

### FIRM PROPOSAL

#### PAX RESIDUAL CONTROL SYSTEM (RCS) FOR CITY OF DEER PARK, TX 1MG COY TANK



**PAX Water Technologies, Inc.** Prepared on: June 28, 2017

#### SALES REPRESENTATIVE:

PAX Water Technologies, Inc. Steve Woodward 860 Harbour Way South, Suite C Richmond, CA 94804 T: (918) 812-3006 Email: swoodward@ugsicorp.com



#### **TABLE OF CONTENTS**

#### Cover Letter

- Section 1: Scope of Supply
- Section 2: Proposal Acceptance
- Section 3: Terms and Conditions
- Section 4: Technical Information

**IMPORTANT NOTICE:** All the information in this Proposal or supplied in connection with this Proposal (including drawings, designs and specifications) (collectively, the "Information") is confidential and has been prepared for Buyer's use solely in considering the purchase of the goods and services 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.



June 28, 2017

Mr. Nicholas Cook Water Plant Supervisor City of Deer Park, TX

#### Re: PAX Residual Control System (RCS) for City of Deer Park, TX

Dear Nicholas,

Thank you for your interest in PAX Water Technologies, Inc., a UGSI Solutions company. We are pleased to provide a Proposal for one (1) Residual Control System for the 1MG Coy Tank. Our Proposal is based on the following design criteria:

<u>Design Criteria</u>	
Tank Volume, gal	1,000,000
Tank Turnover, gpd	1,500,000
Disinfectant	Chloramine
Influent Total Chlorine Residual, ppm Cl <sub>2</sub>	0.50
Target Total Chlorine Residual, ppm Cl <sub>2</sub>	2.00

A detailed scope of work and firm price for the complete system is listed in Section 1 of this Proposal. Section 3 includes our standard Terms and Conditions. All pricing is based on the scope of work described in Section 1 and the Terms and Conditions in Section 3. Sections 4 includes our technical information.

#### System Features & Advantages

The PAX Water Technologies, Inc Residual Control System (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 RCS utilizes advanced water quality sensors, powerful active mixing, an automated chemical feed system, and advanced control algorithm to set and maintain residual levels in water storage tanks. RCS has been tested and validated through extensive laboratory testing and full-scale installations at several utilities over the last 5 years.

At the heart of RCS is the PAX Water Mixer, which rapidly and completely mixes disinfectant chemicals into the entire volume of water in the tank. The PAX Water Mixer is the key element for the RCS to do mixing, monitoring, and dosing, which allows rapid homogenization and maximizing water quality stability and reliability in the tank.

The PAX RCS enables operators to:

- 1. Set and maintain consistent disinfectant levels in storage tanks
- 2. Continuously blend disinfectant residual and eliminates thermal and chemical stratification
- 3. Eliminate costly and labor-intensive manual boosting
- 4. Quickly counteract adverse water quality changes, such as low residual
- 5. Optimize and balance disinfectant levels across a water distribution system

We look forward to working with you on this project. If we can be any of further assistance, please do not hesitate to contact me at (918) 812-3006.

Thank you.



Sincerely,

Steve Woodward Water Quality Consultant - OK/TX

Cc: Robin Giguere, PAX Water Technologies, Inc. Kim Baker, PAX Water Technologies, Inc.



#### **SECTION 1**

#### SCOPE OF SUPPLY PAX Residual Control System

- A. Scope of Work by PAX
- B. Scope of Work by Others
- C. Clarifications
- D. Terms of Payment/Price Validity
- E. Warranty



#### A. SCOPE OF WORK BY PAX

The following equipment and services comprise our scope of work:

#### No Item Description

<u>Qty.</u> 1

1

1

- 1. Water Quality Station, WQS1000
  - Power: Standard 120 VAC, 15 amp circuit breaker
  - Water Connection: 3/8" Push-connect
  - Sampling and Discharge Flow Rate: 10 GPH
  - Connectivity: Ethernet connection with PAX Smart Controller
  - Data Logging: Real-time DAQ on USB flash drive
  - Measurement Total Chlorine: Amperometric reagent less online sensor, 0-10 PPM measuring range, 0.01 PPM resolution
  - Measurement Temperature: 32-212 F measuring range, 0.1 F resolution
  - Measurement pH: 0-14 measuring range, 0.01 resolution
  - Measurement Water Level (optional): pressure transducer, resolution of 1% maximum scale
  - Material Enclosure: Equal to or greater than Type 3R rating

#### 2. PAX Smart Controller, PSC1000

- Power: Standard 120 VAC, 10 amp circuit breaker
- Battery Back-Up: Up to 15 minutes of battery power
- HMI: 6" LCD touch screen
- Emergency Shut-Down Pushbutton
- Communication: Ethernet based access to HMI software from computer or smartphone within same network
- Water Quality Station Communication: quick disconnect cable
- Chemical Dosing Controller: RS-485 port for chemical feed system communications
- SCADA: Modbus TCP/IP standard, analog output available if necessary
- Material Enclosure: Equal to or greater than Type 3R rating

#### 3. Chemical Feed System - Ammonia, AFS1000

- Power: Standard 120 VAC
- Skid: Black polypropylene
- Pump: Blue-White Industries Flex-Pro A3 peristaltic pump
- Piping: PVC schedule 80
- Tubing: 3/8" O.D. polyethylene tubing, NSF 61 certified
- Secondary Containment: 9 gallons secondary containment
- Controller Input/Output: 2 digital inputs, 2 digital outputs, 1 analog input, 1 analog output
- Controller Communication: Modbus protocol with PAX Smart Controller
- Controller Connection: RS-485 cable
- Controller Enclosure Material: Equal to or greater than Type 3R rating
- Controller Pump Control Option: Digital relay, analog (4-20 mA), power switch



4.	<ul> <li>55-gal Ammonia Drum Kit</li> <li>Chemical drum storage for 19% ammonium hydroxide or 40% liquid ammonium sulfate, fitted with drum fitting for chemical level sensor</li> <li>Composition: FDA-Compliant Blow-Molded HDPE</li> <li>Dimension: 23.25" D x 34.75" H</li> <li>Thickness: 0.1875"</li> <li>Weight: 22 lbs</li> </ul>	1
5.	<ul> <li>Single Drum Containment Pallet</li> <li>Containment pallet for a single 55-gallon drum to contain any leaks, drips, or spills from the stored container.</li> <li>Dimension: 40" L x 40" W x 12" H</li> <li>Color: Yellow</li> <li>Weight: 55 lbs</li> </ul>	1
6.	<ul> <li>RCS I/O Tank Adapter Box, IOB1000</li> <li>A box that adapts to an existing cathodic protection port to allow chemical lines and mixer power line fed into the tank</li> </ul>	1
7.	<ul> <li>PWM400 Mixer Wet Assembly, including:</li> <li>Stainless steel 316 impeller designed to mix up to 9 million gallons of water</li> <li>Passivated to minimize corrosion</li> <li>The ability to function continuously regardless of tank cycles</li> <li>230V three phase ½ horsepower water-cooled motor</li> </ul>	1
8.	<ul> <li>Control Center Dry Assembly with SCADA Compatibility, including: Nema 3R Enclosure: <ul> <li>Lockable and weather resistant</li> <li>Overall weight of control center 50 lbs.</li> <li>Green and Red LED Indicator lights to display motor status</li> </ul> </li> <li>Motor Controller/VFD: <ul> <li>115VAC single phase, rated to 0.5 HP</li> <li>Operating temperature range -4 °F to 129 °F (-20 °C to 54 °C)</li> <li>Manual speed control</li> <li>Thermal shut-off protection built-in</li> <li>Current overload protection built-in</li> <li>300mA trip level GFCI</li> </ul> </li> <li>SCADA outputs included: <ul> <li>Digital Output signal indicating motor running</li> <li>Digital Output signal indicating fault</li> <li>Digital Input/Output signal for remote motor on/of</li> <li>RS-485 or Dry Contact connections</li> </ul> </li> </ul>	1
9.	Cable 130 ft., including: Flat-jacketed 4 conductor Molded 3 wire pump plug	1
10.	<ul><li>Tripod Assembly, PWM400, including:</li><li>Stainless steel 316 legs</li></ul>	1



	<ul> <li>Chlorine/chloramine resistant rubber foot pad to avoid scratching tank</li> </ul>	
	<ul> <li>Stainless steel knobs for tool-less installation</li> </ul>	
11	Long Pail Handlo & Chain	1
	<ul> <li>Stainless steel 316 handle to deploy mixer in full tanks</li> </ul>	I
12.	<ul> <li>Manufacturer's Installation Equipment and Services, including:</li> <li>Chemical and sample lines installation</li> <li>Mixer installation under the tank hatch</li> <li>Conduit runs for power, chemical, and sample lines of the PAX equipment</li> <li>Wiring and signal connections between the PAX equipment</li> <li>Installation equipment rental, including equipment unloading on site</li> </ul>	Included
13.	<ul> <li>Manufacturer's Field Services (1 Day(s) at the Jobsite), including:</li> <li>Installation Inspection</li> <li>System Start-Up</li> <li>Operator Training</li> </ul>	Included
14.	<ul> <li>Operation &amp; Maintenance Manual as Follows</li> <li>O&amp;M Manual: Qty. One (1) Hard Copy Please notify us if an alternate quantity is required so that we can modify our Proposal accordingly.</li> </ul>	Included
15.	FOB Factory, Richmond, CA with Full Freight Allowed to Jobsite, Deer Park, TX	Included
	FIRM PRICE [ITEMS 1-15]	[US]\$113,522
Optic	FIRM PRICE [ITEMS 1-15] onal: PWM150 Mixer for 0.5MG Elevated Tank	[US]\$113,522
Optic <u>No</u>	FIRM PRICE [ITEMS 1-15] onal: PWM150 Mixer for 0.5MG Elevated Tank <u>Item Description</u>	[US]\$113,522 <u>Qty.</u>
Optic <u>No</u> 16.	<ul> <li>FIRM PRICE [ITEMS 1-15]</li> <li>onal: PWM150 Mixer for 0.5MG Elevated Tank</li> <li><u>Item Description</u></li> <li>PWM150 Mixer Wet Assembly, including: <ul> <li>Spiral-shaped nozzle designed to mix up to 0.75 million gallons of water</li> <li>Electropolished to minimize surface corrosion</li> <li>Integrated power cable and lowering mechanism for simplicity</li> <li>The ability to function continuously regardless of tank cycles</li> <li>230V three phase ½ horsepower water-cooled motor</li> </ul> </li> </ul>	[US]\$113,522 <u>Qty.</u> 1
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Operating temperature range -4 °F to 129 °F (-20 °C to 54 °C)



	FIRM PRICE [ITEMS 16-23]	[US]\$35,073
23.	FOB Factory, Richmond, CA with Full Freight Allowed to Jobsite, Deer Park, TX	Included
22.	<ul> <li>Manufacturer's Field Services (1 Day(s) at the Jobsite), including:</li> <li>Installation Inspection</li> <li>System Start-Up</li> <li>Operator Training</li> </ul>	Included
21.	<ul> <li>Manufacturer's Installation Equipment and Services, including:</li> <li>Mixer installation under the tank hatch</li> <li>PAX Control Center installation at the base of the tank</li> <li>Conduit runs for power lines of the PAX mixer</li> <li>Installation equipment rental, including equipment unloading on site</li> <li>Note: trenching work not included</li> </ul>	Included
20.	<ul> <li>Operation &amp; Maintenance Manual as Follows</li> <li>O&amp;M Manual: Qty. One (1) Hard Copy Please notify us if an alternate quantity is required so that we can modify our Proposal accordingly.</li> </ul>	Included
19.	<ul> <li>Tank Penetration Accessories</li> <li>Stainless steel strain relief for 4 wire flat-jacketed cable</li> </ul>	1
18.	Cable 170 ft., including: Flat-jacketed 4 conductor Molded 3 wire pump plug	1
	<ul> <li>Thermal shut-off protection built-in</li> <li>Current overload protection built-in</li> <li>300mA trip level GFCI</li> <li>SCADA outputs included:</li> <li>Digital Output signal indicating motor running</li> <li>Digital Output signal indicating fault</li> <li>Digital Input/Output signal for remote motor on/off</li> <li>RS-485 or Dry Contact connections</li> </ul>	
	<ul> <li>Manual speed control</li> </ul>	

#### **B. SCOPE OF WORK BY OTHERS**

- 1. Bulk ammonia supply
- 2. All civil works and concrete pad for equipment.
- 3. Any underground or structural work.
- 4. Any necessary equipment to integrate the existing gas chlorinator to the PAX Smart Controller.
- 5. Anchor bolts and seismic restraints.
- 6. Heat tracing and insulation of all interconnecting equipment.
- 7. Room ventilation, air conditioning or lighting.
- 8. Any video recording.



- 9. Electrical power to control panel.
- 10. Any electrical conduit runs.
- 11. Any tank recoating services, labor, or parts.
- 12. Any tank hatch penetrations or modifications.
- 13. Any trenching work.
- 14. Any connection for SCADA integration.
- 15. All taxes, fees, lien waivers, bonds and licenses.
- 16. Any permitting or regulatory approvals.
- 17. Any items not explicitly listed under Scope of Work by PAX above.



#### **C. CLARIFICATIONS**

- 1. Shed is not included in the proposal.
- 2. The pump house nearby the tank is assumed to be able to house the PAX Smart Controller, Water Quality Station and the Chemical Feed System.
- 3. One 55-gallon drum is recommended to store the 19% anhydrous ammonia. Based on the design criteria, it is estimated a full 55-gallon drum can hold the chemical capacity for 15-25 days.
- 4. The water sample after passing the Water Quality Station (10 gph) is assumed to be drained to a nearby drain.
- 5. The existing gas chlorinator will be utilized for the chlorine feed system. The gas chlorinator needs to be able to receive 4-20mA input from the PAX Smart Controller. The customer is responsible to provide necessary equipment to integrate the gas chlorinator to the PAX Smart Controller.
- 6. The performance of the 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.
- 7. Installation inspection, start-up and operator training can be provided by a PAX representative for a mutually agreed fee if they are not included in PAX's Scope of Work above. Whether or not PAX is providing start-up services, PAX will provide a start-up checklist.
- 8. If transaction is tax-exempt, please submit Tax Exemption Certificate to PAX.
- 9. PAX requires a minimum of two (2) weeks notification prior to performing onsite installation inspection, system start-up and training. PAX will work with you to attempt to accommodate your scheduling needs. Contact the Service Department at (866) 729-6493 to schedule the onsite visit.
- 10. Once the on-site service has been scheduled, PAX 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.

#### D. TERMS OF PAYMENT/PRICE VALIDITY

- Payment terms are 100% net 30 days after shipment of equipment.
- Price valid for 90 days. PAX may reprice this Proposal thereafter or if delivery occurs more than 365 days after PAX receives a mutually agreed order.

#### E. WARRANTY

PAX will warrant the equipment as set forth in its standard warranty included in the Terms and Conditions at Section 3 of this Proposal. The Warranty Period (as defined therein) is 60 months for the PAX PWM400 mixer, 36 months for the PAX PWM150 mixer, and 12 months for all other products.



#### **SECTION 2**

#### **PROPOSAL ACCEPTANCE**

- 1) This Proposal by PAX Water Technologies, Inc. ("Seller") is contingent upon the undersigned buyer ("Buyer") executing this Proposal, including without limitation agreeing to the terms and conditions contained in this Proposal.
- 2) Please return a signed copy of this proposal to: PAX Water Technologies, Inc. 860 Harbour Way South, Suite C Richmond, CA, 94804 Attn: Orders Phone: (510) 550-7100 E-mail: orders@paxwater.com

Thank you for your interest in PAX. We are committed to meeting your expectations.

#### **Proposal Acceptance**

An authorized signature indicates Buyer's acceptance of this Proposal, including without limitation the Terms and Conditions in Section 3 below.

Buyer's Name (printed)

**Buyer's Authorized Signature** 

Date



#### **SECTION 3**

#### **TERMS AND CONDITIONS**

1. Applicable Terms. These terms govern Seller's sale, and Buyer's purchase, of the products and/or services referred to in Seller's proposal or quotation (collectively, the "Products"). The front page of Buyer's purchase order (disregarding any reference to terms and conditions and any provisions that conflict herewith), if any, together with the description of the Products in Seller's proposal or quotation and these terms and conditions comprise the complete and exclusive agreement between the parties (the "Agreement") related to the purchase and sale of the Products. All prior communications, documents, negotiations and representations, if any, are merged herein. Whether these terms are included in an offer or an acceptance by Seller, such offer or acceptance is conditioned on Buyer's assent to these 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: (a) as stated in Seller's proposal or order acknowledgment, or (b) if none are stated, Seller's standard prices in effect at the time of release for shipment.

3. Payment. Unless otherwise stated, all payments shall be net 30 days from invoice date payable in United States Dollars. 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 these terms or in Seller's proposal or quotation, 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 this Agreement, shall be for the Buyer's account.

5. Delivery. Products shall be delivered F.O.B. Seller's point of shipment or Ex Works Seller's point of shipment if being delivered outside the United States. 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. 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.

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, or any other cause beyond Seller's reasonable control.

9. Warranty. Seller warrants for the Warranty Period (as defined below) that each Product is free from defects in material and workmanship and conforms to Seller's specifications applicable to the Product. Seller's warranty is transferable during the Warranty Period to the initial end-user of the Product ("Owner"). Seller's warranty is conditioned on (i) Seller's verification of the alleged breach; (ii) the Product being stored, handled, installed, operated and maintained in accordance with Seller's instructions, (iii) no repairs, modifications or alterations being made to the Product other than by Seller or its authorized representatives, (iv) Buyer or Owner providing prompt written notice of any warranty claims within the Warranty Period, and (v) at Seller's discretion, Buyer or Owner either removing and shipping the Product or non-conforming part thereof to Seller, at Buyer's or Owner's expense, or Buyer or Owner granting Seller access to the Products at all reasonable times and locations to assess the warranty claims. Seller's warranty does not apply to software and does not cover damage due to (x) lightning, flood or other acts of nature or force majeure events, or failure of or inappropriate application of peripheral devices, including lightning or surge protectors, (y) installation by a person or entity other than Seller or Seller's authorized installation contractor, or (z) ordinary wear and tear. Lightning protection is recommended particularly in areas historically prone to lightning, and it is Buyer's or Owner's responsibility to properly select and install lightning protection in accordance with all applicable laws, codes and regulations.

Buyer's or Owner's sole remedy for any breach of Seller's warranty is limited to Seller's choice of repair or replacement of the Product, or non-conforming parts thereof F.O.B. jobsite, or refund of the purchase price for the subject Product or part. Seller reserves the right to provide new or reconditioned replacement Products or parts. The warranty on repaired or replaced Products or component parts is limited to the remainder of the original Warranty Period. The warranty includes labor to remove and reinstall repaired or replacement Products or components for a period of 120 days after shipment of the Product; provided that (a) the defective Product was originally installed, and the repaired or replacement Products will be installed, in accordance with Seller's guidelines in effect at the time of installation; and (b) labor of divers and labor required to drain the storage tank or reservoir is excluded. After such period, Buyer or Owner shall be responsible for (i) any labor required to remove or gain access to the Products or component parts. If Seller determines that any alleged damage is not covered by this warranty, Seller will charge, and Buyer will pay, Seller's normal rates for any inspection or repair performed by Seller, and for any materials provided or used in connection therewith.



The "Warranty Period" applicable to each Product begins on the date of installation or three (3) months after shipment, whichever comes first, and continues for the period of time set forth below opposite the applicable Product.

Mixers	Warranty Duration
PWM 100/150 (including Standpipe)	36 months
PWM 200 V1 (including Solar) and	24 months
V2	
PWM 400 V1 (including Solar)	
PWM 500 V1 and V2	
PWM 600 V1 and V2	
PWM 400 V2	60 months
Power Vents (All Models)	12 months
All other Products	12 months

THE WARRANTY SET FORTH IN THIS SECTION IS SELLER'S SOLE AND EXCLUSIVE WARRANTY AND SELLER'S WARRANTY IS SUBJECT TO SECTION 10 BELOW. SELLER MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, WARRANTIES REGARDING SERVICES RENDERED, IF ANY, OR ANY WARRANTIES THAT MIGHT ARISE FROM COURSE OF DEALING OR USAGE OF TRADE.

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 will be suspended during the pendency of any Payment Default. No such suspension will extend Seller's obligations under Section 9 beyond the Warranty 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 and regulations 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, export, transfer, assignment, disposal, and use of the Products provided under this 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 these 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. Buyer covenants to return any such bond to Seller upon the earlier to occur of (x) the expiration of the Warranty Period, and (y) the expiration of the aforesaid two-year period. All Product performance obligations of Seller are contingent on the conditions of and within the tank in which the Products are installed 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.



#### **SECTION 4**

#### TECHNICAL INFORMATION PAX Residual Control System

- A. Process Description
- B. Major System Components

Attachments

- Attachment 1: Data Sheet
- Attachment 2: Typical Process & Instrumentation Diagram



#### A. PROCESS DESCRIPTION

The Residual Control System (RCS) developed by PAX Water Technologies 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 PAX RCS is designed to continuously monitor the disinfectant level and precisely dose chemicals (such as chlorine and ammonia) into the tank in order to achieve a process objective, such as to control and maintain a disinfectant concentration target.

The PAX 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, the proprietary control algorithm developed and extensively validated in the PAX Water R&D Laboratory, and results from full scale installations ensure reliable and consistent performance of the disinfectant control system.

Figure 1<sup>\*</sup> shows a general layout of the RCS process for a drinking water storage tank. The RCS process is accomplished by:

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



Figure 1. RCS Process Schematic for Chloraminated Water

\* Mixer shown in the figure is an impeller mixer. Actual mixer model may differ based on the tank geometry or application.



#### **B. MAJOR SYSTEM COMPONENTS**

#### Water Quality Station<sup>™</sup>

The Water Quality Station<sup>™</sup> (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.

#### PAX Smart Controller

The PAX Smart Controller (PSC) is the "brain" of the RCS. The PSC is a controller, monitor and data acquisition system all in one. By having an intuitive and user friendly interface, the PSC 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 Water Quality Station (WQS). When disinfectant levels fall below the set point, the PSC commands the chemical feeds 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 PSC, the PSC 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 any 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.

#### **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 PAX Smart Controller. The Chemical Feed System also monitors the pump and provides feedback to the PAX Smart Controller. Based on this feedback, the PAX Smart Controller can activate any alarms and system response that are included in the extensive Alarm Management System.

#### PAX Water Mixer

The PAX Water Mixer is an active, submersible mixing system for cost effective management of drinking water quality in storage tanks and reservoirs. The PAX 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.

## Water Quality Station (WQS) Product Specifications



The Water Quality Station (WQS) is a panel of advanced sensors that continuously analyze water chemistry inside your tank to provide:

- Real-time data on water temperature, pH and chlorine
- Alarm notifications when there are unexpected changes in water chemistry
- Remote monitoring of water quality in the distribution system (SCADA compatible)





### Water Quality Station (WQS) Product Specifications

The PAX Water Quality Station (WQS) is a panel of advanced water chemistry sensors that may be used as part of the PAX Residual Control System (RCS) for managing residual levels in the distribution system or as a stand-alone product. The WQS continuously samples and monitors residual, pH and temperature inside storage tanks and pipes and provides real-time alerts when there are unexpected changes in water quality.





WQS SPECIFICATIONS			
Total Chlorine	<ul> <li>Amperometric reagent less online sensor</li> <li>Measuring range: 0-10 PPM</li> <li>Resolution: 0.01 PPM</li> </ul>		
Temperature	<ul><li>Measuring range: 0-100 C</li><li>Resolution: 0.1 C</li></ul>		
рН	<ul><li>Measuring range: 0-14</li><li>Resolution: 0.01</li></ul>		
Water Level (Optional)	<ul><li>Pressure transducer</li><li>Resolution: 1% of maximum scale</li></ul>		
Sampling and Discharge Flow Rate	10 GPH (0.16 GPM or 0.61 LPM)		
Flow Control	Adj. pressure regulator		
Flow Verification	Flow switch		
Power	Standard 110 VAC		
Water Connection	3/8" Push-connect		
Connectivity	Ethernet connection with PAX Smart Controller		
Enclosure	<ul> <li>18" H x 16" W x 8" D, powder-coated carbon steel</li> <li>Equal to or greater than NEMA 3R rating</li> </ul>		
Data Logging	Real-time DAQ on USB flash drive		



## Smart Controller Product Specifications



The PAX Smart Controller enables operators to set and maintain residual levels in free chlorine or chloraminated systems and features:

- Real-time water quality analysis and control
- Touch-screen dashboard to set residual level at a predetermined set-point
- Remote monitoring of water quality in the distribution system (SCADA compatible)





## Smart Controller Product Specifications

The PAX Smart Controller is the brain of the PAX Residual Control System (RCS) for managing distribution system water quality. The Smart Controller continuously analyzes water quality data, and issues dosing commands to the PAX Chemical Feed System to maintain residual levels at a predetermined set-point.





SMART CONTROLLER SPECIFICATIONS			
HMI	6" LCD touch screen		
Water Quality Station Communication	Quick disconnect cable		
Chemical Dosing Controller	RS-485 port for chemical feed system communications		
Data Logging	<ul><li>SD Card for continuous storage</li><li>4G on USB flash drive</li></ul>		
SCADA	<ul> <li>4 analog output (4-20 mA)</li> <li>8 digital relay</li> <li>Modbus TCP/IP (standard)</li> </ul>		
Power	Standard 120 VAC, 10 amp circuit breaker		
Battery Back-Up	Up to 15 minutes of battery power		
Emergency Shut-Down	Press-released switch for shutting the power down in case of an emergency		
Communication	Ethernet based access to HMI software from computer or smartphone within same network		
Enclosure	<ul> <li>18" H x 16" W x 8" D, powder-coated carbon steel</li> <li>Equal to or greater than NEMA 3R rating</li> </ul>		



Take control of water quality. For more information, call **1-866-729-6493** or visit **www.paxwater.com** 

## Chemical Feed System Product Specifications



The PAX Chemical Feed System reliably and precisely delivers disinfectant chemicals (chlorine and/or ammonia) into a water tank or pipes and features:

- Customizable pump skid to meet site specific applications
- Monitoring of pump performance and chemical levels
- Leak detection and 9 gallons of secondary containment





## Chemical Feed System Product Specifications

The PAX Chemical Feed System is part of the PAX Residual Control System (RCS) for managing distribution system water quality. The Chemical Feed System delivers disinfectant chemicals directly into water tanks or into distribution system mains based on a predetermined set-point.



CHEMICAL FEED SYSTEM SPECIFICATIONS			
Skid	Black polypropylene		
Pump	Blue-White Industries Flex-Pro model M3 peristaltic pump (recommended)		
Piping	PVC schedule 80		
Tubing	3/8" O.D. polyethylene tubing, NSF 61 certified		
Ball Valves	True unions, PVC body		
Pressure Relief Valve	PVC body, adjustable pressure range 10-250 psi		
Calibration Cylinder	PVC body and end caps, 250 ml (4 GPH) volume		
Pressure Gauge w/ Guard	2-1/2" dial, liquid filled stainless steel gauge		
Pressure Transmitter	0-100 psi, 4-20 mA output		
Check Valve	PVC body, cracking pressure 1.0 to 1.5 psi		
Secondary Containment	9 gallons secondary containment		



CHEMICAL DOSING CONTROLLER SPECIFICATIONS			
Input/Output	<ul> <li>2 digital inputs</li> <li>2 digital outputs</li> <li>1 analog input</li> <li>1 analog output</li> </ul>		
Communication	Modbus protocol with PAX Smart Controller		
Connection	RS-485 cable		
Power	Standard 110 VAC		
Enclosure	<ul> <li>10" H x 8" W x 6" D, polycarbonate</li> <li>Equal to or greater than NEMA 3R rating</li> </ul>		
Pump Control Option	<ul><li>Digital relay</li><li>Analog (4-20 mA)</li><li>Power switch</li></ul>		





# PAX Water Mixer (PWM400) Product Specifications



### Powerful Active Mixer for Water Storage Tanks

- Eliminates thermal stratification
- Improves disinfectant residual levels
- Lowers DBPs and nitrifying bacteria
- Protects tank from ice damage and corrosion
- Reduces variability in water taste and odor



The PAX Water Mixer creates a powerful vortex flow pattern to thoroughly circulate the entire tank volume.

Find out how a PAX Water Mixer can help you. Call our Water Quality Specialists today at **1-866-729-6493** or visit **www.paxwater.com** 



### PAX Water Mixer (PWM400) Product Specifications

The PAX Water Mixer is a powerful active mixer that improves water quality in storage tanks. The mixer's patented Lily impeller creates a powerful vortex flow pattern that thoroughly circulates the entire tank volume while using very little energy. PAX Water Mixers are easy to install and maintain – no heavy cranes, lifting equipment or tank alterations are required and the mixer can be easily lowered through the tank hatch or installed by a diver.





MIXER SPECIFICATIONS			
Power Supply Requirement	120/240 VAC, 50/60 Hz, 15 amp circuit		
Customer Supplied Power Switch	Type 3R safety disconnect switch		
Motor Type	230 VAC, water-filled, water-lubricated		
RPM	1200		
Nominal Power Draw	0.345 kVA (345 watts)		
Impeller Specifications	316 stainless steel 8" (21 cm) tall x 5" (11 cm) diameter		
Footprint Diameter	3' 10" (117 cm)		
Height	4' 1" (124 cm)		
Weight: Mixer Assembly	53 lbs (24 kg)		
Weight: Control Center	30 lbs (13 kg)		
Material: Control Center	Powder-coated carbon steel, Type 3R 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 <sup>2</sup> ) XLPE		



Find out how a PAX Water Mixer can help you. Call our Water Quality Specialists today at **1-866-729-6493** or visit **www.paxwater.com** 



# PAX Water Mixer (PWM150) Product Specifications



## Powerful Jet Mixer for Water Storage Tanks

- Lightweight and easy-to-install
- Eliminates thermal stratification
- Improves disinfectant residual levels
- Lowers DBPs and nitrifying bacteria
- Protects tank from ice damage and corrosion



The PAX Water Mixer creates a powerful vortex flow pattern to thoroughly circulate the entire tank volume



### PAX Water Mixer (PWM150) Product Specifications

The PAX Water Mixer (PWM150) is an active jet mixer for water storage tanks. The mixer creates a powerful vortex flow pattern to thoroughly circulate the entire tank volume and prevent water quality issues. Compact and lightweight, the mixer can be easily lowered into the tank from the hatch and self-rights on the tank floor, even on a sloped surface.

MIXER SPECIFICATIONS	PWM150 (115)	PWM150 (115) with Control Center (PCC155)	PWM150 (230)	PWM150 (230) with Control Center (PCC155)
Power Supply Requirement	120 VAC, 60 Hz, GFCI-protected, 20 amp circuit	120 VAC, 50/60 Hz, non GFCI-protected, 20 amp circuit	240 VAC, 60 Hz, GFCI-protected, 15 amp circuit	240 VAC, 50/60 Hz, non GFCI-protected, 20 amp circuit
Customer Supplied Power Switch	Type 3R safety disconnect switch			
Motor Type	115 VAC, 60 Hz, water- filled, water-lubricated	230 VAC, 60 Hz, water- filled, water-lubricated	230 VAC, 60 Hz, water- filled, water-lubricated	230 VAC, 60 Hz, water- filled, water-lubricated
Nominal Power Draw	1.15 kVA (670 watts)	1.15 kVA (1070 watts)	1.15 kVA (670 watts)	1.15 kVA (1070 watts)
Footprint Diameter	10" (25 cm)			
Height	34" (85 cm)			
Weight	42 lbs (19 kg)			
Material: Housing	316 stainless steel			
Material: Motor Seals	Chlorine/chloramine-resistant NBR rubber			
Material: Foot	Chlorine/chloramine-resistant EPDM rubber			
Wiring	NSF 61 & UL-listed submersible pump cable 14 AWG (2.1 mm <sup>2</sup> ) XLPE			
Weight: Control Center	N/A         42 lbs (19 kg)         N/A         42 lbs (19 kg)			
Material: Control Center	N/A	Powder-coated carbon steel, Type 3R enclosure	N/A	Powder-coated carbon steel, Type 3R enclosure







