (FKM) |
| GD | Ethylene Propylene (EPDM) |

### Cable Format

| | |
|---|---|
| PC | Polyvinyl Chloride (PVC) |
| TL | Polyurethane Cable (PUR) *Stocked in select lengths for fast delivery |
| PA | Fluorinated Ethylene-Propylene (FEP) |

### Cable Length

| | |
|---|---|
| XXX | Listed in Whole Meters Only (must be 3 digits - ex. 012 = 12 Meters) |

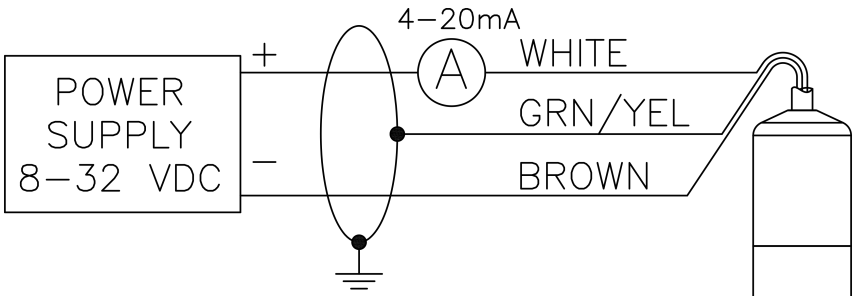
### Options

| | |
|---|---|
| EA | Special Calibration Run |
| PW | Calibrate item with meter/display |

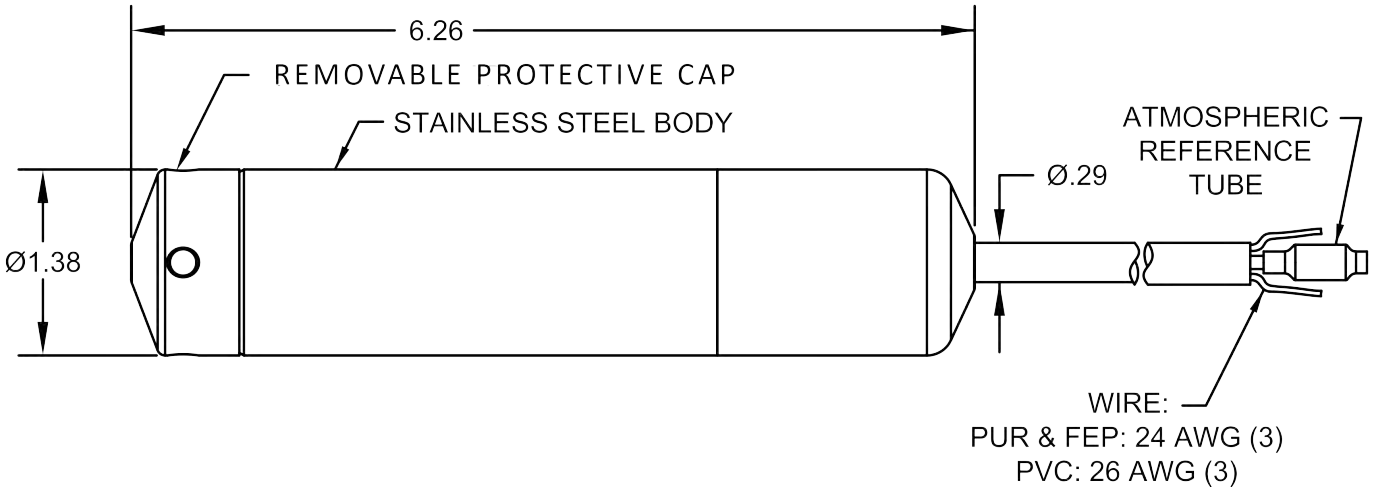
## Connection Diagrams & Wiring

The standard wiring of your Viatran Model 59P level transmitter is outlined below. The wiring information is also marked on your unit.

The 59P level transmitter can be powered by a DC power supply ranging from 8 to 32 volts. See installation manual for more details.



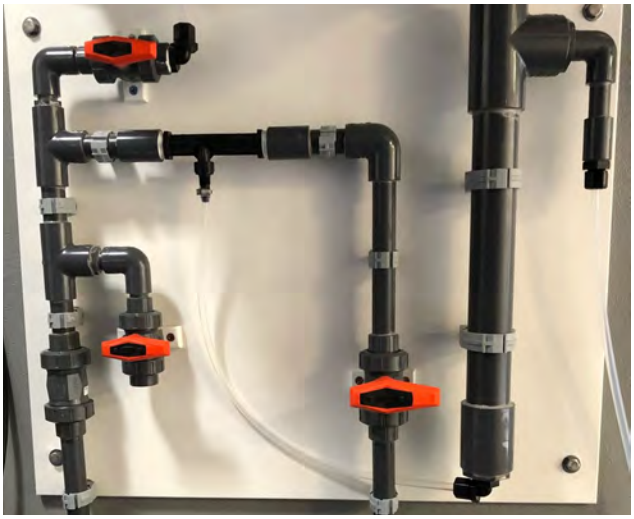

| WIRING | |
|---|---|
| WHITE | +SUPPLY |
| BROWN | –SUPPLY |
| GRN/YEL | SHIELD |



# Analyzer Sample Recovery

## Product Specifications

### VENTURI SAMPLE RETURN SYSTEM



We recommend using Amperometric total/free chlorine probes for these Chloramine Boosting Systems as this enables the sample flowing through the analyzer to be returned back into the potable water reservoir. Being able to return this sampled water back into the potable water reservoir saves approximately 250 gallons/day of water from being wasted to a drain at the site. The Sample Recovery system utilizes a sample pump, with a sample collector and Venturi that work in conjunction to not only provide sample flow to the water quality analyzer, but also to return this sample back to the reservoir. Having a sample recovery system installed with the Chloramine Boosting System will save an estimated 91,000 gallons of potable water from being wasted to a drain at the site

### PRODUCT INFORMATION

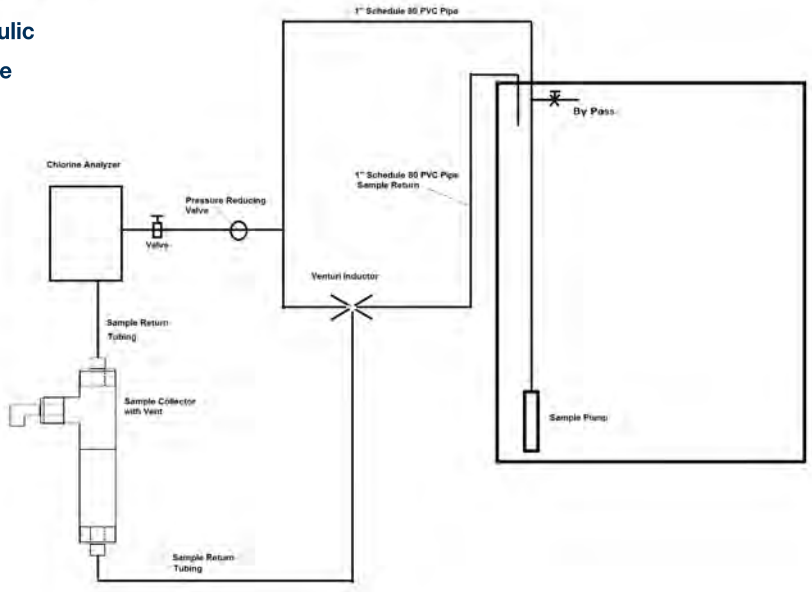
Sample pump selection will be influenced by the hydraulic profile of the tank (below grade tank to use submersible pump, above grade tank to use centrifugal pump).

Below Grade: Submersible Pump-STA Rite Pump

Above Grade: Centrifugal Pump-March Pump

- Sample pump to provide sample flow
- Sample Collector
- Venturi to return sample back to the reservoir
- Dimensions 28”w x 24”t with 3/4” PVC plumbing

### VENTURI SYSTEM



**AGENDA ITEM NO. 8.B**

**DATE:** June 4, 2024

**TO:** Board of Directors

**FROM:** Facilities and Operations

---

**SUBJECT: 2024 Painting and Coatings Program: Contract Authorization**

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**SUMMARY:**

The Water Systems Division of the Facilities and Operations Department maintains and operates the potable water distribution system. Annually, staff reviews areas in need of painting and new protective coatings to ensure reliability of the system's infrastructure and maximize the useful life of the District's assets. Staff identified two specific areas that need improvements including pump stations and fire hydrants throughout the service area.

Staff advertised the work and received seven proposals with Vital Coatings being the lowest responsive bidder. An annual contract is recommended to perform the work, in the amount of $100,000, with four additional one-year renewal options. Vital Coatings has performed similar work for the District in the past. Their team is familiar with the District's standards and infrastructure, having completed work for the District in the past, and can offer National Sanitation Foundation (NSF) approved coatings, where applicable, for the system to ensure public health and safety.

**RECOMMENDATION(S):**

Authorize the General Manager to execute a one-year agreement with Vital Coatings, in the amount of $100,000, with four one-year renewal options to provide painting and coating services.

**FISCAL IMPACT:**

Yes

**ITEM BUDGETED:**

Yes

**FINANCIAL IMPACT:**

Sufficient funds for the work are available in the proposed Fiscal Year 2024-25 Budget and will

be proposed in future fiscal year budgets.

**DISCUSSION:**

The Water Systems Division of the Facilities and Operations Department maintains and operates the potable water distribution system including storage tanks, pump stations, pressure reducing stations, pipeline infrastructure, reservoirs and other appurtenances.

Annually, staff reviews areas in need of painting and new protective coatings to ensure reliability of the system infrastructure, while maximizing the useful life of the system assets. The inspections consist of metal thickness testing, inspecting chips or cracking of existing coatings, and reviewing the overall appearance due to corrosion or UV degradation. Staff identified specific facilities within the service area that would be addressed during the first year of the contract, including the Three Springs Pump Station, McCoy Pump Station and fire hydrants.

Vital Coatings would prepare all piping, meters, valves and motor housing for complete priming of substrate, and apply two finish coats (minimum 10-mil thickness) of epoxy paint in colors approved by the District. All areas not receiving coatings would be protected from overspray, including all fittings and lines (brass and stainless steel), gauges, electrical components, actuators, badges and identification signage. Preparation for coatings would include removal of grease/oil, loose chipping and pealing epoxy, rust, calcium and scale. Grinders used in preparation for coatings would be fitted for 3M spark less grinding (or equivalent) with an EDCO Hepa Vac System. All surfaces would be clean and dry prior to application of the epoxy paint. Fire hydrants would be prepared by scraping and removing loose chips, peeling paint, rust and scaling. Two coats of Safety Yellow paint would be applied to each hydrant to a minimum 10-mil thickness, and where appurtenances are included, they would be the same as the fire hydrants. Two coats of paint would be applied as the finish with approval of the paint colors in advance by the District. All coatings would be evaluated for lead and potable water certification compliance.

Staff advertised representative work and received seven proposals with Vital Coatings being the lowest responsive bidder. US National Corp and Perfection Painting Corp did not submit a scope of work with their bids as required. As a result, the two bids received were deemed non-responsive, and those bids were rejected. The bid schedule utilized in the bidding process (copy attached) served as the basis for selecting the lowest responsive bidder. Projects would be prioritized on an annual basis based on available funding and condition assessments.

Following is a table that lists the seven bids received:

| BIDS RECEIVED | BID AMOUNTS |
|---|---|
| U.S. National Corp. | $ 22,400 |
| Perfection Painting Corp. | $ 34,050 |
| Vital Coatings | $ 50,450 |
| AJ Fistes Corp. | $ 60,275 |
| Tony Painting, Inc. | $ 73,800 |
| Arena Painting | $ 77,663 |

| | |
|---|---|
| Color New | $ 330,400 |

The contracted work would be for an annual not-to-exceed amount of $100,000 with four one-year renewal options. The contract would be utilized by staff for coating services based on the highest priorities and needs of the District. Vital Coatings has successfully performed work for the District in the past, they are familiar with the District's systems and standards, and they can offer National Sanitation Foundation (NSF) approved coatings, where applicable, to ensure public health and safety.

**GOALS:**

Construct, Manage and Maintain all Facilities and Provide Services to Assure System Reliability and Environmental Compatibility

Prepared by: Darrell Johnson, Water Systems Manager

**ATTACHMENTS:**
Vital Coatings Quote
Request For Quotes (RFQ) and Bid Schedule

## QUOTE SUBMITTAL FORM

Vendor: Vital Coatings Inc.

Vendor Contact (name): James Wyman

Vendor Contact (telephone): 805-701-7526

Vendor Contact (address): 2131 Anthony Drive
Ventura, CA 93003

**1) McCoy Pump Station**

a. Interior pumps, valves, motor housing and pipe coating: $ 18,700 .00

b. Exterior Surge Tank Coating and attached piping: $ 8,900 .00

c. Exterior Doors and vent louvers: $ 1,300 .00

**2) Three Springs Pump Station**

a. Interior pumps, valves, motor housing, and pipe coating: $ 17,850 .00

b. Exterior Doors and vent louvers: $ 1,300 .00

c. Other: $ _____ .00

**3) 10 to 20 System Hydrants**

a. Hydrant Coating (Each): $ (120.00 ea.) 2,400 .00

b. Other: $ _____ .00

**TOTAL PROJECT QUOTE:** **$ 50,450 .00**

Pricing must include all fees; no additional charges will be allowed or considered.

Please submit a completed copy of this quote form by 5:00 p.m., March 20, 2024 and email to kkuhlman@lvmwd.com

Ken Kuhlman, Water Distribution Operator III
Las Virgenes Municipal Water District
4232 las Virgenes Road, Calabasas CA 91302
kkuhlman@lvmwd.com

A: Sherwin Williams Sher-Loxane 800 (2-part epoxy) Las Virgenes Blue/ Cla-Val Blue.

# Vital Coatings

2131 Anthony Drive, Ventura, CA 93003
CSLB: 1024136
Phone: (805) 701-7526

Las Virgenes Municipal Water District
Ken Kuhlman, Water Distribution Operator III
4232 Las Virgenes Road
Calabasas, CA 91302

kkuhlman@lvmwd.com

Date: 3/20/24

**We respectfully submit this proposal for the following Scope of Work.**

**McCoy Pump Station**
24282 Parkway Calabasas
Interior pumps, valves, motor housing and pipe coating:

Electric motors will be prepared, completely primed and receive two (2) coats of epoxy in Ind. Gray. Preparation will include removal of existing epoxy, grease/oil, rust, calcium and scale.

All grinders will be fitted for 3M sparkless grinding system with EDCO Hepa Vac. All surfaces will be clean, dry and coated with detail.

Prepare all piping for complete prime and two (2) finish coats of epoxy in custom Las Virgenes blue/ Cla-val Blue. Coating mil. thickness will be digitally measured to achieve 10 mils.

All electrical panels, switch gear, and instrumentation will be completely masked and isolated from dust particles and debris. Lock out procedures will be used if needed. We will pay special attention to electrical motors not to contaminate or allow coatings to damage the integrity of motor windings during the existing coating removal and re-coating process.

All areas not to receive epoxy will be protected, including but not limited to brass, stainless steel fittings and lines, gauges, electrical, actuators, badges and signage.

Any parts that are naturally corrosion resistant (i.e. copper, stainless, etc.) will be protected

All drains will be sealed to eliminate contamination from liquid, dust or debris from entering drains.

All specified nuts and bolts will be masked to mitigate damage to coating when regular maintenance is preformed and nuts and bolts are removed.

Stickers will be replaced with new OSHA compliant reflective stickers.

Applications will be stringently following manufactures specifications, inspecting before each coat.

Using moisture tolerant products by Sherwin Williams:

Dura plate 301W Primer, Sher-loxane 800 Finish, Oxsol 100 R2KS1 thinner

**LABOR & MATERIALS TOTAL:** $ 18,700.00

APPROVAL SIGNATURE

DATE:

# Vital Coatings

2131 Anthony Drive, Ventura, CA 93003
CSLB: 1024136
Phone: (805) 701-7526

Las Virgenes Municipal Water District
Ken Kuhlman, Water Distribution Operator III
4232 Las Virgenes Road
Calabasas, CA 91302

kkuhlman@lvmwd.com

Date: 3/20/24

**We respectfully submit this proposal for the following Scope of Work.**

**McCoy Pump Station**
24282 Parkway Calabasas
Exterior Surge Tank Coating and attached piping: Two (2) surge tanks and piping.

Prepare all piping and surge tanks for complete prime and two (2) finish coats of epoxy in custom Las Virgenes Pallet Tan. Coating mil. thickness will be digitally measured to achieve 10 mils.
Preparation will include removal of existing epoxy, grease/oil, rust, calcium and scale.
All grinders will be fitted for 3M spark less grinding system with EDCO Hepa Vac.
All surfaces will be clean, dry and coated with detail.
All areas not to receive epoxy will be protected, including but not limited to brass, stainless steel fittings and lines, gauges, electrical, actuators, badges and signage.
Any rusty areas will receive a converter before complete prime.
Any parts that are naturally corrosion resistant (i.e. copper, stainless, etc.) will be protected.
All drains will be sealed to eliminate contamination from liquid, dust or debris from entering drains.
All specified nuts and bolts will be masked to mitigate damage to coating when regular maintenance is preformed and nuts and bolts are removed.
Applications will be stringently following manufactures specifications.
Using moisture tolerant products by Sherwin Williams:
Dura plate 301W Primer, Sher-loxane 800 Finish, Oxsol 100 R2KS1 thinner

**LABOR & MATERIALS TOTAL:** $ 8,900.00

APPROVAL SIGNATURE

DATE:

# Vital Coatings

2131 Anthony Drive, Ventura, CA 93003
CSLB: 1024136
Phone: (805) 701-7526

Las Virgenes Municipal Water District
Ken Kuhlman, Water Distribution Operator III
4232 Las Virgenes Road
Calabasas, CA 91302

kkuhlman@lvmwd.com

Date: 3/20/24

**We respectfully submit this proposal for the following Scope of Work.**

**McCoy Pump Station**
24282 Parkway Calabasas
Exterior Doors and Vent Louvers:

Prepare two (2) doors (inside & out) and all vent louvers for complete prime and two (2) finish coats of urethane in custom Las Virgenes Pallet Tan.
Coating mil. thickness will be digitally measured to achieve 10 mils.
Preparation will include removal of existing epoxy, grease/oil, rust, calcium and scale.
All grinders will be fitted for 3M spark less grinding system with EDCO Hepa Vac.
All surfaces will be clean, dry and coated with detail.
All areas not to receive epoxy will be protected.
Any rusty areas will receive a converter before complete prime.
Any parts that are naturally corrosion resistant (i.e. copper, stainless, etc.) will be protected.

Applications will be stringently following manufactures specifications.
Using premium quality products by Sherwin Williams: Urethane

**LABOR & MATERIALS TOTAL:** $ 1,300.00

APPROVAL SIGNATURE

DATE:

# Vital Coatings

2131 Anthony Drive, Ventura, CA 93003
CSLB: 1024136
Phone: (805) 701-7526

Las Virgenes Municipal Water District
Ken Kuhlman, Water Distribution Operator III
4232 Las Virgenes Road
Calabasas, CA 91302

kkuhlman@lvmwd.com

Date: 3/20/24

**We respectfully submit this proposal for the following Scope of Work.**

**Three Springs Pump Station**
2000 Kirsten Lee Drive
Interior pumps, valves, motor housing and pipe coating:

Electric motors will be prepared, completely primed and receive two (2) coats of epoxy in Ind. Gray.
Preparation will include removal of existing epoxy, grease/oil, rust, calcium and scale.
All grinders will be fitted for 3M sparkless grinding system with EDCO Hepa Vac. All surfaces will be clean, dry and coated with detail.
Prepare all piping for complete prime and two (2) finish coats of epoxy in custom Las Virgenes blue/ Cla-val Blue. Coating mil. thickness will be digitally measured to achieve 10 mils.
All electrical panels, switch gear, and instrumentation will be completely masked and isolated from dust particles and debris. Lock out procedures will be used if needed. We will pay special attention to electrical motors not to contaminate or allow coatings to damage the integrity of motor windings during the existing coating removal and re-coating process.
All areas not to receive epoxy will be protected, including but not limited to brass, stainless steel fittings and lines, gauges, electrical, actuators, badges and signage.
Any parts that are naturally corrosion resistant (i.e. copper, stainless, etc.) will be protected
All drains will be sealed to eliminate contamination from liquid, dust or debris from entering drains.
All specified nuts and bolts will be masked to mitigate damage to coating when regular maintenance is preformed and nuts and bolts are removed.
Stickers will be replaced with new OSHA compliant reflective stickers.
Applications will be stringently following manufactures specifications.
Using moisture tolerant products by Sherwin Williams:
Dura plate 301W Primer, Sher-loxane 800 Finish, Oxsol 100 R2KS1 thinner

**LABOR & MATERIALS TOTAL:** $ 17,850.00

APPROVAL SIGNATURE _____ DATE: _____

# Vital Coatings

2131 Anthony Drive, Ventura, CA 93003
CSLB: 1024136
Phone: (805) 701-7526

Las Virgenes Municipal Water District
Ken Kuhlman, Water Distribution Operator III
4232 Las Virgenes Road
Calabasas, CA 91302

kkuhlman@lvmwd.com

Date: 3/20/24

**We respectfully submit this proposal for the following Scope of Work.**

**Three Springs Pump Station**
2000 Kirsten Lee Drive
Exterior Doors and Vent Louvers:

Prepare two (2) doors (inside & out) and all vent louvers for complete prime and two (2) finish coats of urethane in custom Las Virgenes Pallet Tan.
Coating mil. thickness will be digitally measured to achieve 10 mils.
Preparation will include removal of existing epoxy, grease/oil, rust, calcium and scale.
All grinders will be fitted for 3M spark less grinding system with EDCO Hepa Vac.
All surfaces will be clean, dry and coated with detail.
All areas not to receive epoxy will be protected.
Any rusty areas will receive a converter before complete prime.
Any parts that are naturally corrosion resistant (i.e. copper, stainless, etc.) will be protected.

Applications will be stringently following manufactures specifications.
Using premium quality products by Sherwin Williams: Urethane

**LABOR & MATERIALS TOTAL:** $ 1,300.00

APPROVAL SIGNATURE

DATE:

# Vital Coatings

2131 Anthony Drive, Ventura, CA 93003
CSLB: 1024136
Phone: (805) 701-7526

Las Virgenes Municipal Water District
Ken Kuhlman, Water Distribution Operator III
4232 Las Virgenes Road
Calabasas, CA 91302

kkuhlman@lvmwd.com

Date: 3/20/24

**We respectfully submit this proposal for the following Scope of Work.**

**10 to 20 System Hydrants**
Located throughout the District

Prepare all hydrants for primer and two (2) finish coats of DTM in custom safety yellow.
Grass and dirt will be weed whipped/dug out around the flange.
Preparation will include removal of loose, chipping coating, grease/oil, rust, calcium and scale.
All grinders will be fitted for 3M sparkless grinding system with EDCO Hepa Vac.
All surfaces will be clean, dry and coated with detail.
Each hydrant will be spot primed and receive two (2) coats of DTM.
All areas not to receive DTM will be protected.
Trucks will be equipped with strobe lights and delineators will be used as needed.
Applications will be stringently following manufactures specifications.
Using premium quality products by Sherwin Williams: DTM
Each hydrant - $120.00

**LABOR & MATERIALS TOTAL:** $ 2,400.00

APPROVAL SIGNATURE

DATE:

# PREVAILING WAGE RATE SCHEDULE

Charges will be based on the following hourly rate schedule effective January 1, 2024 pending amendment/revision or through December 31, 2024.

| CONTRACTOR SERVICE | RATE | WEEKEND RATE | OVERTIME/HOLIDAY RATE |
|---|---|---|---|
| Time in providing services for painting and coating. | $125/hr. -Journeyman Painter<br>$72/hour – Apprentice<br>Truck, Tools/Equipment - $60/hr. | $187.50hr. - Journeyman Painter<br>$108/hour – Apprentice<br>Truck, Tools/Equipment - $60/hr. | $187.50/hr. - Journeyman Painter<br>$108/hour – Apprentice<br>Truck, Tools/Equipment - $60/hr. |

**Weekend:** Weekend rates will apply to shifts beginning at 5:00PM on Friday and ending at 7:00AM on Monday

**Break/Lunch:** A 15-minute paid break for every four hours worked with bathroom breaks, as needed. Work in excess of five hours/day entitles a 30-minute non-paid lunch.

**Orientation:** Rates listed above will be charged for all time spent in required work orientation.

**Overtime:** Overtime rates are charged for all hours worked in excess of 8 hours per day. The overtime rate is one and one-half times the regular billing rate for overtime hours.

**Holidays:** Holiday rates will apply to shifts beginning at 11:00PM the night before the holiday through 11:00PM the night of the holiday. Time and one-half will be charged for the following holidays:

| | |
|---|---|
| New Year's Eve | Independence Day |
| New Year's Day | Labor Day |
| Lincoln's Birthday | Veteran's Day |
| President's Day | Thanksgiving |
| Easter | Christmas Eve |
| Memorial Day | Christmas Day |

**Materials/Supplies:** Billed upon completion of work, at 15% over cost.

August 10, 2023

Vital Coatings, Inc.
2131 Anthony Dr.
Ventura, CA 93003

Reference: **SHERWIN-WILLIAMS CERTIFIED APPLICATOR LETTER**

To Whom It May Concern,

The Sherwin-Williams Company hereby confirms that Vital Coatings, Inc., headquartered at 2131 Anthony Drive Ventura, CA 93003 is certified applicator of the Sherwin-Williams Protective & Marine coatings listed below.

**B62 Series Dura-Plate 301 Moisture Tolerant Epoxy**

**B80 Series Sher-Loxane 800 Polysiloxane**

If you have any questions, please do not hesitate to contact me.

Regards,

Josh Skinner, PCS
Sr. Technical Sales Representative
The Sherwin-Williams Company
Protective & Marine Division
SSPC Protective Coatings Specialist PCS# 2020-205-036
SSPC Concrete Coating Inspector Level I – Certified, Cert. No. 92514
NACE Coating Inspector Level 2 – Certified, Cert. No. 59034
Cell: 805-258-8435
Email: josh.d.skinner@sherwin.com

Las Virgenes Municipal Water District
**Request for Quotes - Services**

*****Quote Due Date: March 20, 2024*****

**Description of Services Requested:**

Las Virgenes Municipal Water District is seeking quotes from firms interested in providing painting and coatings for the following facilities and appurtenances:

| | |
|---|---|
| McCoy Pump Station | 24282 Parkway Calabasas |
| Three Springs Pump Station | 2000 Kirsten Lee Drive |
| 10 to 20 System Hydrants | Located throughout the District |

1) The Las Virgenes Municipal Water District is located in Western Los Angeles County with headquarters at:
   4232 Las Virgenes Road
   Calabasas, CA 91302

2) The Las Virgenes Municipal Water District operates numerous pump stations and facilities related to the operation of its potable water system.
3) Services will be provided during normal business hours. Normal business operating hours are Monday through Friday between 7:30 am- 4:00 pm at all locations.
4) A mandatory job walk of said facilities and appurtenances will be conducted on March 13, 2024. The job walk will begin at District headquarters at 8:30 A.M. and will take approximately two hours to complete. Prospective vendors will need to provide their own transportation for the job walk.
5) Terms of the Agreement shall be for one (1) year with the option to renew said agreement for no more than four (4) years subject to price modifications that have been agreed upon by the District and Contractor pursuant to the provisions of these specifications.
6) A set inflation indicator shall be stated in the proposal. Pricing shall remain firm for the first (1) year, while renewal periods will be in increments of one-year using stated indicator and shall not exceed four renewal periods.

**Quote:**
It is intended that the successful firm will enter into a fixed price agreement with the District for the services requested in the **Scope of Work.**

**Scope of Work**

- Vendor shall prepare all piping, meters, valves and motor housing for complete priming of substrate and apply two (2) finish coats (minimum 10 mil thickness) of epoxy paint in colors approved by the District. (Exhibit A)
- All areas not receiving coatings will be protected from overspray including all fittings and lines (brass and stainless steel), gauges, electrical components, actuators, badges and identification signage.
- Preparation for coating will include removal of grease/oil, loose chipping and pealing epoxy, rust, calcium and scale.

- Grinders used in preparation for coating will be fitted for 3M spark less grinding system (or equivalent) with EDCO Hepa Vac.
- All surfaces will be clean and dry prior to application of the epoxy paint.
- Lead and Potable water certification.
- General knowledge of electrical motors and panels is recommended.
- Fire hydrants must be prepared by scraping and removing loose chips, peeling paint, rust, and scaling. Two coats of Safety Yellow paint will be applied to each hydrant to a (minimum 10 mil thickness) If appurtenances are included in the bid the preparation of them, they must be the same as fire hydrants. Two coats of paint will be applied as the finish with approval of the paint colors in advance by the District before applying them.

*[Quote Submittal Form on following page]*

**QUOTE SUBMITTAL FORM**

Vendor: _____

Vendor Contact (name): _____

Vendor Contact (telephone): _____

Vendor Contact (address): _____

_____

**1) McCoy Pump Station**

a. Interior pumps, valves, motor housing and pipe coating: $ _____.00

b. Exterior Surge Tank Coating and attached piping: $ _____.00

c. Exterior Doors and vent louvers: $ _____.00

**2) Three Springs Pump Station**

a. Interior pumps, valves, motor housing, and pipe coating: $ _____.00

b. Exterior Doors and vent louvers: $ _____.00

c. Other: $ _____.00

**3) 10 to 20 System Hydrants**

a. Hydrant Coating (Each): $ _____.00

b. Other: $ _____.00

**TOTAL PROJECT QUOTE: $ _____.00**

Pricing must include all fees; no additional charges will be allowed or considered.

Please submit a completed copy of this quote form by 5:00 p.m., March 20, 2024 and email to kkuhlman@lvmwd.com

Ken Kuhlman
Distribution Operator III
Las Virgenes Municipal Water District
4232 las Virgenes Road, Calabasas CA 91302
kkuhlman@lvmwd.com

A: Sherwin Williams Sher-Loxane 800 (2-part epoxy) Las Virgenes Blue/ Cla-Val Blue.

**AGENDA ITEM NO. 8.C**

**DATE:** June 4, 2024

**TO:** Board of Directors

**FROM:** Facilities and Operations

---

**SUBJECT: On-Call Pipeline Repair and Paving/Concrete Services: Contract Amendment**

---

**SUMMARY:**

On August 18, 2020, the Board awarded Toro Enterprises, Inc. (Toro) an agreement for on-call/as-needed pipeline repair and paving/concrete services, in the amount of $800,000, for an initial two-year term with up to two two-year renewal options. On August 18, 2022, the District exercised the first two-year renewal option, in the amount of $800,000, and on July 18, 2023, the Board approved an increase for the renewal term, in the amount of $682,154.26, due to an increase in pipeline failures during this time.

Due to several recent water main breaks, staff requests an additional increase, in the amount of $196,000, to cover the cost of work to-date, plus an additional $200,000 in funding to cover the remainder of the current term ending on August 17, 2024. If approved, the total contract amount for the current two-year term of August 18, 2022, through August 17, 2024, would be a total not-to-exceed amount of $1,878,154.26 for on-call pipeline repair and paving/concrete services. Staff also requests an increase to the not-to-exceed amount for the second two-year renewal option of August 18, 2024, through August 17, 2026, from $800,000 to $2,000,000, due to increased material and labor costs, and to position the District to be successful in responding to emergencies that may arise due to aging infrastructure.

**RECOMMENDATION(S):**

Authorize the General Manager to execute a contract amendment, in the amount of $396,000, with Toro Enterprises, Inc., to increase the not-to-exceed amount to $1,878,154.26 for the current two-year term; re-appropriate funding, in the amount of $264,000, from CIP No. 10785, and in the amount of $132,000, from CIP No. 10728 to cover the additional cost; and authorize an increase, in the amount of $1,200,000, for the second two-year renewal for a total not-to-exceed amount of $2,000,000 for on-call pipeline repair and paving/concrete services.

**FISCAL IMPACT:**

Yes

**ITEM BUDGETED:**

Yes

**FINANCIAL IMPACT:**

The total cost of this action for the current two-year contract term is $396,000. Sufficient funds are available for the work in the adopted Fiscal Year 2023-24 Budget. There is currently $264,000 available in CIP Project No. 10785, Potable Water System Rehabilitation for Fiscal Years 2022-24 Project, and $132,000 available in CIP No. 10728, Potable Water Pipe Rehabilitation and Replacement Project, for re-appropriation to cover the contract amendment for the current term. Funding necessary for the final two-year renewal option would be included in the proposed Fiscal Year 2024-26 Biennial Budget.

**DISCUSSION:**

On December 17, 2019, the Board authorized the issuance of two calls for bids: one for on-call pipeline repair and paving services and one for paving services only. The calls for bids were posted on June 8, 2020, and the bids were publicly opened on July 14, 2020. A single bid was received from Toro Enterprises, Inc. (Toro) that was responsive to the requirements for both solicitations. Based on a comparison of Toro's bid pricing with itemized costs for previous projects performed on an emergency or as-needed basis, staff determined that the bid pricing provided by Toro would result in a cost-savings to the District as compared to contracting for the services on a case-by-case basis.

The Board awarded Toro an agreement for on-call/as-needed pipeline repair and paving/concrete services on August 18, 2020. The agreement prescribed an initial two-year term with two optional two-year renewal terms for a maximum term of six years. The agreement is currently in the second year of the first renewal option of August 18, 2022, through August 17, 2024. The initial two-year renewal was in the amount of $800,000.

On July 18, 2023, the Board authorized an increase to the first two-year renewal contract term, in the amount of $82,154.26, for expenditures incurred during the first 10 months of the term due to an increase in pipeline failures at the time, and an additional $600,000 for the remainder of the renewal term. The total increase amount authorized was in the amount of $682,154.26. To date, there are limited funds remaining, in the amount of $16,195.14, on the current contract term.

Due to a water main break at Dry Canyon Cold Creek on January 13, 2024, a temporary highline was installed and work is still being performed for a 10-inch water main relocation where the existing pipeline is leaking beneath a customer's driveway. To date, $28,307.92 has been invoiced and paid for the work, and there is an additional $11,062.08 outstanding. The project is estimated to cost a total of $125,000 when completed.

As part of a separate incident, a massive sinkhole and severe erosion occurred near Iverson Road and Santa Susanna Pass. The damage resulted from a failed Caltrans culvert on January 11, 2023, and staff isolated the section of pipeline in the area. A temporary highline was installed to restore service to the affected customers. After a year of Caltrans reconstruction, Toro mobilized to replace the deep section of pipeline and restored normal water service to the area. The total cost of the repair to-date is $35,554.13.

On March 16, 2024, staff responded to a main break located on Stunt Road. A section of a 14-inch steel pipe failed at a custom fabricated welded joint. Staff needed Toro's assistance to provide shoring and a field welder to fabricate a new section of pipe. Service was restored without further problems. To-date, a total of $77,726.42 has been paid for the work.

As a result of these repairs, staff requests an increase to the contract, in the amount of $196,000, to cover these costs for work to-date, plus an additional $200,000 for the remainder of the current term ending on August 17, 2024. The total amount of the proposed increase is $396,000. With the increase, the total not-to-exceed amount for the two-year contract period would be $1,878,154.26.

Staff reviewed the history of the past main breaks and leaks, as well as the costs associated with these repairs for the renewal of the second two-year term of August 18, 2024, through August 17, 2026. Due to increased material and labor costs, as well as an aging infrastructure, staff also requests an increase to the total not-to-exceed amount for the second two-year renewal term of August 18, 2024, through August 17, 2026, from $800,000 to $2,000,000. The contract is based on time and material charges, and only those necessary costs incurred for emergency repairs would be paid by the District.

**GOALS:**

Construct, Manage and Maintain all Facilities and Provide Services to Assure System Reliability and Environmental Compatibility

Prepared by: Jim Korkosz, Facilities Manager

**AGENDA ITEM NO. 9.A**

**DATE:** June 4, 2024

**TO:** Board of Directors

**FROM:** Finance and Administration

---

**SUBJECT: Internal Audit Program: Results of Contract Management and Purchasing Audit, and Approval of Audit Work Plan for Fiscal Year 2024-25**

---

**SUMMARY:**

Maintaining and establishing proper internal controls is an essential element of District operations. These controls are put into place to safeguard the District's assets, ensure appropriate separation of duties and reduce the risk of fraud. The District has comprehensive policies and procedures that cover a wide range of topics from human capital management, financial management, purchasing, investing and debt management. On March 21, 2023, the Board was presented with the results of an enterprise-wide risk assessment. During Fiscal Year 2023-24, internal audits were completed on cyber security and IT vulnerabilities, and contract management and purchasing. As part of this item, Eide Bailly LLP will present the results of the contract management and purchasing audit. For Fiscal Year 2024-25, staff recommends completing audits on utility billing and business continuity/disaster recovery.

**RECOMMENDATION(S):**

Receive and file the Contract Management and Purchasing Audit Report, and authorize an amendment to the professional services agreement with Eide Bailly LLP, in the amount of $100,000, to complete the Fiscal Year 2024-25 Internal Audit Work Plan.

**FISCAL IMPACT:**

Yes

**ITEM BUDGETED:**

Yes

**FINANCIAL IMPACT:**

Sufficient funding for the proposed work is included in the proposed Fiscal Year 2024-25 Budget.

**DISCUSSION:**

At its meeting on September 20, 2022, the Board awarded a contract for internal audit services to Eide Bailly. The first step of the internal audit process was to complete an enterprise-wide risk assessment that was provided to the Board on March 21, 2023. The risk assessment identified several areas of focus for internal audits. On June 20, 2023, the Board approved the Fiscal Year 2023-24 audits of contract management and purchasing, and cybersecurity and information technology. On January 16, 2024, Eide Bailly LLP presented the Cyber Security and IT Vulnerability Assessment Audit Report.

Contract Management and Purchasing Audit:

The District's purchasing process is governed by Las Virgenes Municipal Water District Code, Title 2, Chapter 6, Article 4 as implemented via administrative purchasing procedures and internal controls programmed into the Tyler Enterprise ERP system (formerly Tyler Munis). Establishing and following government purchasing best practices ensures efficient and fair use of rate payer provided resources.

The District has a decentralized purchasing process whereby the Finance and Administration Department provides overall guidance to the purchasing process, manages formal bids for goods, and manages the District's warehouse. Each department and division solicits proposals for contractual and professional services and manages the resulting contracts. The contract management and purchasing audit will review the District's decentralized processes and procedures to ensure that proper internal controls are in place, incorporate industry best practices, and comply with applicable laws.

Eide Bailly LLP has completed its review of the District's contract management and purchasing. The attached report summarizes the audit's findings and presents staff's responses and plan to implement identified improvements.

Business Continuity and Disaster Recovery Audit:

The District faces numerous risks that could affect its operations including, but not limited to, wildfires, earthquakes, power disruption, and cyber risk. The proposed business continuity and disaster recovery audit will assess the District's preparedness to recover from business disruptions and continue service or to restore service as quickly as possible to return to normal operations. A detailed proposal of this work effort is attached.

Utility Billing:

Utility billing is the District's largest source of funding, representing approximately 92 percent of total revenue. The efficient and effective collection of billing revenue is a vital business process to ensure adequate resources to deliver services to the community. A detailed proposal for the utility billing audit is attached.

Prepared by: Donald Patterson, Director of Finance and Administration

**ATTACHMENTS:**
Contract Management and Purchasing Audit Report
LVMWD BCDR Audit Program

Utility Billing Audit Program

## Contract Management and Purchasing Review

April 2024

# LAS VIRGENES MUNICIPAL WATER DISTRICT

**Submitted By:**

Eide Bailly LLP

eidebailly.com

# TABLE OF CONTENTS



## Executive Summary

Eide Bailly LLP (we, our or us) was engaged by the Las Virgenes Municipal Water District (LVMWD, District) to perform a review of the contract management and purchasing processes. This engagement came at the request of LVMWD leadership to evaluate the effectiveness of the District's internal controls over professional services and construction related contract purchasing and management. Additionally, we assessed compliance with established procure-to-pay policies and procedures, focusing on bidding, contracts management, vendor management and procurement processes.

The contracts and purchasing review included an assessment of whether contracts are appropriately approved; that bid and award process, execution, and administration of contracts, change order procedures, management reporting, and budget control follows applicable laws, rules and regulations, District policies and procedures, and construction agreements. Lastly, the engagement assessed inventory management to determine whether adequate controls existed to ensure accuracy and completeness of inventory records and determined whether purchasing cards (P-cards) are appropriately authorized, transactions properly processed and administered in accordance with the established policies and procedures.

Overall, LVMWD has an effective system of internal controls surrounding professional services, construction related contracts, and P-cards. The District procures goods and services in compliance with established policy throughout the purchasing cycle. Contracts are appropriately approved, inventory records are complete and accurate, and P-cards were utilized in accordance with policies and procedures.

To assist in enhancing the administration of contracts and the purchasing process, we have identified two (2) findings and two (2) observations, which provide LVMWD with opportunities for improvement and increasing the efficiency and effectiveness of LVMWD's operations.

We extend our gratitude to LVMWD's management and personnel for their valuable input and cooperation, which significantly enhanced our understanding of the contract management and purchasing processes.

## Background Information

To effectively manage and provide essential water services, LVMWD engages in a wide array of purchasing and contracting activities. These include the development and maintenance of its infrastructure, requiring contracts for the construction, maintenance, and repair of water-related facilities. It also involves the procurement of essential water supply and treatment resources, such as chemicals and equipment, along with investments in technology and software solutions for efficient system management. The District's commitment extends to contracts for equipment and machinery, energy services, and routine maintenance work, ensuring the operational integrity of its water distribution systems. Furthermore, LVMWD enters contracts that support environmental initiatives, conservation efforts, research and development, and emergency response services, ensuring preparedness for unexpected events.

## Objective & Scope

The objective of the engagement was to evaluate whether the District has an effective system of internal controls surrounding professional services and construction related contracts for effective purchasing and management of contracts. Assess whether contracts are appropriately approved; that bid and award process, execution, and administration of contracts, change order procedures, management reporting, and budget control follow applicable laws, rules and regulations, District policies and procedures, and construction agreements. Additionally, to determine whether the District procures goods and services in compliance with established procure-to-pay policies and procedures for the following areas: bidding process, contracts management, vendor

management and procurement process. Additionally, to assess inventory management to determine whether adequate controls exist to ensure accuracy and completeness of inventory records, accountability for inventory transactions, and safeguarding of inventory. Lastly, to determine whether P-cards have been utilized and transactions properly processed and accounted for in accordance with the policies and procedures established for the Districts P-card program.

The scope of the engagement included an examination of contracts and purchases from July 1, 2022, to April 2024. While the review period extends to the current date, any contracts or purchases finalized after the commencement of our review may not be included in our final analysis.

Our engagement was performed under the Statements on Standards for Consulting Services issued by the American Institute of Certified Public Accountants (AICPA). We did not provide audit, review, compilation or financial statement preparation services to any historical or prospective financial information or provide attestation services under the AICPA Statements on Standards for Attestation Engagements and assume no responsibility for any such information.

## Methodology

Based on the above objectives, the engagement required a variety of audit methodologies, including document review, interviews with key personnel, data analysis, and sampling of transactions for detailed examination. These methods were chosen to provide a comprehensive understanding of the District's contractual and purchasing practices, identify areas for improvement, and assess the overall effectiveness of internal controls.

1. **General:**
   A detailed assessment was conducted on a sample of accepted bids, with a thorough examination of the documentation associated with these contracts. This process entailed verifying the necessary approvals were obtained, confirming the availability of sufficient budget at the time of contract award, and assessing the functionality of key controls to ensure they were operating as intended.
2. **Change Orders:**
   Reviewed and evaluated the controls over change orders, ensuring that key controls are operating as intended.
3. **Administration and Monitoring of Contracts:**
   Reviewed the quality assurance procedures for measuring physical construction activity and confirming that the construction adhered to the terms outlined in the contract.
4. **Purchasing and Payables:**
   Assessed the process for reviewing and approving new vendors, as well as changes to the Vendor Master File. Additionally, we conducted thorough testing on selected purchasing transactions to evaluate the functionality and effectiveness of key controls.
5. **Inventory Management:**
   Assessed the controls surrounding inventory management to verify the accuracy, completeness, and safeguarding of inventory records. This also included evaluating the accountability for inventory transactions.
6. **Purchasing Card Program:**
   Analyzed the use of Purchasing Cards (P-cards) within the District, focusing on the internal controls in preventing duplicate payments, proper authorization, processing, and reconciliation of transactions to ensure they comply with the established P-card program policies and procedures. Selected a sample and determined that cardholders and credit limits are appropriate to their needs.

# Results of Contracts and Purchasing Review

The LVMWD has established a framework around its contract management and purchasing operations, ensuring that these processes are not only effective and efficient but also that operations are executed with timeliness, completeness, and accuracy. This structured approach has created a solid foundation for the District's ongoing activities and strategic objectives in these areas.

We identified two (2) findings and two (2) observations that, while not detracting from the overall effectiveness of the current processes, present LVMWD with opportunities for further enhancement. These insights are aimed at refining and improving the efficiency and effectiveness of the District's contract management and purchasing functions, while fostering an environment of continuous improvement. Below is a summary of these findings and observations, accompanied by our recommendations:

### FINDING #1 – Purchasing Manual Updates

During our review of the current purchasing practices, we noted that the purchasing manual does not include provisions for waiving the competitive purchasing process. This omission poses a risk to the District, as it may lead to potential delays and inefficiencies in situations where urgent procurement needs arise, and the competitive bidding process is impractical or unnecessary.

We identified that the district has multiple undefined avenues for waiving the competitive process compared to other governmental agencies. The avenues include sole source, unique expertise, proprietary, purchase is for a trial or testing, repeat purchase, or piggybacking from an existing competitively bid contract, which should each be clearly defined in the purchasing manual. It is important to establish clear criteria for when competitive bidding can be waived, ensuring that decisions are based on legitimate reasons.

**Recommendation**

To mitigate the risks associated with this gap, we recommend that the District undertake one of the following actions: either revise the existing purchasing manual or develop a new policy to introduce a formal procedure for waiving the competitive purchasing process under certain valid circumstances.

We recommend that the district reevaluate its criteria for granting waivers and level of approvals needed in order to waive the bidding process. Waivers should be used sparingly and only when justified, especially for sole-sourced vendors or in emergency situations. This update should include:

1. **Clear Guidelines and Criteria –** Outline the specific conditions under which a waiver of the competitive purchasing process can be considered. This should detail the justification required, including but not limited to urgent and unforeseeable circumstances where time or the unique nature of the requirement prevents the use of competitive bidding.
2. **Documentation Requirements –** Establish a standardized process for initiating, reviewing, and approving waivers. This should include the use of a "Waiver of Competitive Purchase Form" that captures all necessary information, such as the nature of the purchase, the reasons for the waiver, and any supporting documentation.
3. **Training and Awareness –** Hold training sessions or workshops for all procurement and relevant staff. This training should cover the updates to the purchasing manual, including the waiver process, criteria for waivers, and the importance of adhering to these guidelines to maintain transparency and integrity in the District's procurement activities.

**Management Response**

The purchasing manual will be revised to include the above recommendations by 6/30/2024. The Finance Manager and Purchasing Supervisor will be responsible for updating the purchasing manual and

providing the applicable training to relevant staff.

### FINDING #2 – Attach Board Meeting Minutes

In our review of the contract approval process within the Tyler Munis system, it was observed that although the agendas for board meetings are attached to the contracts, the meeting minutes, which provide details of discussions and actions taken, are not consistently included. This inconsistency leads to a risk of incomplete documentation and may lead to discrepancies between agenda items and actual decisions made during the board meetings.

**Recommendation**

To mitigate the risk associated with this finding, we recommend the following corrective actions: Update the documentation procedures for contract approvals within the Tyler Munis system to include the meeting minutes along with the meeting agenda. Create and distribute guidelines to staff members responsible for updating contract records, including the requirement to attach both the agenda and meeting minutes for each board meeting where contract approvals are discussed and finalized. Conduct training sessions for all relevant personnel involved in the process, emphasizing the importance of accurate and complete documentation. Perform periodic monitoring of contract records for compliance with documentation requirements to ensure that the practice of attaching both the meeting agendas and minutes become standards practice.

**Management Response**

The above recommendation will be implemented by 6/30/2024. The Finance Manager and Purchasing Supervisor will be responsible for creating and distributing guidelines to staff responsible for updating contract records to ensure board meeting minutes notating contract approval are included with the meeting agenda.

### OBSERVATION #1 – Removing Inactive Vendors

Our assessment of the vendor management processes highlighted an opportunity for improvement within the Tyler Munis system. Specifically, we noted the absence of established guidelines or procedures for removing inactive vendors from the system after a certain period. This lack of defined protocols may lead to challenges in accurately identifying and managing active vendors, as the database accumulates an increasing amount of inactive data, potentially resulting in inaccurate record-keeping practices.

**Recommendation**

Develop and implement a systematic process for identifying and removing inactive vendors from Tyler Munis. This process should define the criteria used to determine the status of inactive vendors. Develop procedures for conducting period reviews to identify and deactivate inactive vendors that meet the criteria. Documented procedures will support accountability and compliance with vendor management guidelines.

**Management Response**

A systematic process for identifying and removing inactive vendors from Tyler Munis will be implemented by 6/30/2024. The Finance Manager and Purchasing Supervisor will be responsible for implementing this recommendation.

### OBSERVATION #2 – Procurement Card Utilization

Our assessment uncovered an opportunity to enhance the efficiency and effectiveness of P-Card utilization within LVMWD. Specifically, we observed variations in the frequency of P-Card usage across different departments, indicating potential underutilization of cards in certain areas. Additionally, upon reviewing a sample selection, it was noted that some individuals had minimal or no transactional activity during the timeframe reviewed, suggesting the possibility of these individuals expensing their purchases rather than utilizing their P-Cards.

Transitioning from P-Cards to expense reimbursements presents several advantages, including potential cost savings. P-Card administration and maintenance involve expenses such as annual fees and cardholder training. By shifting to expense reimbursements, these costs can be eliminated or reduced. Additionally, there is the potential for reduced fraud risks. Expense reimbursement processes typically incorporate verification and approval steps, thereby reducing the risk of fraudulent transactions compared to P-Card usage. Lastly, transitioning can lead to more simplified accounting. Expense reimbursements streamline accounting processes by consolidating all expenses into a single reimbursement system, simplifying reconciliation, and reporting tasks.

**Recommendation**

To address these observations and optimize P-Card utilization, we recommend that LVMWD perform an evaluation of the business need for each P-Card, considering factors such as transactional volume and operational requirements. Assess the frequency of P-Card usage within different departments to identify any areas or opportunities for consolidation of cards where necessary. Perform a review of the titles and roles of existing cardholders to ensure alignment with their responsibilities and transactional volume. Evaluate whether transitioning to expense reimbursements would be more suitable. Consolidating P-Cards where appropriate, based on the evaluation of business needs and departmental usage, can streamline administration, reduce costs associated with card maintenance and training, and improve overall efficiency.

**Management Response**

The Purchasing Supervisor will be responsible for performing a transactional volume analysis for P card usage to determine if any cards should be consolidated by 6/30/2024. The Finance Manager will review the analysis and work with the Director of Finance and Administration to determine if it is necessary to inactivate any cards due to lack of use.

# LVMWD
# Business Continuity & Disaster Recovery (BCDR)
# Audit Program

**Statement of Work:**
This letter is to outline the understanding of the services that Eide Bailly LLP (Eide Bailly) will provide Las Virgenes Municipal Water District (LVMWD) under Professional Services Contract dated October 20, 2022 for FY24 Internal Auditing Services.

**Fees:**
Our fees are based on the complexity of the issue and the experience level of the staff members necessary to address it and are inclusive of project management and management oversight. If you request additional services, we will obtain your agreement on fees before commencing work so there are no surprises or hidden fees. We propose the following **estimated fees of $35,000.** This is based on our understanding of the scope of work and the level of involvement of LVMWD staff.

**Objectives:**

A. **Assess the adequacy and effectiveness of LVMWD's preparedness and response mechanisms** in the event of disruptive incidents or disasters, including evaluating incident detection, response time, communication protocols, and overall crisis management strategies.

B. **Evaluate the effectiveness of LVMWD's mitigation strategies** and contingency plans in response to various disaster scenarios, focusing on the ability to minimize downtime, reduce losses, and maintain critical operations during and after a disaster.

C. **Identify opportunities for improving testing protocols and readiness** of the plans, including recommendations for addressing control gaps and ineffective control design, or operation weaknesses. This will include assessing the training and awareness programs for employees involved in disaster recovery.

D. **Assess the adequacy of improvements planned by management** to address identified issues, ensuring they are comprehensive, feasible, and aligned with best practices and industry standards in disaster recovery and business continuity.

| Audit Approach |
|---|
| 1. Obtain and review the Business Continuity Plan (BCP) that outlines strategies and procedures for maintaining essential functions during a crisis, including recovery time objectives (RTOs) and recovery point objectives (RPOs) for critical processes and systems. Assess the effectiveness of mitigation strategies in reducing the impact of disasters. |
| 2. Obtain and review the Business Impact Analysis (BIA) scope, including the business units, processes, systems and resources identified. Assess the accuracy and completeness of BIA documentation. |
| 3. Obtain and review application and system architecture for redundancy and failover capabilities. Including, the adequacy of alternate locations for supporting business operations during disruptions. Review backup procedures and systems for critical data and applications. |

| |
|---|
| 4. Evaluate the established relationships with suppliers and vendors to ensure continuity of critical services, products, and supplies during disruption. Assess the contingency plans for alternative suppliers. |
| 5. Obtain and review the disaster recovery plan (DRP) and assess the effectiveness on restoring IT systems, data, and infrastructure after a disruptive event. Identify and assess the procedures for data backup, restoration, failover, and recovery. Review testing protocols for DRP, including simulation exercises and drills. |
| 6. Obtain and review the existing business continuity and disaster recovery (BCDR) plan policies and procedures in place. Ensure compliance with regulatory requirements and industry standards related to BCDR. Ensure the establishment of governance structures and policies for overseeing BCDR initiatives, risk management, and compliance. |
| 7. Evaluate previous audit findings related to BCDR, where applicable to identify areas for improvement. |
| 8. Identify key stakeholders responsible for BCDR planning, including IT personnel, department heads, and senior management. Interview identified individuals to gain an understanding of the processes (e.g., frequency of BCDR updates). |
| 9. Evaluate the effectiveness of emergency response plans, incident detection systems, communication protocols, and response times. Assess communication systems and procedures for alerting and notifying personnel during emergencies. |
| 10. Evaluate management's procedures for implementing improvements in response to identified issues. Determine the adequacy and feasibility of improvement initiatives. |
| 11. Evaluate the readiness of personnel through training and awareness programs. |

# LVMWD
# Utility Billing – Audit Program

**Statement of Work:**
This letter is to outline the understanding of the services that Eide Bailly LLP (Eide Bailly) will provide Las Virgenes Municipal Water District (LVMWD) under Professional Services Contract dated October 20, 2022 for FY24 Internal Auditing Services.

**Fees:**
Our fees are based on the complexity of the issue and the experience level of the staff members necessary to address it and are inclusive of project management and management oversight. If you request additional services, we will obtain your agreement on fees before commencing work so there are no surprises or hidden fees. We propose the following **estimated fees of $65,000.** This is based on our understanding of the scope of work and the level of involvement of LVMWD staff.

**Objectives:**

A. Determine if the internal controls over the utility billing process are adequate and if customers are being billed in compliance with LVMWD Code and internal policies and procedures. Evaluate the internal controls and operational efficiency and effectiveness related to billing, accounts receivable, collections, refunds and adjustments.
B. Identify opportunities for improving utility billing controls, including recommendations for addressing control gaps and ineffective control design or operation.

| **Audit Procedures** |
|---|
| 1. Obtain and review LVMWD Code, internal policies, procedures, workflows, customer classification (e.g., commercial, residential), utility billing rates, financial reports, monitoring reports, organizational staffing related to understand the regulatory and control requirements. |
| 2. Conduct interviews of key stakeholders, such as billing staff, accountants, and management to assess current processes, systems, controls, and challenges. |
| 3. Identify and assess risks associated with utility billing operations, including billing inaccuracies, regulatory non-compliance, fraud risks, and operational inefficiencies. |
| 4. Verify compliance with the LVMWD Code, industry regulations, and internal policies governing utility billing processes. |
| **Meter Reading** |
| 5. Review procedures for meter reading validation to ensure that meter readings are accurately recorded and validated against previous readings and historical consumption data. Verify that any discrepancies or anomalies in meter readings are promptly investigated and resolved. |
| **Customer Data** |
| 6. Evaluate procedures for maintaining customer data, including updates to customer accounts, changes in billing addresses, and customer classifications. Verify that customer data is accurate, up-to-date, and appropriately secured, mitigating the risk of unauthorized access, disclosure, or misuse of sensitive data. |

| Billing |
| --- |
| 7. Select a sample of utility billing transactions and trace them through the billing process to ensure that control activities such as invoice generation, meter reading validation, and rate calculations are performed accurately and in accordance with established procedures. Review supporting documentation, such as meter readings, customer records, and billing calculations, to verify the accuracy and completeness of billing transactions |
| 8. Select a sample of invoices and verify that they are accurately generated based on meter readings, customer classifications, and applicable rates. Confirm that adjustments and refunds are properly authorized, documented, and processed in accordance with established procedures. Check for proper documentation and approval of billing adjustments, discounts, and adjustments to ensure accuracy and compliance with policies. |
| 9. Evaluate procedures for handling billing exceptions, such as disputed charges, billing errors, and late payments. Verify that there are clear guidelines and escalation procedures for resolving billing disputes and addressing exceptional billing situations. |
| 10. Review monitoring reports, exception reports, and management reviews related to utility billing to assess the effectiveness of ongoing monitoring and oversight activities. Verify that management reviews billing performance metrics, trends, and compliance with established targets and benchmarks. |
| 11. Review usage on vacant accounts (inactive accounts) and associated processes and controls for detecting vacant accounts in a timely manner. Evaluate the effectiveness of detection process and controls through documentation review and interviews with relevant personnel. |
| 12. Evaluate the effectiveness of the utility service disconnection process by reviewing the adequacy of documentation supporting disconnection requests and assessing the timeliness of disconnection actions |
| 13. Verify the effectiveness of querying the billing system data for anomalies, particularly instances of zero consumption, ensuring accurate billing and prompt identification of irregularities. |
| **Accounts Receivable** |
| 14. Review payment processing procedures to ensure that payments received are accurately recorded, applied to the correct customer accounts, and reconciled with billing statements. |
| 15. Evaluate collections procedures to verify that overdue accounts are identified, escalated, and managed in accordance with established policies and regulations. |
| 16. Assess whether supervisors conduct periodic reviews of accounts receivable (AR) balances and ensure timely collection of outstanding amounts, aiming to maintain financial health, optimize cash flow, and minimize the risk of bad debt. |
| 17. Determine whether penalties and interest are appropriately assessed on delinquent accounts or late payments in accordance with applicable laws and regulations, aiming to ensure compliance, fair treatment of customers, and maximization of revenue recovery. |
| 18. Evaluate the payment receipt processes for checks and money orders to ensure compliance with internal policies to mitigate the risk of unauthorized endorsements or misuse of funds. |
| 19. Examine refund processes to ensure that refunds are authorized, documented, and processed accurately and promptly in response to customer requests or billing errors. |
| 20. Verify that adjustments to billing accounts, including voids, corrections, and write-offs, are properly authorized, documented, and reviewed for accuracy and compliance. |

| Segregation of Duties |
| --- |
| 21. Verify that duties related to utility billing, such as billing generation, collections, and financial reconciliation, are appropriately segregated to prevent conflicts of interest and reduce the risk of errors or fraud. Test whether individuals performing billing activities are different from those handling collections or general ledger posting. |
| 22. Ensure independent oversight, control, and accounting of cash handling responsibilities, maintaining the integrity of cash transactions in accordance with internal controls and policies. |
| 23. Verify that adjustments, including voids and refunds, are approved, and documented by individuals independent of those who initiated the adjustments, ensuring accountability and transparency. |
| 24. Verify that billing invoices are subject to independent verification for accuracy, ensuring reliability, completeness, and adherence to billing standards and acceptable internal controls. |
| 25. Determine whether adequate procedures are in place to prevent unauthorized interception or alteration of billing invoices, safeguarding the integrity and confidentiality of billing information, and minimizing the risk of fraud or unauthorized access. |
| 26. Ensure that billing disputes are handled by staff who are independent of receivables record keeping, thereby maintaining objectivity, integrity, and transparency in the dispute resolution process |
| 27. Ensure that senior staff not involved in collection functions formally approve write-offs or reductions of receivables, promoting accountability and transparency. |

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**AGENDA ITEM NO. 10.A**

**DATE:** June 4, 2024

**TO:** Board of Directors

**FROM:** Engineering and External Affairs

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**SUBJECT: City of Calabasas Bark Park Butterfly Garden and Micro-Forest Planting: Memorandum of Understanding**

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## SUMMARY:

The Malibu Foundation proposed a tri-party collaboration at the Calabasas Bark Park with the City of Calabasas and the District to build a butterfly garden and micro-forest with virtually no cost to the District. The project consists of two phases with Phase 1 establishing a butterfly garden (9,751 square feet) via a partnership between the District, the Malibu Foundation and the City of Calabasas. Phase 2 would involve establishing a micro-forest (7,420 square feet) through collaboration between the District and the Malibu Foundation only. The collaborative project would serve to promote local biodiversity, native and climate appropriate gardens, and water use efficiency in a high profile public space. Success of the project would inspire the future addition of other demonstration and micro-forest gardens in the District's service area.

## RECOMMENDATION(S):

Authorize the General Manager to execute a Memorandum of Understanding with the City of Calabasas and the Malibu Foundation for the planting of a butterfly garden and micro-forest at the Calabasas Bark Park.

## FINANCIAL IMPACT:

If necessary, the District would work cooperatively with the City of Calabasas to ensure water budget allocations for recycled water metered accounts are sufficient for plant establishment and long-term care. During Phase 2, which would involve the establishment of the micro-forest, the District would be responsible for irrigation costs associated with plant establishment, which are estimated to be an additional five to ten units of recycled water per month (only during dry period of the year), equating to an additional $189 annually in recycled water irrigation costs. Additionally, minor repairs would be necessary for existing irrigation in the area that was damaged by the Woolsey Fire. Sufficient funds are available for the work in the adopted Fiscal Year 2023-24 Budget.

## DISCUSSION:

The Malibu Foundation was founded shortly after the 2018 Woolsey Fire to provide financial support to community members in need, while rebuilding the community to become more prepared and resilient for future extreme weather events. The Malibu Foundation achieves its goals by implementing programs that strategically integrate fire prevention, emergency preparedness, and nature-based solutions, which help mitigate factors that exacerbate extreme weather events. The Malibu Foundation proposed a tri-party collaboration at the Calabasas Bark Park amongst the City of Calabasas, the District, and itself, to implement a butterfly garden and micro-forest. The project site would create a local ecosystem that would increase biodiversity, sequester more carbon, and restore soil, while reducing temperatures, promoting native plants and water efficiency, and beautifying District owned property. The Malibu Foundation has recently completed a similar project at De Anza Park, located in Calabasas, with much success (see attached photographs).

Phase 1 would establish a butterfly garden (9,751 square feet – refer to Exhibit A of the Memorandum of Understanding (MOU), and is in partnership with the District, the Malibu Foundation, and the City of Calabasas. Phase 2 would establish a micro-forest (7,420 square feet), and is in collaboration with the District and the Malibu Foundation only. While the butterfly garden primarily consists of pollinator plants, the micro-forest consists of more trees that would help stabilize a portion of the hill adjacent to the Bark Park.

The District would provide design and implementation guidance for Phase 1 and Phase 2 of the project, and ensure that the water budget allocation is sufficient for plant establishment and long-term care. The Malibu Foundation would provide locally sourced native seedlings, soil testing, recruitment and training of volunteers for the planting event, and maintenance and replacement of plantings for up to 12 months. The District would require all volunteers to complete a Release, Waiver of Liability, and Indemnity Agreement. The City of Calabasas would maintain plantings for Phase 1 at the project site with existing irrigation and maintenance practices into perpetuity.

Phase 2 would require the District to re-establish recycled water irrigation infrastructure to the site area before planting could occur. This project is located on District property and would serve to model, on a small scale, the concept of planting a micro-forest with high diversity that includes the use of native shrubs with a combination of canopy trees and smaller trees. Once the MOU is executed, staff would work with the project partners to plan and implement both phases for formal completion by the end of 2024.

Attached for reference is the proposed MOU, which includes a scope of work for each partner and phase along with site maps.

**GOALS:**

Ensure Effective Utilization of the Public's Assets and Money

Prepared by:  Cindy Chau, Management Analyst

**ATTACHMENTS:**
DeAnza Park Photos
Proposed Memorandum of Understanding

DeAnza Park immediately after planting of the micro forest in November 2023:


DeAnza Park recently after 5 months of establishment:

# TRI PARTY MEMORANDUM OF UNDERSTANDING BETWEEN THE LAS VIRGENES MUNICIPAL WATER DISTRICT AND MALIBU FOUNDATION AND CITY OF CALABASAS FOR NATIVE PLANTINGS AT 4232 LAS VIRGENES ROAD BARK PARK

THIS MEMORANDUM OF UNDERSTANDING (herein "MOU") is made and entered into this _____ day of _____, 2024, by and between the LAS VIRGENES MUNICIPAL WATER DISTRICT (herein "District"), the City of Calabasas (herein "City"), and the Malibu Foundation (herein “Foundation”). The Parties will be (herein “Partners”).

NOW, THEREFORE, the parties hereto agree as follows:

## 1.0 MUTUAL OBLIGATIONS

1.1 Foundation Obligations. The Foundation agrees to provide seedlings from locally sourced native seeds and conduct soil testing prior to, and periodically after, planting at the location set forth as Exhibit “B”, attached hereto and incorporated herein (the “Project Site”), and in accordance with the Scope of Work attached hereto as Exhibit “A” and incorporated herein. The Foundation shall also recruit and train volunteer(s) to plant and water on the planting day and also provide and execute a thorough plan to maintain and replace plantings for up to 12 months in alignment with City maintenance requirements.

1.2 District Obligations. The District shall provide design and implementation guidance for Phase 1 and Phase 2 of the butterfly garden and micro forest plantings at the Project Site and in accordance with Exhibit “A”. District will work cooperatively with the City to ensure account water budget allocation is sufficient for plant establishment and long-term care.

1.3 City Obligations. After the initial planting event, the City will maintain plants at the Project Site with existing irrigation and maintenance practices in the butterfly garden in accordance with Exhibit “A”. The City agrees to maintain plantings at the Project Site in perpetuity.

## 2.0 TOTAL COMPENSATION

The Foundation will provide in-kind donations of seedlings, native plants, trees, signage, protective fencing, and volunteer support for plant care. The District agrees, if necessary, to provide a water budget variance for the irrigation meter account that services planted area to ensure water budget allocation is sufficient for plant establishment and long-term care. The City agrees to provide in-kind contributions for ongoing maintenance and pay for irrigation costs.

## 3.0 COORDINATION OF WORK

3.1 Representatives of District, City and Foundation. The following person is hereby designated as the representative of each Partner and is authorized to act on its behalf with respect to this MOU and make all decisions in connection therewith:

Craig Jones, LVMWD Resource Conservation Manager
4232 Las Virgenes Road
Calabasas CA, 91302

Heather Melton, Landscape Manager – City of Calabasas
100 Civic Center Way
Calabasas, CA, 91302

Evelyn Weber – Executive Director- Malibu Foundation
8383 Wilshire Blvd
Beverly Hills, CA 90211

3.2 Independent Contractor. No individual Partner, nor any of that Partner's agents or employees, shall have any control over the manner, mode or means by which any other Partner, its agents, or employees, perform the services required herein, except as otherwise set forth.

## 4.0 TERM

4.1 Term. This MOU shall continue in full force and effect until December 31, 2027 ("Termination Date").

## 5.0 MISCELLANEOUS

5.1 Non-liability of Partner Officers and Employees. No officer, official, employee, agent, representative, or volunteer of any Partner shall be personally liable to any other Partner, or any successor in interest, in the event of any default or breach by a Partner or for any amount which may become due to a Partner or to its successor, or for breach of any obligation of the terms of this MOU.

5.2 Notice. Unless otherwise provided herein, all notices required to be delivered under this Agreement or under applicable law shall be (i) personally delivered, or (ii) delivered by United States mail, prepaid, certified, return receipt requested, or (iii) delivered by reputable document delivery service that provides a receipt showing date and time of delivery. Notices personally delivered or delivered by a document delivery service shall be effective upon receipt. Notices delivered by mail shall be effective at 5:00 p.m. on the second calendar day following dispatch.

Notices shall be delivered to the Representatives at the addresses set forth in Section 3, above.

Any Partner may change the address for receipt of notices to that Partner by written notice delivered in compliance with this Section.

5.3 Interpretation; California Law. The terms of this MOU shall be construed in accordance with the meaning of the language used and shall not be construed for or against any Partner by reason of the authorship of this MOU or any other rule of construction which might otherwise apply. This MOU shall be construed and interpreted both as to validity and to performance of the parties in accordance with the laws of the State of California.

5.4 Integration; Amendment. It is understood that there are no oral agreements between the Partners hereto affecting this MOU and this MOU supersedes and cancels any and all previous negotiations, arrangements, agreements and understandings, if any, between the Partners related to the subject matter herein, and none shall be used to interpret this MOU. This MOU may be amended at any time by the mutual consent of the Partners by an instrument in writing.

5.5 Severability. In the event that part of this MOU shall be declared invalid or unenforceable by a valid judgment or decree of a court of competent jurisdiction, such invalidity or unenforceability shall not affect any of the remaining portions of this MOU which are hereby declared as severable and shall be interpreted to carry out the intent of the Partners hereunder unless the invalid provision is so material that its invalidity deprives either party of the basic benefit of their bargain or renders this MOU meaningless.

5.6 Waiver. No delay or omission in the exercise of any right or remedy by a nondefaulting Partner on any default shall impair such right or remedy or be construed as a waiver. A Partner's consent to or approval of any act by another Partner requiring the Partner's consent or approval shall not be deemed to waive or render unnecessary, another Partner's consent to or approval of any subsequent act. Any waiver by any Partner of any default must be in writing and shall not be a waiver of any other default concerning the same or any other provision of this MOU.

5.7 Litigation Matters. If any Partner to this MOU is required to initiate or defend or made a party to any action or proceeding in any way connected with this MOU, the prevailing party in such action or proceeding, in addition to any other relief which may be granted, whether legal or equitable, shall be entitled to its expert witness fees and its reasonable attorney's fees, whether or not the matter proceeds to judgment. Legal actions concerning any dispute, claim or matter arising out of or in relation to this MOU shall be instituted in the Superior Court of the County of Los Angeles, State of California, or any other appropriate court in such county, and the Partners covenants and agrees to submit to the personal jurisdiction of such court in the event of such action. Service of process on District shall be made in the manner required by law for service on a public entity. Service of process on Partners shall be made in any manner permitted by law and shall be effective whether served inside or outside of California.

5.8 Corporate Authority. The person(s) executing this MOU on behalf of the Partners hereto warrant that (i) such Partner is duly organized and existing, (ii) they are duly authorized to execute and deliver this MOU on behalf of said Partner, (iii) by so executing this MOU, such Partner is formally bound to the provisions of this MOU, and (iv)

the entering into this MOU does not violate any provision of any other Agreement to which said Partner is bound.

[end - signature page and exhibits follow]

IN WITNESS WHEREOF, the Partners have executed and entered into this Agreement as of the date first written above.

**District:**

Las Virgenes Municipal Water District

_____

APPROVED AS TO FORM:
Aleshire & Wynder, LLP

_____

**City of Calabasas**

By: _____

Title: _____

By: _____

Title: _____

**The Malibu Foundation**

By: _____

Title: _____

By: _____

Title: _____

*(Agreement cannot be accepted from corporations without signatures from (2) corporate officers)*

[END OF SIGNATURES]

**EXHIBIT A**
**SCOPE OF WORK**

**PHASE 1 – BUTTERFLY GARDEN**

| | Malibu Foundation | Las Virgenes Municipal Water District | City of Calabasas |
|---|---|---|---|
| **Native Plants** | Provide seedlings from locally-sourced seeds. | (Optional) Give input into plant selection. | (Optional) Give input into plant selection. |
| **Soil Testing** | Test soil prior to planting and periodically after planting. | | |
| **Preparation and Planting** | Prepare site by pulling invasive weeds and applying mulch. Recruit volunteers for planting day, provide guidance and supervision. | | |
| **Maintenance** | Provide a thorough maintenance plan. Recruit and train volunteers for ongoing maintenance. | | Weed the garden monthly during establishment (approximately two years). |
| **Watering** | Recruit and train volunteers for ongoing watering, if needed. | Provide water budget variance during establishment period, if needed. | Water the garden (approximately two years). |

**PHASE 2 - MICROFOREST**

| | Malibu Foundation | Las Virgenes Municipal Water District | City of Calabasas |
|---|---|---|---|
| **Native Plants** | Provide seedlings from locally-sourced seeds. | (Optional) Give input into plant selection. | Excluded |
| **Soil Testing** | Test soil prior to planting and periodically after planting. | | Excluded |
| **Preparation and Planting** | Prepare site by pulling invasive weeds and applying mulch. Recruit volunteers for planting day, provide guidance and supervision. | | Excluded |
| **Maintenance** | Provide a thorough maintenance plan. Recruit and train volunteers for ongoing maintenance. | | Excluded |
| **Watering** | Recruit and train volunteers for ongoing watering, if needed. | Reinitiate irrigation at the site. Provide water for the site during establishment period (approximately two years). | Excluded |

***Phase 2 – LVMWD and Malibu Foundation partnership only; City of Calabasas not involved.**

**EXHIBIT B**
**SITE MAP**