



**State of West Virginia
Department of Administration
General Services Division**

MONTHLY WATER TREATMENT SERVICES

RFQ #GSD126772

Opening 06/12/2012 1:30pm

RECEIVED

2012 JUN 12 AM 10:37

Submitted By:

**Artesian Laboratories, Inc.
224 Capitol Street
Charleston, WV 25301
304-343-4763 • 304-343-4767 fax
artesian@artesianlabs.com**

WV PURCHASING
DIVISION



State of West Virginia
Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

Request for Quotation

RFQ NUMBER

GSD126772

PAGE

1

ADDRESS CORRESPONDENCE TO ATTENTION OF:

KRISTA FERRELL
304-558-2596

*709052026 304-343-4763

ARTESIAN LABORATORIES INC
PO BOX 3718

CHARLESTON WV 25337

DEPARTMENT OF ADMINISTRATION
VARIOUS LOCALES AS INDICATED
BY ORDER

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DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS		
05/04/2012						
BID OPENING DATE: 05/22/2012		BID OPENING TIME 01:30PM				
LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
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	1					
MONTHLY WATER TREATMENT SERVICES						
REQUEST FOR QUOTATION (RFQ)						
OPEN END CONTRACT						
THE WEST VIRGINIA STATE PURCHASING DIVISION FOR THE AGENCY, THE WEST VIRGINIA DIVISION OF GENERAL SERVICES, IS SOLICITING BIDS FOR AN OPEN END CONTRACT TO PROVIDE WATER TREATMENT SERVICES FOR DEPARTMENT OF ADMINISTRATION OWNED AND OPERATED BUILDINGS PER THE ATTACHED SPECIFICATIONS.						
TECHNICAL QUESTIONS CONCERNING THIS SOLICITATION MUST BE SUBMITTED IN WRITING TO KRISTA FERRELL IN THE WEST VIRGINIA STATE PURCHASING DIVISION VIA FAX AT 304-558 4115 OR VIA EMAIL AT KRISTA.S.FERRELL@WV.GOV.						
DEADLINE FOR ALL TECHNICAL QUESTIONS IS 05/14/2012 AT THE CLOSE OF BUSINESS.						
ANY TECHNICAL QUESTIONS RECEIVED WILL BE ANSWERED BY FORMAL WRITTEN ADDENDUM TO BE ISSUED BY THE PURCHASING DIVISION AFTER THE DEADLINE HAS LAPSED.						
EXHIBIT 1						
LIFE OF CONTRACT: THIS CONTRACT BECOMES EFFECTIVE ON AWARD AND EXTENDS FOR A PERIOD OF ONE (1) YEAR OR UNTIL SUCH "REASONABLE TIME" THEREAFTER AS						
SEE REVERSE SIDE FOR TERMS AND CONDITIONS						
SIGNATURE		TELEPHONE		DATE		
TITLE		FEIN		ADDRESS CHANGES TO BE NOTED ABOVE		

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'



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05/04/2012						
BID OPENING DATE: 05/22/2012		BID OPENING TIME 01:30PM				
LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
<p>IS NECESSARY TO OBTAIN A NEW CONTRACT OR RENEW THE ORIGINAL CONTRACT. THE "REASONABLE TIME" PERIOD SHALL NOT EXCEED TWELVE (12) MONTHS. DURING THIS "REASONABLE TIME" THE VENDOR MAY TERMINATE THIS CONTRACT FOR ANY REASON UPON GIVING THE DIRECTOR OF PURCHASING 30 DAYS WRITTEN NOTICE.</p> <p>UNLESS SPECIFIC PROVISIONS ARE STIPULATED ELSEWHERE IN THIS CONTRACT DOCUMENT BY THE STATE OF WEST VIRGINIA, ITS AGENCIES, OR POLITICAL SUBDIVISIONS, THE TERMS, CONDITIONS AND PRICING SET FORTH HEREIN ARE FIRM FOR THE LIFE OF THE CONTRACT.</p> <p>RENEWAL: THIS CONTRACT MAY BE RENEWED UPON THE MUTUAL WRITTEN CONSENT OF THE SPENDING UNIT AND VENDOR, SUBMITTED TO THE DIRECTOR OF PURCHASING THIRTY (30) DAYS PRIOR TO THE EXPIRATION DATE. SUCH RENEWAL SHALL BE IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF THE ORIGINAL CONTRACT AND SHALL BE LIMITED TO TWO (2) SUCCESSIVE ONE (1) YEAR PERIODS.</p> <p>CANCELLATION: THE DIRECTOR OF PURCHASING RESERVES THE RIGHT TO CANCEL THIS CONTRACT IMMEDIATELY UPON WRITTEN NOTICE TO THE VENDOR IF THE COMMODITIES AND/OR SERVICE SUPPLIED ARE OF AN INFERIOR QUALITY OR DO NOT CONFORM WITH THE SPECIFICATIONS OF THE BID AND CONTRACT HEREIN.</p> <p>OPEN MARKET CLAUSE: THE DIRECTOR OF PURCHASING MAY AUTHORIZE A SPENDING UNIT TO PURCHASE ON THE OPEN MARKET, WITHOUT THE FILING OF A REQUISITION OR COST ESTIMATE, ITEMS SPECIFIED ON THIS CONTRACT FOR IMMEDIATE DELIVERY IN EMERGENCIES DUE TO UNFORESEEN CAUSES (INCLUDING BUT NOT LIMITED TO DELAYS IN TRANSPORTATION OR AN UNANTICIPATED INCREASE IN THE VOLUME OF WORK).</p>						
SEE REVERSE SIDE FOR TERMS AND CONDITIONS						
SIGNATURE		TELEPHONE		DATE		
TITLE		FEIN		ADDRESS CHANGES TO BE NOTED ABOVE		

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BID OPENING DATE: 05/22/2012		BID OPENING TIME 01:30PM				
LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
<p>INSURANCE: SUCCESSFUL VENDOR SHALL FURNISH PROOF OF COVERAGE OF COMMERCIAL GENERAL LIABILITY INSURANCE PRIOR TO ISSUANCE OF THE CONTRACT. UNLESS OTHERWISE SPECIFIED IN THE BID DOCUMENTS, THE MINIMUM AMOUNT OF INSURANCE COVERAGE REQUIRED IS \$250,000.</p> <p>WORKER'S COMPENSATION: VENDOR IS REQUIRED TO PROVIDE A CERTIFICATE FROM WORKER'S COMPENSATION IF SUCCESSFUL.</p> <p>BANKRUPTCY: IN THE EVENT THE VENDOR/CONTRACTOR FILES FOR BANKRUPTCY PROTECTION, THIS CONTRACT IS AUTOMATICALLY NULL AND VOID, AND IS TERMINATED WITHOUT FURTHER ORDER.</p> <p>REV. 9/98</p> <p>EXHIBIT 4</p> <p>LOCAL GOVERNMENT BODIES: UNLESS THE VENDOR INDICATES IN THE BID HIS REFUSAL TO EXTEND THE PRICES, TERMS, AND CONDITIONS OF THE BID TO COUNTY, SCHOOL, MUNICIPAL AND OTHER LOCAL GOVERNMENT BODIES, THE BID SHALL EXTEND TO POLITICAL SUBDIVISIONS OF THE STATE OF WEST VIRGINIA. IF THE VENDOR DOES NOT WISH TO EXTEND THE PRICES, TERMS, AND CONDITIONS OF THE BID TO ALL POLITICAL SUBDIVISIONS OF THE STATE, THE VENDOR MUST CLEARLY INDICATE SUCH REFUSAL IN HIS BID. SUCH REFUSAL SHALL NOT PREJUDICE THE AWARD OF THIS CONTRACT IN ANY MANNER.</p> <p>REV. 3/88</p> <p>PURCHASING CARD ACCEPTANCE: THE STATE OF WEST VIRGINIA CURRENTLY UTILIZES A VISA PURCHASING CARD PROGRAM WHICH IS ISSUED THROUGH A BANK. THE SUCCESSFUL VENDOR MUST ACCEPT THE STATE OF WEST VIRGINIA VISA PURCHASING</p>						
SEE REVERSE SIDE FOR TERMS AND CONDITIONS						
SIGNATURE			TELEPHONE		DATE	
TITLE		FEIN		ADDRESS CHANGES TO BE NOTED ABOVE		

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<p>CARD FOR PAYMENT OF ALL ORDERS PLACED BY ANY STATE AGENCY AS A CONDITION OF AWARD.</p> <p>ANY INDIVIDUAL SIGNING THIS BID IS CERTIFYING THAT: (1) HE OR SHE IS AUTHORIZED BY THE BIDDER TO EXECUTE THE BID OR ANY DOCUMENTS RELATED THERETO ON BEHALF OF THE BIDDER, (2) THAT HE OR SHE IS AUTHORIZED TO BIND THE BIDDER IN A CONTRACTUAL RELATIONSHIP, AND (3) THAT THE BIDDER HAS PROPERLY REGISTERED WITH ANY STATE AGENCIES THAT MAY REQUIRE REGISTRATION.</p> <p>NOTICE</p> <p>A SIGNED BID MUST BE SUBMITTED TO:</p> <p>DEPARTMENT OF ADMINISTRATION PURCHASING DIVISION BUILDING 15 2019 WASHINGTON STREET, EAST CHARLESTON, WV 25305-0130</p> <p>THE BID SHOULD CONTAIN THIS INFORMATION ON THE FACE OF THE ENVELOPE OR THE BID MAY NOT BE CONSIDERED:</p> <p>SEALED BID</p> <p>BUYER: KRISTA FERRELL-FILE 21</p> <p>RFQ. NO.: GSD126746</p> <p>BID OPENING DATE: 05/22/2012</p>						
SEE REVERSE SIDE FOR TERMS AND CONDITIONS						
SIGNATURE			TELEPHONE		DATE	
TITLE		FEIN		ADDRESS CHANGES TO BE NOTED ABOVE		

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Request for Quotation

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304-558-2596

*709052026 304-343-4763

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BID OPENING DATE:

05/22/2012

BID OPENING TIME 01:30PM

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
BID OPENING TIME: 1:30 PM						
PLEASE PROVIDE A FAX NUMBER IN CASE IT IS NECESSARY TO CONTACT YOU REGARDING YOUR BID:						
(304) 343-4767						
CONTACT PERSON (PLEASE PRINT CLEARLY):						
Veronica Watson or Bill Bradford						
***** THIS IS THE END OF RFQ GSD126772 ***** TOTAL:						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	Veronica Watson	TELEPHONE	(304) 343-4763	DATE	6/12/12
TITLE	Office Manager	FEIN	55-0625140	ADDRESS CHANGES TO BE NOTED ABOVE	

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'



State of West Virginia
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05/21/2012						
BID OPENING DATE: 05/31/2012		BID OPENING TIME 01:30PM				
LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
ADDENDUM NO. 1						
THIS ADDENDUM IS ISSUED TO:						
1.) PROVIDE ANSWERS TO ALL TECHNICAL QUESTIONS SUBMITTED IN ACCORDANCE WITH THE PROVISIONS OF THE ORIGINAL REQUEST FOR QUOTATION (GSD126772),						
2.) PROVIDE REVISED BID FORM PER THE ATTACHED,						
3.) EXTEND THE BID OPENING DATE:						
BID OPENING DATE IS EXTENDED TO 05/31/2012						
BID OPENING TIME REMAINS: 1:30 PM						
***** END ADDENDUM NO. 1 *****						
0001	1	EA		962-23		
MONTHLY WATER TREATMENT SERVICES						
SEE REVERSE SIDE FOR TERMS AND CONDITIONS						
SIGNATURE <i>Veronica Watson</i>			TELEPHONE (304) 343-4763		DATE 6/12/12	
TITLE Office Manager		FEIN 55-0625140		ADDRESS CHANGES TO BE NOTED ABOVE		

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

GSD126772 Technical Questions, Answers and Clarifications

Q1. On page #4, RFQ number mentioned under Bid envelop label (GSD126746) is different from that mentioned on top of all RFQ pages. Please confirm the correct RFQ number is #GSD126772.

A1. The bid envelope label should read #GSD126772.

Q2. Indicative schedule for contract award.

A2. Contract award cannot be determined at this time.

Q3. Is supply of Softener salt for Building #5 included in this RFQ? If yes, please provide indicative salt usage per year.

A3. Softener salt for Building 5 shall not be included in this RFQ.

Clarifications

Bidders must use the amended bid form. Unit pricing is being added to the bid form. Unit pricing is established to add buildings by change order in the future when necessary.



State of West Virginia
Department of Administration
Purchasing Division
2019 Washington Street East
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DEPARTMENT OF ADMINISTRATION
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DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS		
05/25/2012						
BID OPENING DATE: 06/12/2012		BID OPENING TIME 01:30PM				
LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
***** ADDENDUM NO. 2 *****						
THIS ADDENDUM IS ISSUED TO:						
1) EXTEND THE TECHNICAL QUESTION DEADLINE TO 06/01/2012						
2) EXTEND THE BID OPENING DATE AND TIME TO 06/12/2012						
***** END ADDENDUM NO. 2 *****						
0001	1	EA		962-23		
MONTHLY WATER TREATMENT SERVICES						
***** THIS IS THE END OF RFQ GSD126772 ***** TOTAL: _____						
SEE REVERSE SIDE FOR TERMS AND CONDITIONS						
SIGNATURE <i>Veronica Watson</i>			TELEPHONE (304) 343-4763		DATE 6/12/12	
TITLE Office Manager		FEIN 55-0625140		ADDRESS CHANGES TO BE NOTED ABOVE		

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Department of Administration
Purchasing Division
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DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS		
06/06/2012						
BID OPENING DATE: 06/12/2012		BID OPENING TIME 01:30PM				
LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
ADDENDUM NO. 3						
THIS ADDENDUM IS ISSUED TO ADD TERMS AND CONDITIONS PER THE ATTACHED.						
BID OPENING DATE REMAINS: 06/12/2012						
BID OPENING TIME REMAINS: 1:30 PM						
***** END ADDENDUM NO. 3 *****						
0001	1	EA		962-23		
MONTHLY WATER TREATMENT SERVICES						
***** THIS IS THE END OF RFQ GSD126772 ***** TOTAL:						
SEE REVERSE SIDE FOR TERMS AND CONDITIONS						
SIGNATURE <i>Veronica Watson</i>		TELEPHONE (304) 343-4763		DATE 6/12/12		
TITLE Office Manager		FEIN 55-0625140		ADDRESS CHANGES TO BE NOTED ABOVE		

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GSD126772
ADDENDUM NO. 3

ADDITIONAL TERMS AND CONDITIONS

Various Legislative acts passed in the 2012 session require inclusion of certain provisions in all state contracts. Accordingly, this addendum will add the three provisions listed below to the solicitation and resulting contract entered into between the State of West Virginia and the vendor. In the event that the solicitation is not for construction or architectural/engineering work, sections 2 and 3 below will not apply.

1. **BACKGROUND CHECK:** In accordance with W. Va. Code § 15-2D-3, the Director of the Division of Protective Services may require any service provider whose employees are regularly employed on the grounds or in the buildings of the Capitol complex or who have access to sensitive or critical information to submit to a fingerprint-based state and federal background inquiry through the state repository:

After the contract for such services has been approved, but before any such employees are permitted to be on the grounds or in the buildings of the Capitol complex or have access to sensitive or critical information, the service provider shall submit a list of all persons who will be physically present and working at the Capitol complex to the Director of the Division of Protective Services for purposes of verifying compliance with this provision.

The State reserves the right to prohibit a service provider's employees from accessing sensitive or critical information or to be present at the Capitol complex based upon results addressed from a criminal background check.

2. **SUBCONTRACTOR LIST SUBMISSION:** In accordance with W. Va. Code § 5-22-1, The apparent low bidder on a contract for the construction, alteration, decoration, painting or improvement of a new or existing building or structure valued at more than \$500,000.00 shall submit a list of all subcontractors who will perform more than \$25,000.00 of work on the project including labor and materials. This provision shall not apply to any other construction projects, such as highway, mine reclamation, water or sewer projects.

a. **Required Information.** The subcontractor list shall contain the following information:

- i. Bidder's name
- ii. Name of each subcontractor
- iii. License numbers as required by W. Va. Code § 21-11-1 et. seq.

iv. Notation that no subcontractors will be used if the bidder will perform the work

b. **Submission.** The completed subcontractor list shall be provided to the Purchasing Division within one business day of the opening of bids for review. Failure to submit the subcontractor list within one business day after the deadline for submitting bids shall result in disqualification of the bid.

c. **Substitution of Subcontractor.** Written approval must be obtained from the Purchasing Division before any subcontractor substitution is permitted. Substitutions are not permitted unless:

- i. The subcontractor listed in the original bid has filed for bankruptcy;
- ii. The subcontractor in the original bid has been debarred or suspended; or
- iii. The contractor certifies in writing that the subcontractor listed in the original bill fails, is unable, or refuses to perform his subcontract.

3. **GREEN BUILDINGS MINIMUM ENERGY STANDARDS:** In accordance with § 22-29-4, all new building construction projects of public agencies that have not entered the schematic design phase prior to July 1, 2012, or any building construction project receiving state grant funds and appropriations, including public schools, that have not entered the schematic design phase prior to July 1, 2012, shall be designed and constructed complying with the ICC International Energy Conservation Code, adopted by the State Fire Commission, and the ANSI/ASHRAE/IESNA Standard 90.1-2007: *Provided*, That if any construction project has a commitment of federal funds to pay for a portion of such project, this provision shall only apply to the extent such standards are consistent with the federal standards.

REQUEST FOR QUOTATIONS #GSD126772
WATER TREATMENT SERVICES
DEPARTMENT OF ADMINISTRATION-OWNED FACILITIES
GENERAL SERVICES DIVISION
1900 Kanawha Boulevard, East, Charleston, WV

Location: West Virginia Department of Administration
Buildings Listed Herein

For: State of West Virginia
General Services Division
1900 Kanawha Boulevard, East
Charleston, West Virginia 25305

This Request for Quotation also includes the following documents:

1. Attachment A: GSD126772 Bid Form
2. Attachment B: GSD126772 Location Schedule

Bidders can arrange site visits prior to the bid opening date by contacting Dave Parsons, Operations & Maintenance Manager, GSD, at (304)558-0689 or email David.K.Parsons@wv.gov.

SECTION 1: DEFINITIONS

- A. "The Agency" shall refer to The Department of Administration, General Services Division, State Capitol Complex, Building 1, Room MB-60, Charleston, West Virginia 25305.
- B. "Contractor" shall refer to the successful bidder or vendor.
- C. "Contract" shall refer to the binding agreement that is entered into between the State of West Virginia and the Contractor to provide the services as herein specified.
- D. "Agency Representative" shall be defined as the person designated by the Director of the General Services Division as having authority to act on behalf of the General Services Division.
- E. "State Holidays" shall refer to W.Va. Code §2-2-1 as legal holidays (i.e. new Year's Day, Martin Luther King's Birthday, President's Day, Memorial Day, West Virginia Day, Independence Day, Labor Day, Columbus Day, Veteran's Day, Thanksgiving Day, Lincoln's Day, and Christmas Day).
- F. "Testing" means the Contractor shall perform a water quality test upon the completion of an ordered treatment to ensure water quality meets the technical specifications required in Section 3.

WATER TREATMENT SERVICES RFQ

SECTION 2: SCOPE OF WORK

The Contractor shall provide monthly water treatment, testing, and quarterly Legionella testing service as set forth and in accordance with all applicable federal, state, and local regulations in buildings owned and operated by the West Virginia Department of Administration. The water treatment program is to include all boiler systems, cooling towers, chillers, water loops, condensate lines and tanks or other systems identified by General Services.

2.1 Regular Maintenance Services:

The Vendor shall establish a monthly preventative program to eliminate or minimize corrosion and the formation of adherent mineral deposits in the boilers, steam lines, valves, heat exchangers, traps, condensate systems and heat transfer surfaces of related equipment.

The Vendor shall also establish a monthly preventative program to eliminate or minimize corrosion, the formation of adherent mineral deposits, algae and slime formation and bacterial growth on heat transfer surfaces in re-circulating water line circuits including cooling towers, closed chilled water and hot water systems and closed-loop heat pump systems.

The Vendor shall provide on-site scientific expertise to analyze problems relating to water treatment discovered during maintenance activities.

2.2 Quarterly Legionella Testing:

The Vendor will perform monthly testing on all specifications (section G) with the exception of Legionella which will be performed quarterly in accordance with AIHA and ASTM guidelines. Legionella will be tested at all closed loops, towers and all other sites in which towers are present. Test results will be provided to GSD at no additional cost. All testing cost associated with this contract should be incorporated into the bid form.

2.3 Equipment and Chemicals:

All equipment and chemicals used for water treatment must be in conformance with all applicable federal, state, and local regulations. Vendors shall utilize a water-usage based program utilizing meters and post-bleed controllers.

All chemical feed equipment is to be installed by the vendor at no additional charge to The State of West Virginia and maintained by the vendor during the duration of the service contract. Equipment is to be installed within 45 days from the effective date of the contract. The Contractor shall provide staff and materials to maintain proper systems treatment by manual means until such time equipment is installed.

WATER TREATMENT SERVICES RFQ

The Contractor shall furnish the following information prior to award of the contract:

- Detailed list of the equipment to be used and method of delivery into the various systems
- Copies of all MSDS of chemicals/products to be utilized shall be furnished to the safety department prior to introduction of product onto the premises.

All discharges into the sewage system from cooling tower bleed-off, boiler blow down or system draining must meet all federal, state and local regulations. The use of molybdates is prohibited.

2.4 Costs

Treatment and Testing Services:

The Contractor shall provide an all inclusive flat monthly rate for all services to be included under this Contract. This monthly rate shall include all Treatment and Testing Services. The Contractor shall be responsible for all treatment chemicals associated with the performance and specifications, located in of this Contract. The Contractor shall be responsible for all mileage and travel costs, including travel time, associated with the performance of this Contract.

All travel costs must be incorporated into the monthly cost bid.

2.5 Facility Access:

The Agency will permit access to the facilities and will allow the Contractor to utilize shop facilities. Access keys will be provided to the Contractor and inventoried by the Agency. The Contractor must sign for all access keys and return them upon expiration of this Contract.

Work will be performed during normal business hours, 8:00am to 5:00 pm. Monday through Friday excluding State recognized holidays.

2.6 Facilities

The Agency maintains buildings throughout the State, with the majority located in the Charleston metro area. A listing of facilities for which service may be requested is located in Attachment B. The Agency reserves the right to not request service in any of the buildings covered by this Contract. Statewide buildings may be added to this list during the life of the Contract only by mutual agreement of both the Agency and the Contractor, through formal change order. The Contractor shall service added buildings under the same terms and conditions contained herein.

SECTION 3: WATER QUALITY TECHNICAL SPECIFICATIONS

3.1 Closed hydronic systems, including hot-water heating and chilled water, shall have the following water qualities:

WATER TREATMENT SERVICES RFQ

- A. pH: Maintain a value within 9.0 to 10.5
- B. "P" Alkalinity: Maintain a value within 100 to 500 ppm.
- C. Boron: Maintain a value within 100 to 200 ppm.
- D. Chemical Oxygen Demand: Maintain a maximum value of 100 ppm.
- E. Soluble Copper: Maintain a maximum value of 0.20 ppm.
- F. TDS: Maintain at 3000 ppm with a maximum of 5000 ppm.
- G. Ammonia: maintain a maximum value of 20 ppm.
- H. Free caustic alkalinity: Maintain a maximum value of 20 ppm.
- I. Microbiological Limits:
 - 1) Total Aerobic Plate Count: Maintain a maximum value of 1000 organisms/ml.
 - 2) Total Anaerobic Plate Count: Maintain a maximum value of 100 organisms per ml.
 - 3) Nitrate Reducers: Maintain a maximum value of 100 organisms per ml.
 - 4) Sulfate Reducers: Maintain a maximum value of 0 organisms per ml.
 - 5) Iron Bacteria: Maintain a maximum value of 0 organisms per ml.

3.2 Steam boiler systems and steam condensate systems shall have the following water qualities:

- A. Steam Condensate:
 - 1) pH: Maintain a value within 7.8 to 8.4
 - 2) Total Alkalinity: Maintain a value within 5 to 50 ppm.
 - 3) Chemical Oxygen Demand: Maintain a maximum value of 15ppm.
 - 4) Soluble Copper: Maintain a maximum value of 0.20 ppm.
 - 5) TDS: Maintain a maximum value of 100 ppm.
 - 6) Ammonia: Maintain a maximum value of 20 ppm.
 - 7) Total Hardness: Maintain a maximum value of 2 ppm.
- B. Steam boilers operating at 15 psig and less shall have the following water qualities:
 - 1) "OH" Alkalinity: maintain a value within 200 to 400 ppm.
 - 2) TDS: Maintain a value within 600 to 3000 ppm.
- C. Steam boilers operating at more than 15 psig shall have the following water qualities:
 - 1) "OH" Alkalinity: 200 to 400 ppm.
 - 2) TDS: Maintain a value within 600 to 1200 ppm to a maximum 30 times return water TDS.

3.3 Passivation for galvanized steel for the first 60 days of operation.

- A. pH: Maintain a value within 7 to 8.
- B. Calcium Carbonate Hardness: Maintain a value within 100 to 300 ppm.
- C. Calcium Carbonate Alkalinity: Maintain a value within 100 to 300 ppm.

SECTION 4: RELEASE ORDERS AND INVOICING

4.1 Release Orders

Prior to beginning any work the Agency will issue a written release order to the Contractor. This release order shall have a unique number and reference the master contract number for the master contract. Issuance of the release order to the Contractor shall be considered authorization to perform said service. No work other than that specified on the individual release order shall be undertaken by the Contractor.

The Contractor shall provide the Agency with valid email addresses and fax numbers to which release orders may be communicated.

4.2 Invoices

Invoices shall be submitted to the Agency for payment monthly (in arrears) and must include the following information:

1. Copies of all service orders or inspection reports signed and dated by the Agency Representative (prior to their submittal with invoices for payment).
2. FEIN number, complete address of vendor, Agency release order number, and master contract number.

Invoices shall be mailed to the following address:

Department of Administration
General Services Division
State Capitol Complex
Building 1, Room MB-68
1900 Kanawha Blvd. E.
Charleston, West Virginia 25305

Should the Contractor be requested by the Agency or volunteer to submit invoices electronically, invoices must meet the digital requirements of the WV State Auditor's Office.

SECTION 5: ADDITIONAL TERMS AND CONDITIONS

5.1: The relationship of the Contractor to the State of West Virginia shall be that of an independent contractor and no principal-agent relationship or employer-employee relationship is contemplated or created by the parties to this Contract. The Contractor, as an independent contractor, is solely liable for the acts and omissions of its employees and agents. The Contractor will be responsible for selecting, supervising, and compensating any and all individuals employed pursuant to the terms of this Contract. Neither the Contractor nor any employees or

sub-contractors of the Contractor shall be deemed to be employees of the State for any purposes whatsoever. The wages and salaries, taxes, withholding payments, penalties, fees, fringe benefits, professional liability insurance premiums, contributions to insurance and pension or other deferred obligations, and licensing fees, etc., and the filing of all necessary documents, forms and returns pertinent to all of the foregoing are the Contractor's responsibility. The Contractor shall hold harmless the State of West Virginia and the Agency and shall provide the State of West Virginia and the Agency with a defense against any and all claims including but not limited to, the foregoing payments, withholdings, contributions, taxes, social security taxes and employer income tax returns. The Contractor shall not assign, convey, transfer, sub-contract, or delegate any of its responsibilities and obligations under this Contract to any person, corporation, partnership, association, or entity without express written consent of the Agency.

5.2: Indemnification: The Contractor agrees to indemnify, defend, and hold harmless the State and the Agency, their officers, and employees from and against (1) any claims or losses for services rendered by any subcontractor, person or firm performing or supplying services, materials, or supplies in connection with the performance of the Contract; (2) any claims or losses resulting to any person or entity injured or damaged by the Contractor, its officers, employees, or subcontractors by the publication, translation, reproduction, delivery, performance, use, or disposition of any data used under the Contract in a manner not authorized by the Contract, or by federal or state statutes or regulations; and (3) any failure of the Contractor, its officers, employees or sub-contractors to observe state and federal laws, including but not limited to labor and wage laws.

5.3: The Contractor further agrees to comply with the Civil Rights Act of 1964 and all other applicable federal, state, and local government regulations.

5.4: All work, materials, and equipment shall comply with the rules and safety regulations of all codes and ordinances of local, state and federal authorities. At a minimum, the services and repairs shall comply with the current editions in effect 30 days prior to receipt of bids of the following codes:

5.5: The Contractor shall procure all necessary permits and licenses to comply with all applicable laws, federal, state, or municipal, along with all regulations, and ordinances of any regulating body.

5.6: The Contractor shall pay any applicable sales, use, or personal property taxes arising out of this Contract and the transactions contemplated thereby. Any other taxes levied upon this Contract, the transaction, or the equipment, or services delivered pursuant hereto shall be borne by the Contractor. It is clearly understood that the State of West Virginia is exempt from any taxes regarding performance of the scope of work of this Contract.

SECTION 6: AWARD CRITERIA

The State of West Virginia shall award this Contract according to the following award criteria. Failure to bid any of the factors in the formulation of the total bid will result in the

WATER TREATMENT SERVICES RFQ

disqualification of the entire quote (however, bids of "\$0.00" will be acceptable as indication that the vendor intends to not charge for the listed services).

The following formula shall be used to award the Contract:

$$A + B = C \text{ (Your Bid, Annual Cost of Services)}$$

The following is a **sample** bid tabulation for reference only:

Standard Testing and Treatment

LOCATION	Monthly Cost	Qty	Yearly Cost
<u>Capitol Complex Campus</u>			
Bldg. 1 Main Capitol Bldg	\$100.00	12	\$1,200.00
Bldg. 2 DMV Bldg	\$50.00	12	\$600.00
Bldg 4 112 California Avenue	\$200.00	12	\$2,400.00
Bldg. 5 Highways	\$2,000.00	12	\$24,000.00
Bldg. 6 Education	\$100.00	12	\$1,200.00
Bldg. 8 Governor's Mansion	\$50.00	12	\$600.00
Bldg. 11 Chilled Water Plant	\$300.00	12	\$3,600.00
Bldg. 17 Finance(2101 Wash St.)	\$250.00	12	\$3,000.00
<u>Off Campus</u>			
Bldg. 22 Tax & Revenue	\$200.00	12	\$2,400.00
Bldg. 23 Beckley (407 Nevill St)	\$300.00	12	\$3,600.00
Bldg. 25 Parkersburg (5th & Avery)	\$250.00	12	\$3,000.00
Bldg. 36 One Davis Square	\$300.00	12	\$3,600.00
Bldg. 37 DEP (Kanawha City)	\$1,500.00	12	\$18,000.00
Bldg. 86 Greenbrooke (Smith St)	\$500.00	12	\$6,000.00
TOTAL ANNUAL STANDARD			<u>\$73,200.00</u> (A)

Legionella Testing

LOCATION	# of Tests	Price per Test Per Facility	Quarterly Cost	Qty.	Yearly Cost
<u>Capitol Complex Campus</u>					
Bldg. 4 (112 California Avenue)	1	\$120.00	\$120.00	4	\$480.00
Bldg. 5 Highways	1	\$120.00	\$120.00	4	\$480.00
Bldg. 6 Education	1	\$120.00	\$120.00	4	\$480.00
Bldg. 11 Chilled Water Plant	6	\$120.00	\$720.00	4	\$2,880.00
Bldg. 17 Finance(2101 Wash St.)	2	\$120.00	\$240.00	4	\$960.00
<u>Off Campus</u>					
Bldg. 22 Tax & Revenue	2	\$120.00	\$240.00	4	\$960.00
Bldg. 23 Beckley (407 Nevill St)	1	\$120.00	\$120.00	4	\$480.00
Bldg. 25 Parkersburg (5th & Avery)	2	\$120.00	\$240.00	4	\$960.00
Bldg. 36 One Davis Square	3	\$120.00	\$360.00	4	\$1,440.00
Bldg. 37 DEP (Kanawha City)	3	\$120.00	\$360.00	4	\$1,440.00
Bldg. 86 Greenbrooke (Smith St)	1	\$120.00	\$120.00	4	\$480.00
TOTAL ANNUAL LEGIONELLA					<u>\$11,040.00</u> (B)
TOTAL BID (A + B) = C					<u>\$84,240.00</u> (C)

Standard Testing and Treatment**LOCATION**Capitol Complex Campus

Bldg. 1 Main Capitol Bldg

Bldg. 2 DMV Bldg

Bldg. 4 112 California Avenue

Bldg. 5 Highways

Bldg. 6 Education

Bldg. 8 Governor's Mansion

Bldg. 11 Chilled Water Plant

Bldg. 17 Finance(2101 Wash St.)

Monthly Cost**Qty****Yearly Cost**

\$ 90.00	12	\$ 1,080.00
\$ 45.00	12	\$ 540.00
\$ 45.00	12	\$ 540.00
\$ 1,375.00	12	\$ 16,500.00
\$ 70.00	12	\$ 840.00
\$ 0.00	12	\$ 0.00
\$ 225.00	12	\$ 2,700.00
\$ 170.00	12	\$ 2,040.00

Off Campus

Bldg. 22 Tax & Revenue

Bldg. 23 Beckley (407 Nevill St)

Bldg. 25 Parkersburg (5th & Avery)

Bldg. 36 One Davis Square

Bldg. 37 DEP (Kanawha City)

Bldg. 86 Greenbrooke (Smith St)

\$ 140.00	12	\$ 1,680.00
\$ 205.00	12	\$ 2,460.00
\$ 170.00	12	\$ 2,040.00
\$ 205.00	12	\$ 2,460.00
\$ 1,245.00	12	\$ 14,940.00
\$ 170.00	12	\$ 2,040.00

TOTAL ANNUAL STANDARD

\$ 49,860.00 (A)

Legionella Testing**LOCATION****# of Tests Price per Test
Per Facility****Quarterly Cost****Qty.****Yearly Cost**Capitol Complex Campus

Bldg. 4 (112 California Avenue)

Bldg. 5 Highways

Bldg. 6 Education

Bldg. 11 Chilled Water Plant

Bldg. 17 Finance(2101 Wash St.)

1	\$ 90.00	\$ 90.00	4	\$ 360.00
1	\$ 90.00	\$ 90.00	4	\$ 360.00
1	\$ 90.00	\$ 90.00	4	\$ 360.00
6	\$ 90.00	\$ 540.00	4	\$ 2,160.00
2	\$ 90.00	\$ 180.00	4	\$ 720.00

Off Campus

Bldg. 22 Tax & Revenue

Bldg. 23 Beckley (407 Nevill St)

Bldg. 25 Parkersburg (5th & Avery)

Bldg. 36 One Davis Square

Bldg. 37 DEP (Kanawha City)

Bldg. 86 Greenbrooke (Smith St)

2	\$ 90.00	\$ 180.00	4	\$ 720.00
1	\$ 90.00	\$ 90.00	4	\$ 360.00
2	\$ 90.00	\$ 180.00	4	\$ 720.00
3	\$ 90.00	\$ 270.00	4	\$ 1,080.00
3	\$ 90.00	\$ 270.00	4	\$ 1,080.00
1	\$ 90.00	\$ 90.00	4	\$ 360.00

TOTAL ANNUAL LEGIONELLA

\$ 8,280.00 (B)

TOTAL BID (A + B) = C

\$ 58,140.00 (C)

Unit Pricing:

Statewide Buildings may be added to this list during the life of the Contract only by mutual agreement of both the Agency and the Contractor, through formal change order. For the purposes of processing any change orders to this contract at a later date, please provide the following Unit Prices:

Item 1 - Cold Water Loop: Unit Price is based on standard testing and treating per month.

Cost of standard testing per month for cold water loop: \$ 50-250

Item 2- Hot Water Loop: Unit Price is based on standard testing and treating per month.

Cost of standard testing per month for cold water loop: \$ 50-250

Item 3- Cooling Tower: Unit Price is based on standard testing and treating per month.

Cost of standard testing per month for cooling tower: \$ 150-500

Item 4- Condensate line supply: Unit Price is based on standard testing and treating per month.

Cost of standard testing per month for condensate line supply: \$ 75-500

Item 5- Condensate line return: Unit Price is based on standard testing and treating per month.

Cost of standard testing per month for condensate line supply: \$ 75-500

Item 6- Legionella testing: Unit Price is based on a single legionella test.

Cost of legionella test: \$ 90.00

It is expressly understood that the Unit Prices are for the purposes of change orders only, and that their value does not need to correlate to, nor will it be factored into, calculation or evaluation of the Total Contract Bid.

PLEASE NOTE: Pricing depends on the size of the system in question, location of the building (travel time), and city water chemistry.

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Location Schedule

[illegible]

Rev. 09/08

State of West Virginia

VENDOR PREFERENCE CERTIFICATE

Certification and application* is hereby made for Preference in accordance with **West Virginia Code, §5A-3-37**. (Does not apply to construction contracts). **West Virginia Code, §5A-3-37**, provides an opportunity for qualifying vendors to request (at the time of bid) preference for their residency status. Such preference is an evaluation method only and will be applied only to the cost bid in accordance with the **West Virginia Code**. This certificate for application is to be used to request such preference. The Purchasing Division will make the determination of the Resident Vendor Preference, if applicable.

1. **Application is made for 2.5% resident vendor preference for the reason checked:**

- ____ Bidder is an individual resident vendor and has resided continuously in West Virginia for four (4) years immediately preceding the date of this certification; or,
- ____ Bidder is a partnership, association or corporation resident vendor and has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; or 80% of the ownership interest of Bidder is held by another individual, partnership, association or corporation resident vendor who has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; or,
- ____ Bidder is a nonresident vendor which has an affiliate or subsidiary which employs a minimum of one hundred state residents and which has maintained its headquarters or principal place of business within West Virginia continuously for the four (4) years immediately preceding the date of this certification; or,

2. **Application is made for 2.5% resident vendor preference for the reason checked:**

- ____ Bidder is a resident vendor who certifies that, during the life of the contract, on average at least 75% of the employees working on the project being bid are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; or,

3. **Application is made for 2.5% resident vendor preference for the reason checked:**

- ____ Bidder is a nonresident vendor employing a minimum of one hundred state residents or is a nonresident vendor with an affiliate or subsidiary which maintains its headquarters or principal place of business within West Virginia employing a minimum of one hundred state residents who certifies that, during the life of the contract, on average at least 75% of the employees or Bidder's affiliate's or subsidiary's employees are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; or,

4. **Application is made for 5% resident vendor preference for the reason checked:**

- ____ Bidder meets either the requirement of both subdivisions (1) and (2) or subdivision (1) and (3) as stated above; or,

5. **Application is made for 3.5% resident vendor preference who is a veteran for the reason checked:**

- ____ Bidder is an individual resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard and has resided in West Virginia continuously for the four years immediately preceding the date on which the bid is submitted; or,

6. **Application is made for 3.5% resident vendor preference who is a veteran for the reason checked:**

- ____ Bidder is a resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard, if, for purposes of producing or distributing the commodities or completing the project which is the subject of the vendor's bid and continuously over the entire term of the project, on average at least seventy-five percent of the vendor's employees are residents of West Virginia who have resided in the state continuously for the two immediately preceding years.

Bidder understands if the Secretary of Revenue determines that a Bidder receiving preference has failed to continue to meet the requirements for such preference, the Secretary may order the Director of Purchasing to: (a) reject the bid; or (b) assess a penalty against such Bidder in an amount not to exceed 5% of the bid amount and that such penalty will be paid to the contracting agency or deducted from any unpaid balance on the contract or purchase order.

By submission of this certificate, Bidder agrees to disclose any reasonably requested information to the Purchasing Division and authorizes the Department of Revenue to disclose to the Director of Purchasing appropriate information verifying that Bidder has paid the required business taxes, provided that such information does not contain the amounts of taxes paid nor any other information deemed by the Tax Commissioner to be confidential.

Under penalty of law for false swearing (West Virginia Code, §61-5-3), Bidder hereby certifies that this certificate is true and accurate in all respects; and that if a contract is issued to Bidder and if anything contained within this certificate changes during the term of the contract, Bidder will notify the Purchasing Division in writing immediately.

Bidder: Artesian Laboratories Inc. Signed: Keronica Watson

Date: 06/08/12 Title: Office Manager

*Check any combination of preference consideration(s) indicated above, which you are entitled to receive.

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

West Virginia Code §5A-3-10a states: No contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and the debt owed is an amount greater than one thousand dollars in the aggregate.

DEFINITIONS:

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Debtor" means any individual, corporation, partnership, association, limited liability company or any other form or business association owing a debt to the state or any of its political subdivisions. "Political subdivision" means any county commission; municipality; county board of education; any instrumentality established by a county or municipality; any separate corporation or instrumentality established by one or more counties or municipalities, as permitted by law; or any public body charged by law with the performance of a government function or whose jurisdiction is coextensive with one or more counties or municipalities. "Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceeds five percent of the total contract amount.

EXCEPTION: The prohibition of this section does not apply where a vendor has contested any tax administered pursuant to chapter eleven of this code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

Under penalty of law for false swearing (*West Virginia Code §61-5-3*), it is hereby certified that the vendor affirms and acknowledges the information in this affidavit and is in compliance with the requirements as stated.

WITNESS THE FOLLOWING SIGNATURE

Vendor's Name: Artesian Laboratories Inc.

Authorized Signature: Catherine Morgan Date: 5/22/12

State of WEST VIRGINIA

County of KANAWHA, to-wit:

Taken, subscribed, and sworn to before me this 22nd day of MAY, 2012

My Commission expires DECEMBER 20, 2012

AFFIX SEAL HERE

NOTARY PUBLIC



Shirley A. Jones



June 12, 2012

Department of Administration
Purchasing Division
Building 15
2019 Washington Street, East
Charleston, WV 25305-0130

SUBJECT: RFQ #GSD126772
Monthly Water Treatment Services
Bid Opening Time 1:30PM 06/12/2012

Artesian Laboratories, Inc. was a previous vendor for this water treatment contract. During this time period, Artesian always met the service frequency expected and always submitted all paperwork and service reports as required on a timely basis to all personnel. We have submitted a more complete description of the water treatment systems and scope of the work at each location in our Cost Proposal page. The list as presented in the bid is very simplistic. The work required to treat all these systems is much more complicated to do a proper job.

We would like to point out that as any unforeseen problem may arise Artesian is able to respond immediately to the situation. The advantage Artesian has is that service personnel are local and chemical inventories are maintained in Charleston. This makes emergency on site visits and the ability to replenish any one of the chemicals the Statehouse may need only ten minutes away guaranteeing superior response and delivery time. It may be noted that Artesian successfully maintained inventories in the past so that emergency deliveries were avoided.

Artesian is pleased to quote the water treatment bid package to the State of West Virginia that includes the Statehouse Complex and other outlying associated locations. In an effort to be as thorough as possible we have included pertinent information about our company, our capabilities and experience. *(Please see the tabbed sections.)*

Below find the following explanations that more thoroughly address several sections of the bid package.

2.3. Equipment and Chemicals:

The Contractor shall furnish the following information prior to award of the contract:

- **Detailed list of equipment to be used and method of the delivery into the various systems:**

For cooling water systems Artesian will use LMI chemical feed pumps. We use Advantage MicroTron MCFB cooling tower controllers for automatic addition of the scale/inhibitor chemical. This controller also includes an automatic blowdown feature. The heating and cooling closed loops will have chemicals added through a shot feed system.

Boiler systems will be controlled through manual blowdowns through the use of skimmers and bottom blowdown. The chemicals will be fed through the use of a feed and bleed procedure. This automatically feeds the chemicals into the boiler systems. No handling of the chemicals is necessary or required of the state employees. The newer boilers in Building 5 have automated blow down controls.

Please see the Equipment tab for additional information.

- **Copies of all MSDS of chemicals/products to be utilized shall be furnished to the safety department prior to introduction of product onto the premises.**

For your reference, all Artesian MSDS sheets are included with this bid package in the MSDS tab.

All discharges into the sewage system from cooling tower bleed-off, boiler blow down or system draining must meet all federal, state and local regulations. The use of molybdates is prohibited.

The Artesian products to be used at all WV General Services Division locations do not have molybdate in their formulations. All system discharges meet federal, state and local regulations.

2.4 Costs

see the Cost Proposal tab



EXHIBIT 1:

PURCHASING CARD ACCEPTANCE: The State of West Virginia currently utilizes a Visa purchasing card program which is issued through a bank. The successful vendor must accept the State of West Virginia Visa purchasing card for payment of all orders placed by any state agency as a condition of award.

Artesian Laboratories accepts all bank issued Visa cards.

It is important to note that Artesian Laboratories' background is impressive in that we have been incorporated in West Virginia for twenty-eight years. The company is a charter member of The Association of Water Technologies. We have provided services to major corporations, university and institutional accounts throughout the United States as well within the state. We are not a one-dimensional operation. Artesian Laboratories, Inc. has a depth of water treatment experience that is hard to match. Our professionals have an average of twenty-five years experience in the industry. These individuals have worked in West Virginia and the region in the water treatment industry their entire careers. We can guarantee the State both consistent service personnel and unmatched years of experience that no other company bidding will be able to offer.

Artesian Laboratories appreciates the opportunity to present this proposal in order to once again do business with the State of West Virginia. We look forward to favorable consideration and hope that you will contact us if there is additional information necessary or questions that need to be answered.

Very truly yours,

John W. Morgan
President

enclosures

COST PROPOSAL

General Services
State of West Virginia

RFQ#GSD126772 for Monthly Water Treatment Services

Location	System Descriptions & Artesian's Recommended Testing Program & Scope of Work	Cost per month includes testing, chemicals & all freight charges
Building 1 Main Capitol Bldg.	Steam Reduc. Sta /Condensate -conductivity, pH, alkalinity and hardness	\$ 90.00
Building 3 DMV Bldg.	Steam Reduc. Sta /Condensate -conductivity, pH, alkalinity and hardness	\$ 45.00
Building 4 112 California Ave	Steam Reduc. Sta /Condensate -conductivity, pH, alkalinity and hardness	\$ 45.00
Building 5 Capitol Complex/Highways	Closed Loop -conductivity, pH, p alkalinity and nitrite 4)Bryan Steam Boilers -sulfite, phosphate, conductivity, p&m alkalinity Feedwater -conductivity, hardness, temperature Kinetco Softeners #1, #2, #3, #4 Water Softener Testing-conductivity and hardness. Perform general preventative maintenance on softeners Condensate -conductivity, pH, alkalinity, psi and hardness	\$ 1,375.00
Building 6 Capitol Complex/Education	Hot water Closed Loop -conductivity, pH, nitrite, p alkalinity	\$ 70.00
Building 8 Governor's Mansion	<i>No tests required on this contract</i> – this building is part of the Cultural Center contract & is tested under that scope of work	\$ 0.00
Building 11 Chilled Water Plant	Chilled Water Loop -conductivity, pH, nitrite, p alkalinity Dolphin Units treat cooling towers – off contract Testing on Towers -conductivity, p & m alkalinity, hardness, pH and bio dip-slide.	\$ 225.00
Building 17 Finance Bldg 2101 Wash St.	Cooling Tower -phosphate, conductivity, p & m alkalinity, hardness, pH and bio dip-slide. Closed Loop -conductivity, pH, p alkalinity, nitrite & %glycol	\$ 170.00

Location	System Descriptions & Artesian's Recommended Testing Program & Scope of Work	Cost per month includes testing, chemicals & all freight charges
Building 22 Tax and Revenue	Hot Water Closed Loop & Cold Water Closed Loop- conductivity, pH, p alkalinity and nitrite	\$ 140.00
Building 23 Beckley (407 Neville St)	Steam Boiler- conductivity, alkalinity, sulfite, phosphate Cooling Tower- conductivity, p & m alkalinity, hardness, pH, phosphate and bio-dipslide.	\$ 205.00
Building 25 Parkersburg (5 th & Avery)	Cooling Tower- conductivity, p & m alkalinity, hardness, pH, phosphate and bio-dip slide Closed Loop- conductivity, pH, p alkalinity, and nitrite	\$ 170.00
Building 36 One Davis Square	Cooling Tower Testing- conductivity p & m alkalinity, hardness, pH, phosphate, bio-dip slide. Dolphin Units treat cooling – off contract Hot Closed Loop & Cold Closed Loop- conductivity, pH, p alkalinity, and nitrite	\$ 205.00
Building 37 DEP (Kanawha City)	2) Cooling Towers on roof- Testing Only- conductivity p & m alkalinity, hardness, pH, phosphate, bio-dip slide. Dolphin Units treat the cooling towers– off contract 2) Mammoth Boilers on roof (humidification system) Testing Only Closed Loop in basement - conductivity, pH, p alkalinity, and nitrite Kinetco #1 & #2 Water Units <u>Scope of Work at Building 37 DEP:</u> Sample & test hot water boiler loop & maintain purification HP skids feeding humidification systems. Monthly replacement of filters, servicing water softener monthly, cleaning softener resin bed quarterly, delivering salt for water softener, maintaining reverse osmosis unit, which includes pump maintenance & membrane replacement & sanitization of system and storage tank. Maintain ultraviolet light & test unit to make sure lamps are working properly. Maintain bacteriostatic media to ensure no micro-biologicals get into humidification system. This media requires monitoring and change out at a minimum of once a year. Complete sanitization of skids is required annually to maintain integrity of the system-it is necessary to be in communication with staff to monitor proper water flow is being delivered to the building humidification system.	\$1,245.00

Location	System Descriptions & Artesian's Recommended Testing Program & Scope of Work	Cost per month includes testing, chemicals & all freight charges
Building 86 Greenbrooke (Smith St)	Cooling Tower -conductivity, p & m alkalinity, hardness, pH, phosphate and bio-dip slide Closed Loop -conductivity, pH, p alkalinity, and nitrite	\$ 170.00
Water Treatment Services Total Per Month		\$ 4,155.00
Water Treatment Services Total Annual Cost		\$ 49,860.00

Legionella Testing

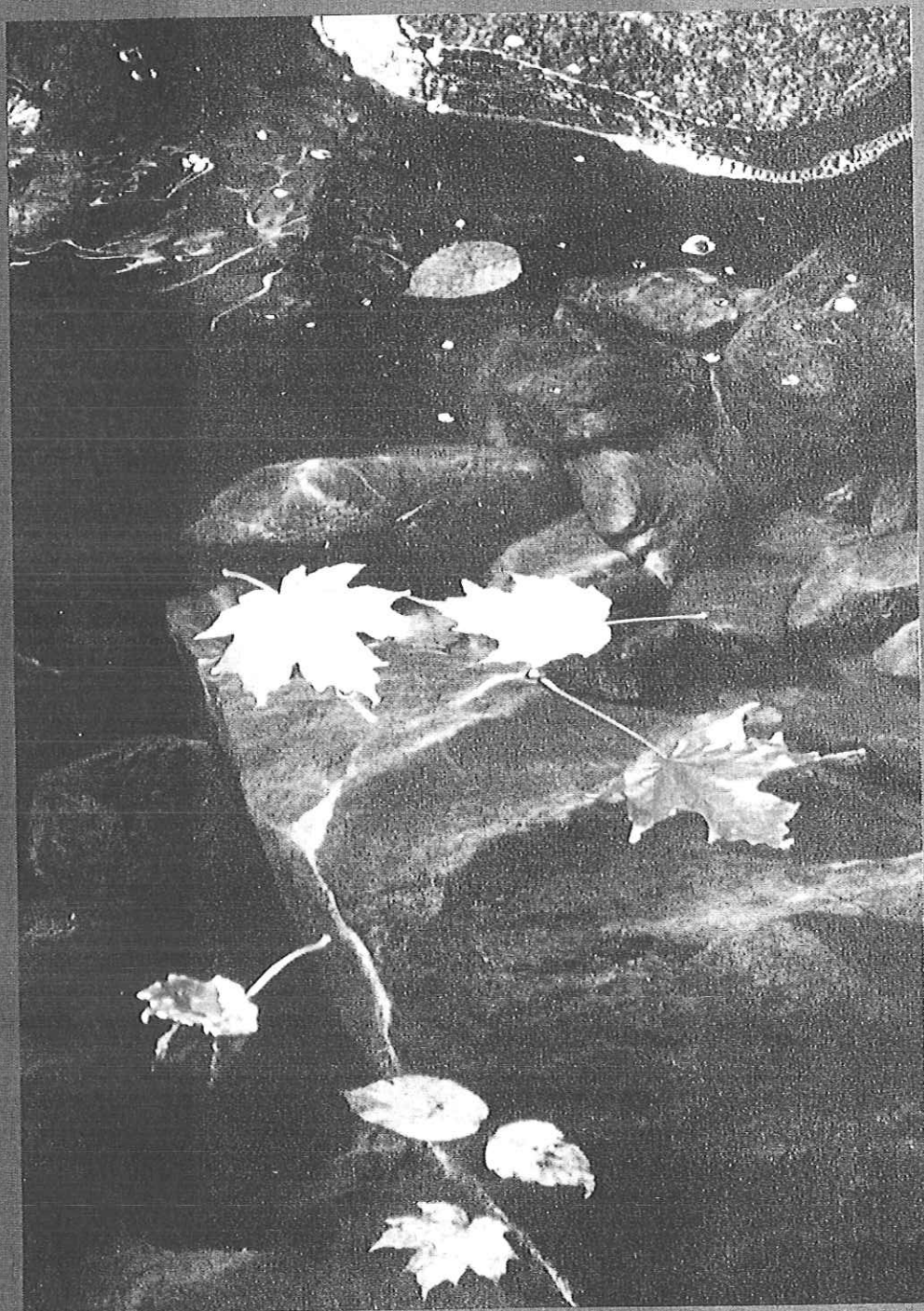
Location	Number of Tests
Bldg. 4 (112 California Ave)	1
Bldg 5 Highways	1
Bldg 6 Education	1
Bldg 11 Chilled Water Plant	6
Bldg 17 Finance (2101 Wash St)	2
Bldg 22 Tax & Revenue	2
Bldg 23 Beckley (407 Nevill St)	1
Bldg 25 Parkersburg (5 th & Avery)	2
Bldg 36 One Davis Square	3
Bldg 37 DEP (Kanawha City)	3
Bldg 86 Greenbrooke (Smith St)	1 specified & quoted (2 recommended)
TOTAL TESTS	23
23 tests per quarter @ \$90.00/each =	\$ 2,070.00 per quarter
Total Annual Cost =	\$ 8,280.00 per year

ARTESIAN LABORATORIES, INC. ANNUALIZED COST PROPOSAL RFQ#GSD116661 Monthly Water Treatment Services	
Artesian's Recommended Monthly Water Treatment Program For all service, testing, reagents, chemicals, freight & existing chemical feed equipment @ \$4,305.00 per month	\$49,860.00
Quarterly Legionella Testing @ \$2,070.00 per quarter based on 23 tests/qtr.	\$8,280.00
WATER TREATMENT ANNUAL COST TOTAL	\$58,140.00



ARTESIAN

PROCESS CHEMICALS GROUP



Water Treatment Solutions

Since 1983, Artesian Laboratories, Inc. has been serving the needs of industry and has grown to be one of the largest regional companies in the field of water treatment and water management. Artesian products and services include a full line of water treatment chemicals and the feeding and control equipment needed to maximize their performance. Our goal is to assist customers in operating an efficient and economical facility. We can help reduce operating costs and achieve environmental objectives through application of our advanced water treatment technology and specialized service.

Boiler Water Treatment

Artesian offers a range of boiler treatment products evolving from chelant, polymer and revolutionary new sequestrant technology. Artesian products and know-how are providing excellent results in many industries, including paper, steel, refineries and utilities. All the benefits of these synthetic materials are offered in Artesian Boiler Treatment Programs.

Using the most modern technology, Artesian provides boiler water treatment programs designed to give maximum heat transfer efficiency throughout the entire boiler system.

An Artesian fuel treatment program utilizing proven chemical additives can improve fuel handling and combustion efficiency while offering protection to the equipment involved. Specialty tank and equipment cleaning formulations are also included in Artesian's fuel treatment product line.

Six-step Program for Total Boiler Water Management

SOURCE WATER ANALYSIS:

By sampling and testing incoming water, Artesian determines its chemistry and content. Seasonal and other influent variables are also noted.

PRE-TREATMENT EQUIPMENT ENGINEERING:

Artesian determines needs for precipitating, clarifying, filtering, softening, ion exchange, reverse osmosis, deaeration and monitoring equipment to treat source water, dissolved minerals and gases.

CHEMICAL CONTROL:

Boiler water balance is controlled by a coordinated chemical program that prevents scale, inhibits corrosion and solubilizes or conditions sludge to facilitate its removal through blowdown.

PREVENTING STEAM CONTAMINANTS:

Boiler water carry-over into steam lines through foaming (oil, detergents, etc.) or priming (sudden steam demand) creates heat loss/equipment damage. Artesian anti-foams facilitate clean, dry steam.

CONDENSATE TREATMENT:

Condensed steam is highly corrosive. Dissolved oxygen and carbon dioxide attack iron and copper, creating impurities which insulate boiler surfaces, cause overheating and tube failure, and interfere with the proper water conditioning process in the boiler. Artesian neutralizing treatments prevent condensate corrosion.

EVALUATING EFFLUENT SOURCES FOR MAKE-UP WATER:

Discharges, including blowdowns and process water, can be analyzed to determine treatment costs in preparing the water for reuse. Waste-water treatment reduces ultimate disposal costs.

Cooling Water Treatment

Corrosion, scale and other impurities in process cooling water systems can waste energy and reduce heat transfer efficiency. Artesian offers products containing corrosion inhibitors employing all-synthetic non-polluting materials. This technology makes possible many Artesian non-polluting chemical treatment programs designed to inhibit scale and corrosion. These have led to dispersant and fouling control programs using polymers, sequestrants and biodegradable microbiocides. In each one, Artesian has made every effort to formulate its treatment program for compatibility with all regulatory agencies.

An Artesian cooling water program involves *total* water management chemistry. It starts with an evaluation of your cooling system by an Artesian water specialist. It continues with field and laboratory analyses of scale, corrosion, fouling and microbiological problems. It may also be followed by environmental studies of make-up and wastewater. The following recommendations for chemical treatment, formulation, feeding and system monitoring are saving industry significant amounts of energy every day.

Total Cooling System Control

SOURCE WATER ANALYSIS:

Artesian determines the content and chemistry of incoming water through proper sampling and analysis. Seasonal and other variations are taken into account.

PRE-TREATMENT

EQUIPMENT ENGINEERING:

Artesian water specialists determine the need for equipment to precipitate, clarify, filter, soften, exchange ions and monitor treatment of source water.

COOLING TOWER AND SYSTEM

BALANCE:

Water balance is precisely controlled by Artesian chemical formulations and feeding/monitoring equipment. Together, they can control scale, inhibit corrosion and solve microbiological problems resulting from cooling water exposure to airborne and process

contamination. Artesian formulations can also be selected to control fouling, foaming and odor.

CLEAN EQUIPMENT:

By continuously monitoring the water system, the Artesian program keeps heat exchangers and condensers clean. Significant energy, water and chemical savings are possible. Feeding and control equipment can be manual, semi- or fully automatic, and can apply chemical formulations in powder, briquette or liquid form. Artesian formulations are safe to handle, easy to apply and provide minimal inventory requirements.

EVALUATION OF DISCHARGE WATER FOR MAKE-UP USE:

Water discharges, including blowdown and process water, can be evaluated to determine the treatment and costs involved in preparing them for re-use. Recycling this water effectively reduces disposal costs.

Microbiological Control Programs

COOLING TOWER /

HEAT EXCHANGER BENEFITS

- Reduces under-deposit corrosion and fouling due to microorganism growth.
- Keeps heat transfer performance close to original efficiency.
- Minimizes microorganism invasion and growth.
- Improves heat utilization and reduces energy consumption.
- Produces cleaner cooling surfaces for better inhibitor action.

WHAT A PROGRAM INCLUDES

- Cooling water system survey.
- Water sampling to determine flow patterns and rates.
- Laboratory analysis of sample for microorganism presence, when necessary.
- A customized Artesian Total Water Management Program including an alternating or multi-component microbiocide program, balanced for compatibility with all other chemicals in the water system.
- Instructing your cooling system technician on how, and when, to use Test Kits to check for microbial contaminants.

Wastewater Treatment

Artesian offers wastewater treatment engineering services and a full line of customized wastewater programs. These include bacteria cultures and polymer technology. These product lines are ISO-9002 certified. The foam control agents and degreasing compounds Artesian carries round out the full line of wastewater treatment programs available.

BIOAUGMENTATION PROGRAMS:

Artesian is at the forefront of wastewater biotechnology with a full line of bacterial cultures selectively adapted for specific applications. Each product uses synergistic blends of bacteria to ensure consistent and highly predictable results.

POLYMER TREATMENT PROGRAMS:

Artesian offers a wide variety of polymers for wastewater applications. These products are very effective for liquids/solids separation. The Artesian water specialist understands these processes and the chemistry and properties peculiar to waste water.

Artesian also carries a full line of automatic and manual chemical feeding and monitoring instrumentation systems. Service is available when needed for these systems.

Manufacturing and Customer Service

Artesian provides treatment programs for virtually every water-using application. A centrally located operation in Charleston, West Virginia provides the products and services necessary for handling those applications. Together with continuous development of chemicals, state of the art equipment, and utilization of the best testing/service facilities available, Artesian is able to provide fast, reliable service to *all* our customers.

Artesian supplies water treatment chemicals in briquette, liquid and powder form to meet individual application needs and economies. Each is packaged to complement the transportation, handling and storage requirements of the application. For extremely large users of widely-applied treatment chemicals, Artesian provides bulk delivery to optimize savings.

Artesian's commitment to Total Water Management over the years has consistently meant superior products and performance. This is why industry relies upon Artesian today, to help make water harmless — and to keep it that way.



224 Capitol Street
Charleston, WV 25301

Phone: 800-304-4763 or (304) 343-4763
Fax: (304) 343-4767

Request for Taxpayer Identification Number and Certification

Give Form to the
requester. Do not
send to the IRS.

Print or type
See Specific Instructions on page 2.

Name (as shown on your income tax return)

Artesian Laboratories, Inc.

Business name/disregarded entity name, if different from above

Check appropriate box for federal tax classification:

☐ Individual/sole proprietor ☒ C Corporation ☐ S Corporation ☐ Partnership ☐ Trust/estate

☐ Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=partnership) ▶

☐ Exempt payee

☐ Other (see instructions) ▶

Address (number, street, and apt. or suite no.)

224 Capitol Street

City, state, and ZIP code

Charleston, WV 25301

Requester's name and address (optional)

State of West Virginia

List account number(s) here (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on the "Name" line to avoid backup withholding. For individuals, this is your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN* on page 3.

Note. If the account is in more than one name, see the chart on page 4 for guidelines on whose number to enter.

Social security number

5 5 - 0 6 2 5 1 4 0

Employer identification number

5 5 - 0 6 2 5 1 4 0

Part II Certification

Under penalties of perjury, I certify that:

- The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me), and
- I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding, and
- I am a U.S. citizen or other U.S. person (defined below).

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions on page 4.

Sign
Here

Signature of
U.S. person ▶

Veronica Watson

Date ▶

6/12/12

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Purpose of Form

A person who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) to report, for example, income paid to you, real estate transactions, mortgage interest you paid, acquisition or abandonment of secured property, cancellation of debt, or contributions you made to an IRA.

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN to the person requesting it (the requester) and, when applicable, to:

- Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
- Certify that you are not subject to backup withholding, or
- Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income.

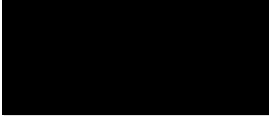
Note. If a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

Definition of a U.S. person. For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien,
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States,
- An estate (other than a foreign estate), or
- A domestic trust (as defined in Regulations section 301.7701-7).

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax on any foreign partners' share of income from such business. Further, in certain cases where a Form W-9 has not been received, a partnership is required to presume that a partner is a foreign person, and pay the withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid withholding on your share of partnership income.

William J. Bradford



P. O. Box 3718
Charleston, WV 25337
304- 343-4763

Mr. Bradford has worked in the water treatment industry for twenty-three years. His experience is in the industrial, commercial and institutional applications for boiler and cooling water technology. Mr. Bradford also specializes in heat transfer fluid technology as well as pump and control equipment operation and repair.

2001 - Present	Artesian Laboratories, Inc., Charleston, West Virginia Area Manager
1996 - 2001	Artesian Laboratories, Inc., Charleston, West Virginia Technical Representative
1992 - 1996	Interstate Chemical Company Salesman - Commodity Chemical Market
1989 - 1992	Interstate Chemical Company Customer Service Representative
3/89 - 5/89	Clarion Area School District, Clarion, PA General Science Instructor and tutor 7 th /8 th grades
1/90 - 3/89	Brookville School District, Brookville, PA Biology Instructor and tutor 10 th -12 th grades

PROFESSIONAL TRAINING:

Alamo Water Industrial - Softener/Filter Technical Service Training Seminar
Naperville, Illinois
June 2001

Association of Water Technologies - Regional Training Seminar
Cincinnati, Ohio
April 1999

EDUCATION:

Bachelor of Science
Major: Biology - Secondary Education Dean's List
Clarion University of Pennsylvania, Clarion, PA
May 1989

PROFESSIONAL ORGANIZATIONS & CERTIFICATIONS:

Association of Water Technologies
NFIOA member
Federal GSA Security Clearance

John W. Morgan

P. O. Box 3718
Charleston, WV 25337
(304) 343-4763

Mr. Morgan has worked in the specialty chemicals aspect of the water treatment industry for thirty-six years. His experience is heavily in the industrial sector but is well versed in commercial and institutional applications for boiler and cooling water technology. Mr. Morgan has also been working in municipal and industrial wastewater treatment for many years. He was employed by a national water treatment company for seven years.

2/13/83 - Present

Artesian Laboratories, Inc., Charleston, West Virginia
Owner - President

- Co-founder of this industrial water treatment chemical sales corporation in 1983. Has been the sole owner since 1984 and has developed the business into one with a major market share in the region.
- Responsible for the management and direct sales and service of the companies product lines.
- Develops the specialty chemical formulations for specific customer needs and requirements with industry experts.
- Manages strategic planning, profitability analysis and capital asset expenditures.

1992 - 1999

Atlantic Process Mining Chemicals, Inc., Charleston, WV

- Co-founder of this water treatment chemical sales corporation that markets to the coal mining industry.
- Sold company in 1999

1976 - 1982

Mogul Corporation Division of the Dexter Corporation.
Eastern Regional Sales Manager - Process Chemicals

- Managed sales force and local office.
- Responsible for budgeting, marketing, and direct sales.
- Territory was the eastern half of the United States.

PROFESSIONAL EXPERIENCE:

Panelist participant in the Industrial Wastewater Enforcement and Compliance seminar during the Clean River Taiwan conference held on January 12, 1995 in Taipei, Taiwan, R.O.C. Delegation member on the West Virginia Project Harvest trade mission to Japan and Taiwan, January 5 - 15, 1995 led by Senator Jay Rockefeller.

Mr. Morgan received extensive training from Mr. Paul Puckorius, a leading expert in the water treatment field. He has also participated in training for specialty chemical applications by the nations leading companies in their specific fields which include; American Cyanamid, Sybron, International Biochemicals, Purolite, Pulsafeeder, Ecowater and Vinings Chemicals.

EDUCATION:

Bachelor of Science, Business Administration
West Virginia University History, Politics & Public Affairs
1975

Bachelor of Arts, Liberal Arts
University of Miami, Miami FL
1974

PROFESSIONAL ORGANIZATIONS:

The Association of Water Technologies - Charter Member
-Qualified to teach Certified Water Technologist Training Course
National Association of Corrosion Engineers

MATERIAL SAFETY DATA SHEET

ABT 3310-R2

Latest Revision Date...01/06/09

Print Date.....01/06/09

SECTION 1

MANUFACTURER INFORMATION

ARTESIAN PROCESS CHEMICALS GROUP
224 CAPITOL STREET
CHARLESTON, WV 25301
PH. 304-343-4763 800-304-4763

FOR CHEMICAL EMERGENCY
CALL CHEMTREC @ 1-800-424-9300

SECTION 2

PRODUCT IDENTIFICATION

PRODUCT NUMBER..... AL 3310-R2
TRADE NAME OR CHEMICAL NAME... ABT 3310-R2
SYNONYMS..... NA
CHEMICAL FAMILY..... Boiler Condensate Treatment
NFPA - HEALTH HAZARD..... 3
FIRE HAZARD..... 0
REACTIVITY HAZARD..... 1
NFPA SCALE..... 4=Extreme 3=High 2=Moderate 1=Slight 0=Insignificant
KEY..... NA= Not Applicable ND= Not Determined

SECTION 3

HAZARDOUS INGREDIENTS

CHEMICAL NAME(S)	CAS NUMBER	% WT	TLV-TWA	PEL	SEC.313	CARCINOGEN?
Cyclohexylamine	108-91-8	<30	10 ppm	10 ppm	No	No
Diethylaminoethanol	100-37-8	<10	10 ppm	10 ppm	No	No
Morpholine	110-91-8	<5	20 ppm	20 ppm	No	No

SECTION 4

SHIPPING DATA

D.O.T. PROPER SHIPPING NAME... Amines, Liquid, Corrosive, N.O.S. (Cyclohexylamine, Diethylaminoethanol)
D.O.T. HAZARD CLASS..... 8
D.O.T. LABELS REQUIRED..... Corrosive
UN/NA I.D. NUMBER..... UN 2735
PACKAGING GROUP..... III
NON-BULK SHIPPING NAME..... Amines, Liquid, Corrosive, N.O.S. (Cyclohexylamine, Diethylaminoethanol), 8, UN 2735, PG III
BULK SHIPPING NAME..... Same

SECTION 5

PHYSICAL DATA

BOILING/FREEZING POINT @760 mmHg... 200°F (93°C) / ND
pH..... 12.1
VAPOR PRESSURE mm Hg @20° C..... ND
VAPOR DENSITY (Air = 1)..... =1
PERCENT VOLATILE BY WEIGHT (%)..... 100
SPECIFIC GRAVITY @20°C..... 0.97
SOLUBILITY IN WATER..... Complete
EVAPORATION RATE..... (Water=1) ~1
APPEARANCE AND ODOR..... Clear to light yellow liquid with strong amine odor.

SECTION 6

FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Test Method)..... ND

SECTION 6**FIRE AND EXPLOSION HAZARD DATA**

CONT'D

AUTOIGNITION TEMPERATURE..... ND
 FLAMMABILITY LIMITS IN AIR (% V).... ND
 EXTINGUISHING MEDIA..... Water fog or spray, carbon dioxide, alcohol foam
 SPECIAL FIRE FIGHTING PROCEDURES... NA
 UNUSUAL FIRE & EXPLOSION HAZARDS... Closed containers may rupture when exposed to extreme heat.

SECTION 7**REACTIVITY DATA**

PRODUCT STABILITY..... Stable
 Conditions to Avoid..... Temperatures above 115°F (46°C), ignition sources
 CHEMICAL INCOMPATIBILITY..... Strong acids and oxidizers
 HAZARDOUS DECOMPOSITION PRODUCTS... Oxides of nitrogen, carbon dioxide, carbon monoxide
 HAZARDOUS POLYMERIZATION..... Will Not Occur

SECTION 8**HEALTH HAZARD DATA**

SKIN CONTACT... May cause severe skin irritation and sensitization.
 EYE CONTACT... May cause chemical burns and irreversible damage.
 INHALATION.... Inhalation of high vapor concentrations may produce irritation of respiratory tract and lungs.
 INGESTION..... Ingestion harmful.

SECTION 9**EMERGENCY AND FIRST AID PROCEDURES**

SKIN.....Remove contaminated clothing and flush exposed skin with soap and water. If irritation persists or develops, get medical attention. Launder contaminated clothing before reuse.
 EYES.....Immediately flush eyes with large amounts of water for 15 minutes and get medical attention.
 INGESTION....If swallowed, DO NOT INDUCE VOMITING. Get medical attention immediately. Never give anything by mouth to an unconscious person.
 INHALATION...Move to fresh air. Aid in breathing, if necessary, and get medical attention.

SECTION 10**ENVIRONMENTAL DATA**

SPILL OR LEAK PROCEDURES... Keep upwind and avoid skin contact. Eliminate ignition sources. Neutralize and absorb with sand or inert material. Place in suitable container for disposal.
 WASTE DISPOSAL METHOD..... Corrosive. Dispose of in accordance with all federal, state and local regulations.
 HAZARDOUS WASTE 40CFR261... Yes. Hazardous Waste Numbers: D002
 CONTAINER DISPOSAL..... Empty containers may contain residuals. Thoroughly clean, then offer for recycling, reuse, or disposal in accordance with governmental regulations.

SECTION 11**SPECIAL PROTECTION INFORMATION**

RESPIRATORY PROTECTION.....NIOSH/MSHA approved can or cartridge respirator for gas and vapor as needed to maintain P.E.L.
 VENTILATION.....Local and/or mechanical exhaust to maintain exposure below P.E.L.
 PROTECTIVE CLOTHING.....Neoprene gloves, full chemical suit, boots - as necessary to prevent skin contact.
 EYE PROTECTION.....Chemical goggles and/or full face shield.
 OTHER PRECAUTIONS.....Safety shower and eyewash fountains should be easily accessible.

SECTION 12**SUPPLIER INFORMATION**

This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of manufacturer. The data on this sheet relates only to the specific material designated herein. Manufacturer assumes no legal responsibility for use or reliance upon this data.

MATERIAL SAFETY DATA SHEET

ABT 3342

Latest Revision Date...12/01/06

Print Date.....06/11/07

SECTION 1

MANUFACTURER INFORMATION

ARTESIAN PROCESS CHEMICALS GROUP

FOR CHEMICAL EMERGENCY

224 CAPITOL STREET

CALL CHEMTREC @ 1-800-424-9300

CHARLESTON, WV 25301

PH. 304-343-4763 800-304-4763

SECTION 2

PRODUCT IDENTIFICATION

PRODUCT NUMBER..... AL 3342

TRADE NAME OR CHEMICAL NAME... ABT 3342

SYNONYMS..... NA

CHEMICAL FAMILY..... NA

NFPA - HEALTH HAZARD..... 2

FIRE HAZARD..... 0

REACTIVITY HAZARD..... 0

NFPA SCALE..... 4=Extreme 3=High 2=Moderate 1=Slight 0=Insignificant

KEY..... NA= Not Applicable ND= Not Determined

SECTION 3

HAZARDOUS INGREDIENTS

CHEMICAL NAME(S)	CAS NUMBER	% WT	TLV-TWA	PEL	SEC.313	CARCINOGEN?
Sodium Hydroxide	1310-73-2	<5	2 mg/m3	2 mg/m3	No	No

SECTION 4

SHIPPING DATA

D.O.T. PROPER SHIPPING NAME... Corrosive Liquid, Basic, Inorganic, N.O.S. (Sodium Hydroxide)

D.O.T. HAZARD CLASS..... 8

D.O.T. LABELS REQUIRED..... Corrosive

UN/NA I.D. NUMBER..... UN 3266

PACKAGING GROUP..... II

NON-BULK SHIPPING NAME..... Corrosive Liquid, Basic, Inorganic, N.O.S. (Sodium Hydroxide), 8, UN 3266, PG II

BULK SHIPPING NAME..... Same

SECTION 5

PHYSICAL DATA

BOILING/FREEZING POINT @760 mmHg... 212°F (100°C) / ND

pH..... 12

VAPOR PRESSURE mm Hg @20° C..... ND

VAPOR DENSITY (Air = 1)..... ND

PERCENT VOLATILE BY WEIGHT (%)..... 75

SPECIFIC GRAVITY @20°C..... 1.24

SOLUBILITY IN WATER..... Complete

EVAPORATION RATE..... (Water=1) <1

APPEARANCE AND ODOR..... Light yellow liquid.

SECTION 6

FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Test Method)..... NA

AUTOIGNITION TEMPERATURE..... NA

FLAMMABILITY LIMITS IN AIR (% V).... NA

SECTION 6FIRE AND EXPLOSION HAZARD DATA

CONT'D

EXTINGUISHING MEDIA..... Not Combustible

SPECIAL FIRE FIGHTING PROCEDURES... NA

UNUSUAL FIRE & EXPLOSION HAZARDS... Material is alkaline. Beware of exploding drums due to expansion.

SECTION 7REACTIVITY DATA

PRODUCT STABILITY..... Stable

Conditions to Avoid..... NA

CHEMICAL INCOMPATIBILITY..... Strong acids and oxidizers.

HAZARDOUS DECOMPOSITION PRODUCTS... None Known

HAZARDOUS POLYMERIZATION..... Will Not Occur

SECTION 8HEALTH HAZARD DATA

SKIN CONTACT... Alkaline components may cause irritation upon extended contact.

EYE CONTACT... Immediate irritation upon contact which may result in chemical burns.

INHALATION..... Unlikely route of exposure with normal handling.

INGESTION..... Irritation and chemical burns possible upon ingestion.

SECTION 9EMERGENCY AND FIRST AID PROCEDURES

SKIN.....Remove contaminated clothing and flush exposed skin with soap and water. If irritation persists or develops, get medical attention. Launder contaminated clothing before reuse.

EYES.....Immediately flush eyes with large amounts of water for 15 minutes and get medical attention.

INGESTION....If swallowed, DO NOT INDUCE VOMITING. Get medical attention immediately. Never give anything by mouth to an unconscious person.

INHALATION...Move to fresh air. Aid in breathing, if necessary, and get medical attention.

SECTION 10ENVIRONMENTAL DATA

SPILL OR LEAK PROCEDURES... Avoid skin contact. Neutralize with appropriate material and absorb with sand or inert material. Place in suitable container for disposal. Flush neutralized residues with water to sanitary sewer.

WASTE DISPOSAL METHOD..... Corrosive. Dispose of in accordance with all federal, state and local regulations.

HAZARDOUS WASTE 40CFR261... Yes. Hazardous Waste Number: D002

CONTAINER DISPOSAL..... Empty containers may contain residuals. Thoroughly clean, then offer for recycling, reuse, or disposal in accordance with governmental regulations.

SECTION 11SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION.....Respirator not required with most applications.

VENTILATION.....Local exhaust is generally sufficient to minimize exposure.

PROTECTIVE CLOTHING.....Neoprene gloves, apron, boots - as necessary to prevent skin contact.

EYE PROTECTION.....Chemical goggles.

OTHER PRECAUTIONS.....Safety shower and eyewash fountains should be easily accessible.

SECTION 12SUPPLIER INFORMATION

This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of manufacturer. The data on this sheet relates only to the specific material designated herein. Manufacturer assumes no legal responsibility for use or reliance upon this data.

MATERIAL SAFETY DATA SHEET

ABT 3323

Latest Revision Date...10/18/06

Print Date.....06/11/07

SECTION 1

MANUFACTURER INFORMATION

ARTESIAN PROCESS CHEMICALS GROUP

FOR CHEMICAL EMERGENCY

224 CAPITOL STREET

CALL CHEMTREC @ 1-800-424-9300

CHARLESTON, WV 25301

PH. 304-343-4763 800-304-4763

SECTION 2

PRODUCT IDENTIFICATION

PRODUCT NUMBER..... AL 3323

TRADE NAME OR CHEMICAL NAME... ABT 3323

SYNONYMS..... NA

CHEMICAL FAMILY..... Internal Boiler Water Treatment

NFPA - HEALTH HAZARD..... 3

FIRE HAZARD..... 0

REACTIVITY HAZARD..... 0

NFPA SCALE..... 4=Extreme 3=High 2=Moderate 1=Slight 0=Insignificant

KEY..... NA= Not Applicable ND= Not Determined

SECTION 3

HAZARDOUS INGREDIENTS

CHEMICAL NAME(S)	CAS NUMBER	% WT	TLV-TWA	PEL	SEC.313	CARCINOGEN?
Sodium Bisulfite	7681-57-4	<35	5 mg/m3	5 mg/m3	No	No

SECTION 4

SHIPPING DATA

D.O.T. PROPER SHIPPING NAME... Bisulfites, Aqueous Solutions, N.O.S. (Sodium Bisulfite)

D.O.T. HAZARD CLASS..... Corrosive Material Class 8

D.O.T. LABELS REQUIRED..... Corrosive Diamond

UN/NA I.D. NUMBER..... UN 2693

PACKAGING GROUP..... III

NON-BULK SHIPPING NAME..... Bisulfites, Aqueous Solutions, N.O.S. (Sodium Bisulfite), 8, UN 2693, PG III

BULK SHIPPING NAME..... Bisulfites, Aqueous Solutions, N.O.S. (Sodium Bisulfite), 8, UN 2693, PG III, RQ (If 14,705 lbs. or more in one package)

SECTION 5

PHYSICAL DATA

BOILING/FREEZING POINT @760 mmHg... 220°F (105°C) / ND

pH..... 5

VAPOR PRESSURE mm Hg @20° C..... ND

VAPOR DENSITY (Air = 1)..... ND

PERCENT VOLATILE BY WEIGHT (%)..... 60

SPECIFIC GRAVITY @20°C..... 1.30

SOLUBILITY IN WATER..... Complete

EVAPORATION RATE..... (Water=1) <1

APPEARANCE AND ODOR..... Faint orange liquid with pungent odor.

SECTION 6

FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Test Method)..... NA

AUTOIGNITION TEMPERATURE..... NA

SECTION 6FIRE AND EXPLOSION HAZARD DATA

CONT'D

FLAMMABILITY LIMITS IN AIR (% V)... NA

EXTINGUISHING MEDIA..... Not Combustible

SPECIAL FIRE FIGHTING PROCEDURES... Oxides of sulfur may be liberated in very hot fire. Wear self-contained breathing apparatus.

UNUSUAL FIRE & EXPLOSION HAZARDS... NA

SECTION 7REACTIVITY DATA

PRODUCT STABILITY..... Stable

Conditions to Avoid..... Temperatures above 212°F (100°C)

CHEMICAL INCOMPATIBILITY..... Strong acids, strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS... Oxides of sulfur

HAZARDOUS POLYMERIZATION..... Will Not Occur

SECTION 8HEALTH HAZARD DATA

SKIN CONTACT... May cause irritation. Can be corrosive to the skin upon prolonged contact.

EYE CONTACT... May cause irritation upon contact. Can be corrosive causing severe burns.

INHALATION.... May cause breathing difficulties in sensitive individuals particularly asthmatics.

INGESTION..... May cause irritation.

SECTION 9EMERGENCY AND FIRST AID PROCEDURES

SKIN.....Remove contaminated clothing and flush exposed skin with soap and water. If irritation persists or develops, get medical attention. Launder contaminated clothing before reuse.

EYES.....Immediately flush eyes with large amounts of water for 15 minutes and get medical attention.

INGESTION....If swallowed, INDUCE VOMITING. Get medical attention immediately. Never give anything by mouth to an unconscious person.

INHALATION...Move to fresh air. Aid in breathing, if necessary, and get medical attention.

SECTION 10ENVIRONMENTAL DATA

SPILL OR LEAK PROCEDURES... Neutralize with appropriate alkaline material. Absorb onto inert material and place in suitable container for proper disposal. Flush neutralized residues to sanitary sewer.

WASTE DISPOSAL METHOD..... Dispose of in accordance with all federal, state and local regulations.

HAZARDOUS WASTE 40CFR261... NA

CONTAINER DISPOSAL..... Empty containers may contain residuals. Thoroughly clean then offer for recycling, reuse, or dispose of in accordance with regulations.

SECTION 11SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION.....NIOSH/MSHA approved can or cartridge respirator for gas and vapor as needed to maintain P.E.L.

VENTILATION.....Local and/or mechanical exhaust to maintain exposure below P.E.L.

PROTECTIVE CLOTHING.....Neoprene gloves, full chemical suit, boots - as necessary to prevent skin contact.

EYE PROTECTION.....Chemical goggles and/or full face shield.

OTHER PRECAUTIONS.....Safety shower and eyewash fountains should be easily accessible.

SECTION 12SUPPLIER INFORMATION

This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of manufacturer. The data on this sheet relates only to the specific material designated herein. Manufacturer assumes no legal responsibility for use or reliance upon this data.

MATERIAL SAFETY DATA SHEET

ACT 4401

Latest Revision Date...04/05/11

Print Date.....04/06/11

SECTION 1

MANUFACTURER INFORMATION

ARTESIAN PROCESS CHEMICALS GROUP
224 CAPITOL STREET
CHARLESTON, WV 25301
PH. 304-343-4763 800-304-4763

FOR CHEMICAL EMERGENCY
CALL CHEMTREC @ 1-800-424-9300

SECTION 2

PRODUCT IDENTIFICATION

PRODUCT NUMBER..... AL 4401

TRADE NAME OR CHEMICAL NAME... ACT 4401

SYNONYMS..... NA

CHEMICAL FAMILY..... NA

NFPA - HEALTH HAZARD..... 2

FIRE HAZARD..... 0

REACTIVITY HAZARD..... 0

NFPA SCALE..... 4=Extreme 3=High 2=Moderate 1=Slight 0=Insignificant

KEY..... NA= Not Applicable ND= Not Determined

SECTION 3

HAZARDOUS INGREDIENTS

CHEMICAL NAME(S)	CAS NUMBER	% WT	TLV-TWA	PEL	SEC. 313	CARCINOGEN?
Sodium Hydroxide	1310-73-2	<5	2 mg/m3	2 mg/m3	No	No

SECTION 4

SHIPPING DATA

D.O.T. PROPER SHIPPING NAME... Sodium Hydroxide, Solution

D.O.T. HAZARD CLASS..... 8

D.O.T. LABELS REQUIRED..... Corrosive

UN/NA I.D. NUMBER..... UN 1824

PACKAGING GROUP..... II

NON-BULK SHIPPING NAME..... Sodium Hydroxide, Solution, 8, UN 1824, PG II, Liquid

BULK SHIPPING NAME..... Same

SECTION 5

PHYSICAL DATA

BOILING/FREEZING POINT @760 mmHg... 212°F (100°C) / ND

pH..... 13

VAPOR PRESSURE mm Hg @20° C..... ND

VAPOR DENSITY (Air = 1)..... >1

PERCENT VOLATILE BY WEIGHT (%)..... 85

SPECIFIC GRAVITY @20°C..... 1.14

SOLUBILITY IN WATER..... Complete

EVAPORATION RATE..... (Water=1) <1

APPEARANCE AND ODOR..... Amber liquid with mild odor.

SECTION 6

FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Test Method)..... NA

AUTOIGNITION TEMPERATURE..... NA

FLAMMABILITY LIMITS IN AIR (% V) ... NA

SECTION 6**FIRE AND EXPLOSION HAZARD DATA**

CONT'D

EXTINGUISHING MEDIA..... Not combustible
 SPECIAL FIRE FIGHTING PROCEDURES... NA
 UNUSUAL FIRE & EXPLOSION HAZARDS... Cool drums exposed to fire to prevent steam rupture.

SECTION 7**REACTIVITY DATA**

PRODUCT STABILITY..... Stable
 Conditions to Avoid..... NA
 CHEMICAL INCOMPATIBILITY..... Strong acids
 HAZARDOUS DECOMPOSITION PRODUCTS... None Known
 HAZARDOUS POLYMERIZATION..... Will Not Occur

SECTION 8**HEALTH HAZARD DATA**

SKIN CONTACT... May cause severe irritation, burns possible upon prolonged contact.
 EYE CONTACT... May be destructive to eye tissue on contact.
 INHALATION.... Mist may damage upper respiratory tract and lung tissue proper.
 INGESTION.... May cause severe burns and complete tissue perforation of mucous membranes of the mouth, throat, esophagus and stomach.

SECTION 9**EMERGENCY AND FIRST AID PROCEDURES**

SKIN..... Remove contaminated clothing and flush exposed skin with soap and water. If irritation persists or develops, get medical attention. Launder contaminated clothing before reuse.
 EYES..... Immediately flush eyes with large amounts of water for 15 minutes and get medical attention.
 INGESTION... If swallowed, DO NOT INDUCE VOMITING. Get medical attention immediately. Never give anything by mouth to an unconscious person.
 INHALATION... Move to fresh air. Aid in breathing, if necessary, and get medical attention.

SECTION 10**ENVIRONMENTAL DATA**

SPILL OR LEAK PROCEDURES... Avoid skin contact. Neutralize with appropriate material and flush with large amounts of water to sanitary sewer.
 WASTE DISPOSAL METHOD..... Corrosive. Dispose of in accordance with all federal, state and local regulations.
 HAZARDOUS WASTE 40CFR261... Yes. Hazardous Waste Number: D002
 CONTAINER DISPOSAL..... Empty containers may contain residuals. Thoroughly clean, then offer for recycling, reuse, or disposal in accordance with governmental regulations.

SECTION 11**SPECIAL PROTECTION INFORMATION**

RESPIRATORY PROTECTION..... Respirator not required with most applications.
 VENTILATION..... Local exhaust is generally sufficient to minimize exposure.
 PROTECTIVE CLOTHING..... Neoprene gloves, apron, boots - as necessary to prevent skin contact.
 EYE PROTECTION..... Chemical goggles.
 OTHER PRECAUTIONS..... Safety shower and eyewash fountains should be easily accessible.

SECTION 12**SUPPLIER INFORMATION**

This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of manufacturer. The data on this sheet relates only to the specific material designated herein. Manufacturer assumes no legal responsibility for use or reliance upon this data.

MATERIAL SAFETY DATA SHEET

Artesian Laboratories, Inc.
224 Capitol Street
Charleston, WV 25301
800-304-4763

* 24 HOUR EMERGENCY TELEPHONE: CHEMTREC 800-424-9300

SECTION 1. PRODUCT IDENTIFICATION

Lastest Revision: May 2010

Prepared By:

Product Name: **ASP-6500**
Formula: blend
Chemical Family: borate/nitrate/nitrite

DOT Proper Shipping Name:
Corrosive Liquid, N.O.S.(Sodium Hydroxide Solution),8,UN1824,PGII

SECTION 2. HAZARDOUS COMPONENTS & SPECIFICATIONS

If present, IARC, NTP and OSHA Carcinogens are identified in this section

Hazardous Ingredient(s)	CAS#	%
sodium nitrite (DOT regulated in quantities over 55 gal.)	7632-00-0	<12
borax	1303-96-4	<3
sodium nitrate	7631-99-4	<1

Ingredients not precisely identified are proprietary or non-hazardous. All ingredients appear on the EPA TSCA inventory. Values are not product specifications.

TLV (ppm): None Est PEL (ppm): None Est
Fire: 0 Toxicity: 2 Reactivity: 0 Special: none

Known Hazards Under 29 CFR 1910.1200:
Irritant, Skin Hazard, Eye Hazard, Toxic Agent

DOT Hazard Class: 8 (corrosive)
EPA Waste Class: D002 (corrosivity)

SECTION 3. SAFE USAGE DATA

Ventilation: 1. Local Exhaust. Normal
2. Mechanical (General): Sufficient

Protective Gloves: Rubber or other impervious material.

Eye Protection: Chemical safety goggles or shield–
Do not wear contact lenses

Respiratory: NIOSH approved respirator if mechanical
ventilation not sufficient

Other Protective Equipment: Rubber apron if splashing is likely

Special Precautions

Handling and Storing: Avoid skin and eye contact. DO NOT TAKE
INTERNALLY. Keep container closed when not in
use. Preserve Integrity of Container. Wash
thoroughly after handling.

Other Precautions: FOR INDUSTRIAL USE ONLY

SECTION 4. EMERGENCY RESPONSE DATA

Fire: Extinguishing Media: N/A (not applicable)

Exposure: First Aid Measures:
EYES: Flush with water & consult physician
SKIN: Flush with water – wash with soap & water
INHALATION: Remove to fresh air, consult physician if irritation
develops
INGESTION: Administor water and induce vomiting, continue
until vomit is clear & get medical attention
immediately.

Spills: Contain spill if without risk. Use absorbent material & shovel into
clean drums. Complete clean up with water.

Waste Disposal Method:
Dispose of in accordance with all federal, state & local
regulations.

RQ: In quantities of over 55 gallons. RQ for sodium nitrite 100 lbs.

SECTION 5. PHYSICAL HAZARD DATA

Flamability	LFL= NA UFL= NA Flash Point: No Flash Point, Extinguishes Flame Method Used: NA	
Stability	Stable Conditions to avoid: none Hazardous Decomposition PDTs: nitrogen oxides	
Hazardous Polymerization:	will not occur	Conditions to avoid: none
Incompatibility	Materials to avoid: none	

SECTION 6. HEALTH HAZARD DATA

Effects of Exposure: Causes irritation to skin, eyes & respiratory tract.
Toxic by ingestion.

Entry Route: Inhalation, ingestion, skin, eye

Emergency Treatment:

EYES: Flush with water & consult physician
SKIN: Flush with water – wash with soap & water
INHALATION: Remove to fresh air, consult physician if irritation develops
INGESTION: Administer water and induce vomiting, continue until vomit is clear & get medical attention immediately.

SECTION 7. PHYSICAL & CHEMICAL PROPERTIES

Boiling Point:	above 250° F
Solubility in Water:	soluble
Evaporation Rate:	N/A
Vapor Pressure:	N/A
Vapor Density, (Air=1):	N/A
Volatile components:	none
Appearance:	clear liquid
Odor:	negligible
pH	@ 10
Physical State:	Liquid

MATERIAL SAFETY DATA SHEET

BIOTROL 306

Revision Date: 06/04/2009

** FOR CHEMICAL EMERGENCY CALL CHEMTREC: 800-424-9300 **

Manufactured for: Artesian Laboratories, Inc
Address: 224 Capitol Street, Charleston, WV 25301

| HMIS RATINGS | HEALTH: 3 | FLAMMABILITY: 0 | REACTIVITY: 0 | PP: C |

SECTION I-PRODUCT INFORMATION

Chemical Name: Mixture*
Chemical Family: Microbiocide/Slimicide
Formula: Mixture CAS Number: None
DOT Hazard Class: Class 8 (Corrosive)
DOT Proper Shipping Name: Corrosive Liquid, Acidic, Organic, NOS,
(Contains 5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-4-
isothiazolin-3-one), Class 8, UN3265, PG II.

SECTION II-PHYSICAL DATA

Boiling Point: 212 degrees F. Specific Gravity (H₂O=1): 1.03
Vapor Pressure (mmHg): 17 mm Hg Vapor Density (air=1): 0.62
Water Solubility: Soluble pH (as is): 3.0 (approx)
Evaporation Rate (n-butyl acetate=1): < 1
% Volatiles: 95-96% (water)
Appearance and Odor: Pale yellow liquid with a mild odor.

SECTION III-COMPOSITION/INFORMATION ON INGREDIENTS

Material	Percent	TLV (Units)
5-chloro-2-methyl-4-isothiazolin-3-one CASRN 26172-55-4	1.11	None established
2-methyl-4-isothiazolin-3-one CASRN 2682-20-4	0.37	MEL-0.05 mg/m3

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SECTION III-HAZARDOUS INGREDIENTS (Continued)

Inert Ingredients 98.52 None

* Additional information will be provided in a medical emergency to qualified medical personnel.

SECTION IV-FIRE AND EXPLOSION HAZARD DATA

Flash Point: None

Flammable Limits: Not applicable Lower: N/A Upper: N/A

Extinguishing Media: Water, foam, CO2, or dry chemical.

Special Fire Fighting Procedures: Wear a MSHA/NIOSH-approved, pressure-demand, self-contained breathing apparatus and full protective clothing. Use water spray to cool fire-exposed containers.

Fire and Explosion Hazards: Avoid exposure to fumes & vapors from a fire as they can possibly include sulfur dioxide, hydrogen chloride and oxides of nitrogen.

SECTION V-HEALTH HAZARD DATA

Threshold Limit Value (TLV) for the Product: Not determined for mixture.

Does Product Contain OSHA, NTP or IARC Carcinogens above 0.1%? No.

FIRST AID

EYES: Immediately flush eyes with running water for at least 15 minutes, lifting the upper and lower eyelids occasionally. Get prompt medical attention.

SKIN: Wash thoroughly with soap and water. Remove contaminated clothing. Get medical attention if irritation or rash develops.

INHALATION: Move to fresh air. See a doctor if breathing is difficult.

INGESTION: Since product is corrosive, **DO NOT INDUCE VOMITING!** If victim is conscious, give 2 glasses of water to drink and call a physician. NEVER give anything by mouth to an unconscious person.

NATURE OF HAZARD (PHYSICAL EFFECTS):

Artesian Laboratories, Inc.

EYES: Severe eye irritant. Corrosive, can cause corneal injury.

SKIN: Can cause irritation or burns. Even at low concentrations, the material is a skin sensitizer (can cause allergic dermatitis reaction).

INHALATION: Irritating to the nose, throat and lungs. Inhalation of mists can cause severe irritation to the respiratory system.

INGESTION: Can be harmful or fatal if swallowed.

ACUTE OVEREXPOSURE: Irritating to the exposed areas.

CHRONIC OVEREXPOSURE: No data available for chronic effects.

TOXICITY DATA

EYE CONTACT: A PRIMARY ROUTE OF ENTRY.

Eye (rabbit): Corrosive to eyes.

SKIN CONTACT: A PRIMARY ROUTE OF ENTRY.

Acute Dermal Toxicity (rat): LD50 = 0.2000 mg/kg.

Primary Skin Irritation (rabbit): Persistent, well-defined to moderate dermal irritation.

Sensitization: Can cause allergic skin reaction.

INHALATION:

Acute Inhalation (rat): LC50 (mist) approximately 12.3 mg/l/(4 hr).

INGESTION:

Acute oral toxicity (rat): LD50 is approximately 5500 mg/kg.

Special Precautions: Individuals with diseases of the skin or respiratory system should not be exposed to this product unless fully protected.

REFERENCES

ACGIH: THRESHOLD LIMIT VALUES (2005-06).

SAX'S DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS, Ninth Edition, Richard J. Lewis Sr., Van Nostrand Reinhold Co. (1996).

MATERIAL SAFETY DATA SHEETS from raw material suppliers.

BIOTROL 306

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Artesian Laboratories, Inc.

SECTION VI-REACTIVITY DATA

Stability: Stable XX Unstable _____

Conditions to avoid: None known.

Incompatibility (Materials to Avoid): None known.

Hazardous Decomposition Products: Hydrogen chloride and oxides of sulfur.

Hazardous Polymerization: May occur _____ Will Not Occur XX

SECTION VII-SPILL OR LEAK PROCEDURES

ACTION TO TAKE FOR SPILLS: Personnel cleaning up spills should wear impervious overshoes in addition to the usual protective clothing. The spilled material should be diked and absorbed with an inert solid such as clay or vermiculite. The absorbent (and surface soil to a depth sufficient to remove all microbiocide) is then shoveled into a pail or a drum and treated with enough decontaminant solution to wet the solids thoroughly. Let these containers stand open for 48 hours to avoid pressure build-up, then seal and dispose of by burying as landfill. The decontaminant area is washed with additional decontaminant solution and flushed into a chemical or municipal sewer. Do not discharge spills or cleaning run-offs into open bodies of water. Remove contaminated clothing promptly and launder before re-use. Wash skin with soap and water.

SECTION VII-SPILL OR LEAK PROCEDURES (Continued)

DISPOSAL METHOD: Dispose of in accordance with all local, state and federal regulatory agencies. For discard, this is a hazardous waste: RCRA NUMBER D002; reportable quantity: 1 pound (CERCLA (Superfund) Section 103). In accordance with local, state and federal regulations, landfill contaminated solids in sealed drums. Puncture or otherwise damage empty plastic containers to prevent reuse.

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SECTION VIII-SPECIAL PROTECTION INFORMATION

AIR EXPOSURE RECOMMENDATIONS	NORMAL USE	GAS, FUMES, MISTS EXCEED TLV	SPECIAL THERMAL, SPRAY APPLICATIONS
General ventilation	OK	Not recommended---	Not recommended
Local Exhaust	OK	Not recommended---	Not recommended
Respiratory Protection (Code 1-4)	1	4	4

Codes for Respiratory Protection:

1. None Needed
2. Particle-removing, air purifying respirator (dust mask)
3. Gas and vapor-removing, air purifying respirator (Canister)
4. Full face, positive pressure-demand type (air supplied)

EYE PROTECTION: OSHA-approved chemical splash goggles and face shield.

PROTECTIVE GLOVES: Butyl rubber/nitrile.

OTHER PROTECTIVE EQUIPMENT: Impervious apron, eyewash, safety shower.

SECTION IX-SPECIAL PRECAUTIONS

Precautions to be taken in handling and storage: Wear eye and skin protection. Use in a well-ventilated area. Do not freeze. Keep away from children and other unauthorized personnel. Material is corrosive and is a skin sensitizer. Wash thoroughly after handling, and shower after the work period. Empty drums can still contain hazardous residues; dispose of drums properly when empty. Keep lids on containers when not in use.

Decontaminant Solution: Sodium bisulfite solutions (about 11% solids content) rapidly decomposes the product. Laboratory tests from the supplier indicate that the microbiocide is almost completely deactivated within 30 minutes when treated with at least 4 equivalents of decontaminating solution. A volume of 20/1 decontaminant/active microbiocide is recommended. The following solutions are acceptable decontaminants:

BIOTROL 306

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Artesian Laboratories, Inc.

SECTION IX-SPECIAL PRECAUTIONS (Continued)

<u>INGREDIENTS</u>	<u>WEIGHT (pounds)</u>
Sodium Metabisulfite (Na ₂ S ₂ O ₅)	1.0
Water	8.0
Total	9.0

Solids Content: 11.1%

pH = 4.2

<u>INGREDIENTS</u>	<u>WEIGHT (pounds)</u>
Sodium Bisulfite (NaHSO ₃)	1.0
Water	8.3
Total	9.3

Solids Content: 10.7%

pH = 4.2

<u>INGREDIENTS</u>	<u>WEIGHT (pounds)</u>
Sodium Sulfite (Na ₂ SO ₃)	1.00
Water	7.00
Hydrochloric Acid (37%)	0.67
Total	8.67

Solids Content: 9.5%

pH = 5.0-5.5

SECTION X-MISCELLANEOUS

Is product RCRA regulated? Yes, Corrosive Hazardous Waste, D002.

Are all ingredients listed in the TSCA inventory? Yes.

ENVIRONMENTAL EFFECTS: Toxic to fish and wildlife.

SARA Classification for product: Acute Hazard, chronic hazard

Artesian Laboratories, Inc.

SECTION X-MISCELLANEOUS (Continued)

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:  SARA TITLE III, SECTION 313 CHEMICALS:  :
:                                           :
:    5-chloro-2-methyl-4-isothiazolin-3-one    1.11%  :
:    CASRN 26172-55-4                          :
:                                           :
:    2-methyl-4-isothiazolin-3-one              0.37%  :
:    CASRN 2682-20-4                          :
:                                           :
-----
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COMMENTS: This product is for industrial use only!

ISSUE DATE: 02/18/2008

REVISION: 06/04/09

SUPERCEDES:

REASON FOR REVISION:

PRODUCT NUMBER: 300005

MSDS #: 08-0018

COMPANY CONTACTS: John W. Morgan 304-343-4763

The information given and the recommendations made herein apply to our product(s) alone and not in combination with any other products. Such information and recommendations are based on **ARTESIAN LABORATORIES** research and on data from other reliable sources and are believed to be accurate, but no guaranty of their accuracy is made. In every case we urge and recommend that purchasers, before using any product, make their own tests to verify this data under their own operating conditions and determine to their own satisfaction whether the product is suitable for their particular purposes. **THE PRODUCT IS DISCUSSED HEREIN AND SOLD WITHOUT ANY WARRANTY AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER WARRANTY, EXPRESSED OR IMPLIED.**

This form meets the requirements of OSHA 29CFR 1910.1200

BIOTROL 306

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MATERIAL SAFETY DATA SHEET

Product Name	CDB 90	
Product id	9716	
Revision date	21/11/2010	Revision: 6
Supersedes	14/11/2010	

1. Identification of the substance & the company

Chemical name	Trichloro-s-triazinetriene
Synonym(s)	Trichloroisocyanuric Acid; TCCA; Trichlor; Trichloro-s-triazinetriene; Symclosene
Chemical formula	$C_3Cl_3N_3O_3$
Chemical family	Chloroisocyanurate
Molecular weight	232.41
Type of product and use	For formulation into end-use products intended for disinfectants, sanitizers, fungicides, bactericides and algaecides for pools, spas, hot tubs, industrial recirculating water cooling towers, air washers and evaporative condensers, sewage treatment, food contact surfaces, laundry and egg sanitizing
Supplier	Clearon Corp. 95 MacCorkle Ave. SW, South Charleston, WV 25303, USA Tel: (304) 746-3000
Emergency Telephone	Chemtrec (800)424-9300

2. Hazards identification

Emergency overview	<i>White granuls or tablet-form product</i> <i>Oxidizer</i> <i>Causes irreversible eye damage and skin burns</i> <i>May be fatal if inhaled</i> <i>May be fatal if absorbed through skin</i>
Potential Health Effects:	
- Eye Contact	Severe irritation and/or burns can occur following eye exposure. Contact may cause impairment of vision and corneal damage.
- Skin contact	Dermal exposure can cause severe irritation and/or burns characterized by redness, swelling and scab formation. Repeated skin exposure may cause tissue destruction due to the corrosive nature of the product.

MATERIAL SAFETY DATA SHEET

Product Name	CDB 90	
Product Id	9716	
Revision date	21/11/2010	Revision: 6
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- Inhalation Irritating to the nose, mouth, throat and lungs.
It may also cause burns to the respiratory tract with the production of lung edema that can result in shortness of breath, wheezing, choking, chest pain, and impairment of lung function.
Inhalation of high concentrations can result in permanent lung damage from the corrosive action of the lung.

- Ingestion Irritation and/or burns can occur to the entire gastrointestinal tract, including the stomach and intestines, characterized by nausea, vomiting, diarrhea, abdominal pain, bleeding and/or tissue ulceration.
Ingestion causes severe damage to the gastrointestinal tract with the potential to cause perforation.

Potential environmental effects Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

NFPA Ratings (Scale 0-4) Health = 3, Fire = 0, Reactivity = 2.
Special Hazard Warning: OXIDIZER

HMIS Ratings (Scale 0-4) Health = 3, Fire = 0, Reactivity = 2

3. Composition / information on ingredients

Components	CAS No.	Weight %
Trichloroisocyanuric Acid	87-90-1	98-100

4. First-aid measures

Eye contact Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advise.

Skin contact Remove contaminated clothing. Wash skin thoroughly with mild soap and plenty of water for at least 15 minutes. Wash clothing before re-use.
Get medical attention immediately.



MATERIAL SAFETY DATA SHEET

Product Name **CDB 90**
Product id 9716
Revision date 21/11/2010
Supersedes 14/11/2010

Revision: 6

Inhalation Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advise.

Ingestion Call poison control center, or doctor immediately for treatment advise.
Have person sip a glass of water if able to swallow.
Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person.

Note to physician Probable mucosal damage may contraindicate the use of gastric lavage.

5. Fire - fighting measures

Suitable extinguishing media Water

Extinguishing media not to be used Do not use dry chemical extinguisher containing ammonia compounds.

Fire fighting procedure Cool containers with water spray. Fire fighters should wear full protective clothing and self-contained breathing apparatus (SCBA) in positive pressure mode. On small fires, use water spray or fog.
On large fires, use heavy deluge or fog streams. Flooding amounts of water may be required before extinguishment can be accomplished.

Unusual fire and explosion hazards When heated to decomposition, may release poisonous and corrosive fumes of nitrogen trichloride, chlorine, nitrous oxides, cyanates, carbon monoxide and carbon dioxide.

6. Accidental release measures

Personal precautions For small spills in a well-ventilated areas, wear a NIOSH approved half-face or full face tight fitting respirator or a loose fitting powered air purifying respirator equipped with chlorine cartridges. Chemical goggles should be worn when using a half-face respirator. In addition to respiratory protection, wear coveralls, chemical resistant gloves, chemical resistant footwear; and chemical resistant headgear for overhead exposure.
For clean-up of large spills, or small dry spills in confined areas, wear full-face respirator with chlorine cartridges or a positive pressure supplied air respirator. Additionally, body protection should be impervious clothing covering entire body to prevent personal contact with material.
CAUTION - Protection concerns must also address the following: If this material becomes damp/wet or contaminated in a container, the formation of nitrogen trichloride gas may occur and an explosive condition may exist.



MATERIAL SAFETY DATA SHEET

Product Name **CDB 90**
Product id 9716
Revision date 21/11/2010
Supersedes 14/11/2010

Revision: 6

Methods for cleaning up

Hazardous concentrations in air may be found in local spill area and immediately downwind. If spill material is still dry, do not put water directly on this product as a gas evolution may occur.

- Soil

Do not contaminate spill material with any organic materials, ammonia, ammonium salts or urea.
Clean up all spill material with clean, dry dedicated equipment and place in a clean dry container.

- Water

This material is heavier than and soluble in water. Stop flow of material into water as soon as possible. Begin monitoring for available chlorine and pH immediately.

- In air

Vapors may be suppressed by the use of water fog.

7. Handling and storage

Handling

Avoid bodily contact.
Do not take internally.
Upon contact with skin or eyes, wash off with water.

Storage

Store in a dry, cool, well-ventilated area away from incompatible materials (see "materials to avoid").
Product has an indefinite shelf-life limitation. Do not store at temperatures above 60°C/140°F.
Available chlorine loss can be as little as 0.1% per year at ambient temperatures.

8. Exposure controls / personal protection

Exposure Limits :

Components	ACGIH-TLV Data	OSHA (PEL) Data
Trichloroisocyanuric Acid 87-90-1	Not determined	Not determined

MATERIAL SAFETY DATA SHEET

Product Name **CDB 90**
 Product id 9716
 Revision date 21/11/2010
 Supersedes 14/11/2010

Revision: 6

Ventilation requirements Use local exhaust ventilation to minimize dust and chlorine levels where industrial use occurs.
 Otherwise, ensure good general ventilation.

Personal protective equipment:

- **Respiratory protection** When dusty conditions are encountered, wear a NIOSH/OSHA full-face respirator with chlorine cartridges for protection against chlorine gas and dust/mist pre-filter.
- **Hand protection** Neoprene gloves
- **Eye protection** Use chemical safety glasses to avoid eye contact.
 Where industrial use occurs, chemical goggles may be required.
- **Skin and body protection** Body covering clothes and boots

Hygiene measures

Do not eat, smoke or drink where material is handled, processed or stored. Wash hands carefully before eating or smoking.
 Safety shower and eye bath should be provided.

9. Physical and chemical properties

Appearance	White granules or tablet-form product
Odour	Sharp, chlorine-like bleach odor
Boiling point/range	Not applicable (decomposes)
Melting point/range	225-230°C (decomposes)
Flash point	Not applicable
Auto-ignition temperature	Not applicable
Vapour pressure	Not applicable under standard conditions
Evaporation rate (ether=1)	Not applicable under standard conditions
Vapor density	Not applicable under standard conditions
Viscosity	No data available
Solubility:	
- Solubility in water	1.2 g/100ml at 25°C
- Solubility in other solvents	Not available
Bulk density	Granular - 0.89-1.1 g/cc Tablet - 1.16-1.9 g/cc
Specific gravity	>1
pH	2.7-2.9 (1% solution)
Decomposition temperature	225 °C (437°F)
Explosive properties	Not available
Oxidising properties	Oxidizer
Particle size:	Not available



MATERIAL SAFETY DATA SHEET

Product Name **CDB 90**
Product id 9716
Revision date 21/11/2010
Supersedes 14/11/2010

Revision: 6

10. Stability and reactivity

Stability Stable under normal conditions. Do not package in paper or cardboard.
NOTE: Contact with small amounts of water may result in an exothermic reaction with the liberation of toxic fumes.

Materials to avoid Organic materials, reducing agents, nitrogen containing materials, other oxidizers, acids, bases, oils, grease, sawdust, dry fire extinguishers containing monoammonium compounds.

Conditions to avoid Heating above decomposition temperature

Hazardous decomposition products Nitrogen trichloride, chlorine, nitrous oxides, cyanates, carbon monoxide, carbon dioxide.

Hazardous polymerization Will not occur

11. Toxicological information

Acute toxicity:

- Rat oral LD50 809 mg/kg
- Rabbit dermal LD50 >2000 mg/kg
- Eye irritation (rabbit) Corrosive
- Dermal irritation (rabbit) Corrosive
- Dermal sensitization Not a sensitizer

Chronic toxicity Prolonged exposure may cause damage to the respiratory system.
Chronic inhalation exposure may cause impairment of lung function and permanent lung damage.

Mutagenicity Not mutagenic in five Salmonella strains and one E.coli strain with or without mammalian microsomal activation.

Carcinogenicity Not classified by IARC, OSHA, EPA.
Not included in NTP 11th Report on Carcinogens

Reproductive toxicity There are no known or reported effects on reproductive function or fetal development.
Toxicological investigation indicates it does not affect reproductive function or fetal development.



MATERIAL SAFETY DATA SHEET

Product Name CDB 90
Product Id 9716
Revision date 21/11/2010
Supersedes 14/11/2010

Revision: 6

12. Ecological information

Aquatic toxicity :
- 96 Hour-LC50, Fish 0.32 mg/l (Rainbow trout)
0.30 mg/l (bluegill sunfish)
- 48 Hour-LC50, Daphnia magna 0.21 mg/l

Avian toxicity:
- Oral LD50, Mallard duck 1600 mg/kg
- Dietary LC50, Mallard duck >10,000 ppm
- Dietary LC50, Bobwhite quail 7422 ppm

Germany, water endangering classes (WGK) 3

13. Disposal considerations

Waste disposal

Observe all federal, state and local environmental regulations when disposing of this material. If this product becomes waste, it will be a hazardous waste that is subject to the Land Disposal Restrictions under 40 CFR 268 and must be managed accordingly.
Care must be taken to prevent environmental contamination from the use of this material.

14. Transportation information

UN No. 2468

DOT

Proper shipping name: Trichloroisocyanuric Acid Dry
Class: 5.1 - Oxidizing substances
Label: Oxidizing substances (5.1)
Packing Group: II
Emergency Guide No. 140

IMO

Proper shipping name: Trichloroisocyanuric Acid Dry
Class: 5.1 - Oxidizing substances
Label: Oxidizing substances (5.1)
Packing Group: II
Mark: MARINE POLLUTANT



MATERIAL SAFETY DATA SHEET

Product Name	CDB 90	
Product id	9716	
Revision date	21/11/2010	Revision: 6
Supersedes	14/11/2010	

ICAO/IATA	Proper shipping name: Trichloroisocyanuric Acid Dry Label: Oxidizing substances (5.1) Class: 5.1 Packing group: II Marking: Environmentally hazardous substance
-----------	---

15. Regulatory information

USA	Reported in the EPA TSCA Inventory. This product is registered under FIFRA.
- SARA (311, 312)	This product is categorized as an immediate health hazard, and fire and reactivity physical hazard. This product does not contain a chemical listed at or above de minimis concentrations.
- Massachusetts right-to-know list	Listed
- New Jersey right-to-know list	Listed
- Pennsylvania right to know list	Listed
- Waste Classifications	If this product becomes a waste, it meets the criteria of a hazardous waste as defined under 40 CFR 261 and would have the following EPA hazardous waste number: D001.
- Workplace Classification	This product is considered hazardous under the OSHA Hazard Communication Standard (29CFR 1910.1200).
Canada	Listed in DSL
-WHMIS hazard class	C oxidizing materials D1B toxic materials D2B toxic materials
EU	Reported in EINECS
EC No.	201-782-8
Japan	ENCS No. 5-1044, 5-1041
Australia	Listed in AICS
New Zealand Inventory	Listed in NZIoC



MATERIAL SAFETY DATA SHEET

Product Name	CDB 90
Product id	9716
Revision date	21/11/2010
Supersedes	14/11/2010

Revision: 6

China inventory	Listed
Korea	KE-34101
Philippines	Listed in PICCS

16. Other information

This data sheet contains changes from the previous version in section(s)

11

The information in this Material Safety Data Sheet should be provided to all who will use, handle, store, transport, or otherwise be exposed to this product. This information has been prepared for the guidance of plant engineering, operations and management and for persons working with or handling this product. Additionally, if this Material Safety Data Sheet is more than three years old, you should contact Clearon at the phone number listed below to make certain that this sheet is current.

Although the information and recommendations set forth herein (hereinafter "information") are presented in good faith and believed to be correct as of the date hereof, Clearon Corp. makes no representations as to the completeness or accuracy thereof.

Information is supplied upon the condition that the persons receiving same will make their own determination as to its safety and suitability for their purposes prior to use.

In no event will Clearon Corp. be responsible for damages of any nature whatsoever resulting from the use of or reliance upon information.

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In an event of discrepancy between the contents of this MSDS and the English version of it, the English version shall prevail.

Prepared by

HEALTH, SAFETY & ENVIRONMENT DEPARTMENT
CLEARON CORPORATION
95 MacCorkle Ave., S.W.
South Charleston, WV 25303
USA
Phone number: (304) 746-3000

End of safety data sheet



800-304-4763 304-343-4763

Attention:

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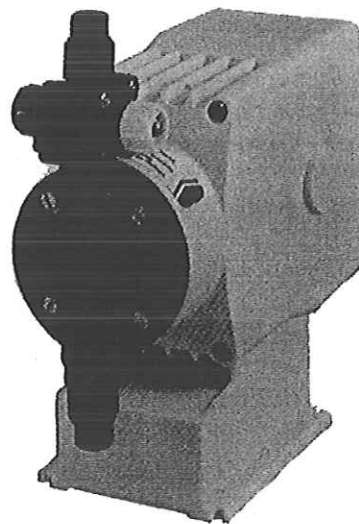
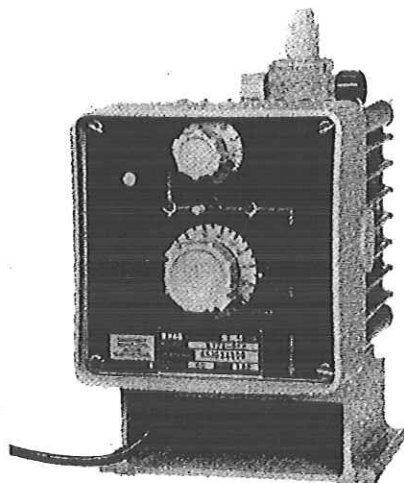
www.artesianlabs.com

DATE:

Information Sheet

Advantages of LMI Electronic Pumps

- **PRESSURE LIMITED** - No mechanical linkage. When the back pressure exceeds the strength of the magnetic force developed by the power coil, the pump stops stroking. No damage will occur to the pump.
- **CONSTANT DISCHARGE VELOCITY / BETTER VALVE ACTION** - Actual speed of each discharge stroke remains the same, no matter how low the stroke frequency is set. Sharp valve action is not sacrificed when pump speed is reduced.
- **WIDE RANGE ABILITY** - Both stroke length and stroke frequency are adjustable and have a multiplying effect. A practical adjustability range of 200 to 1 is common.
- **EASY ADAPTABILITY TO AUTOMATIC CONTROL** - Standard Series A7, B7, and C7 pumps are equipped to respond to an external switch closure such as that delivered by the LMI Flowmeter - Pulser. They can also respond to standard analog 4-20mA signal by means of the LMI Micropace MP-100 or DPC-40 controller.
- **SIMPLICITY OF MOVING UNIT** - Only one moving unit, the armature-diaphragm assembly. Requires no lubrication in service. No rotating masses such as motor or reduction gears.
- **MODULAR CONSTRUCTION** - Components and major assemblies are easily replaced. No soldering is required to replace any part of the LMI pump.
- **TOTALLY ENCLOSED** - Corrosion proof glass fiber reinforced polypropylene housings keep pump protected from chemicals and atmosphere.
- **LOW CONSUMPTION OF ELECTRICAL ENERGY** - LMI pumps use power only during the discharge portion of each stroke, thus causing minimum electrical consumption and low heat generation. No ventilation is required.
- **INDEPENDENT OF POWER LINE FREQUENCY** - LMI pumps can operate with any line frequency from 25 to 66 Hz without change in output or damage to the pump.



ARTESIAN LABORATORIES, INC.
P.O. BOX 3718
CHARLESTON, WV 25337

8 Post Office Square
Acton, MA 01720 USA
TEL: (978) 263-9800
FAX: (978) 264-9172
<http://www.lmipumps.com>

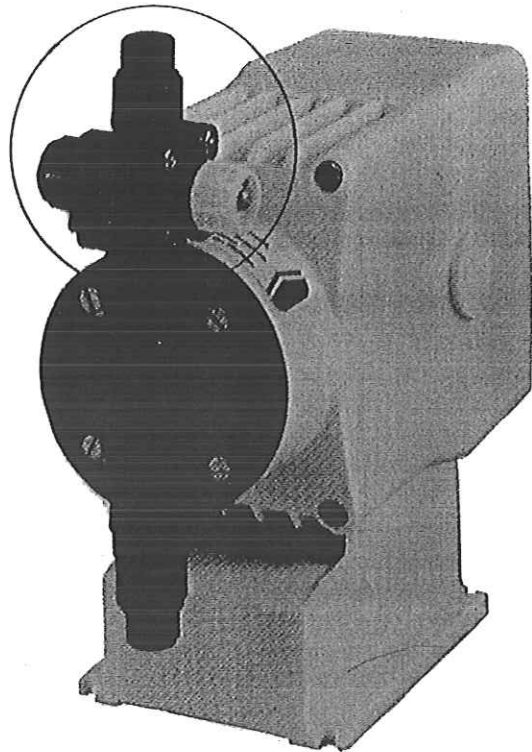


Replaces same of Rev. B 5/97
1120. B 3/98

ANOTHER IMPORTANT LMI ADVANTAGE

The unique, built-in Four Function Valve for Liquid Ends in Series 60, 70, 80, 90, 150 and 190

1. **Positive Anti-Syphon**
2. **Back Pressure**
3. **Priming Aid - Line Pressure Release**
4. **Pressure Relief**



Valve components are of corrosion resistant CFR PVDF, PVC/Polypropylene, or all Polypropylene. Diaphragms are molded Teflon® - Faced with Viton® backing, or PFA.

A positive diaphragm-type **ANTI-SYPHON** function makes it possible to meter liquids "down hill"; even into the suction side of a pump.

The **BACK PRESSURE** function permits metering into atmospheric discharge (open tank) without over pumping due to discharge velocity.

The **PRIMING - LINE PRESSURE RELEASE** function makes it easy to de-pressurize the discharge line without loosening tubing or fittings. You can **prime** your LMI pump while it is connected to a pressurized line.

The **PRESSURE RELIEF** function is not required on electronic pumps, but is important on any mechanical, motor driven pump. It is designed to open at approximately 175 psi.

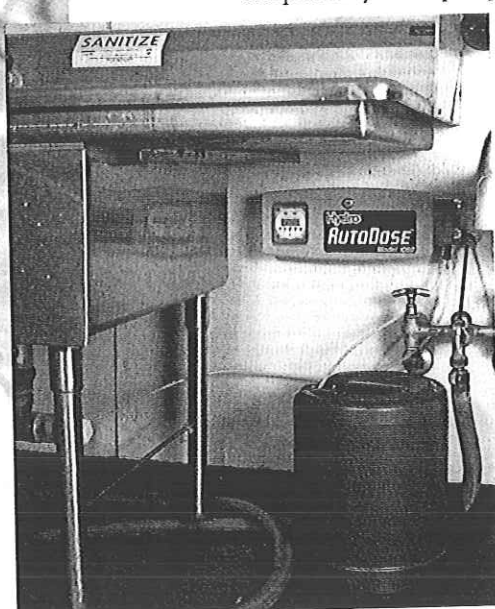
FOUR FUNCTION VALVE MODELS - add an "S" as a suffix to the end of the pump model number for any Series 60, 70, 80, 90, 150 or 190 pump equipped with a Liquid End, and your pump will come equipped with a built-in Four Function Valve.

® Teflon and Viton are registered trademarks of E. I. du Pont de Nemours & Co., Inc.

ARTESIAN LABORATORIES, INC.
P.O. BOX 3718
CHARLESTON, WV 25337

AutoDose pump dispensing systems specifications

Choose the model that suits your need based on power supply desired and chemical compatibility of the pump tube with the product to be dispensed.



Model 1060

Model	Lantern batteries*	AC transformer	D-cell batteries*	Norprene tube	Viton tube	Size (w x h x d)
1060	▲			▲		14" x 6" x 4"
1065	▲				▲	14" x 6" x 4"
1070		▲		▲		14" x 6" x 4"
1075		▲			▲	14" x 6" x 4"
1080			▲	▲		14" x 6" x 4"
1085			▲		▲	14" x 6" x 4"

* Batteries required to run the units are not included. Models run on two 6-volt lantern-style batteries or eight D-size batteries (alkaline batteries suggested).

The following specifications apply to all models:

Cabinetry	▲	Molded engineering resin
Flow rate	▲	100cc (3.5 oz.)/minute at 23 RPM
Program duration	▲	7 days, daily variations possible
Events	▲	8 "on" and 8 "off" per day
Minimum "on"	▲	1 minute (each program lasts at least 1minute)
Timer display	▲	LCD

Battery or AC powered operation to suit specific needs

The AutoDose pumps run on two 6-volt lantern batteries, eight D-size batteries or on AC power (alkaline batteries suggested). Environmental conditions of the application can be taken into consideration when choosing the power supply.

In some areas, particularly near drains where local safety codes may forbid electrical outlets, battery power can be the only answer. No outlet is required at the treatment site, which adds safety in these wet areas. Battery power also makes installation easier, since location of the system doesn't depend on outlet availability. Battery power ensures dosing at the proper time, even during or after power outages, enhancing the effectiveness of treatment chemicals which require regular dosing at specified intervals.

Batteries in AutoDose systems will power Hydro's patented pump for up to 40 running hours when alkaline batteries are used. This provides months of service for many treatment needs. The Hydro pump is designed specifically to extend battery life, reducing the frequency of battery replacement. These design advancements also increase tube and motor life.

Where battery replacement may be difficult, the AC powered versions offer the same flexible programmability and reliable dosing without requiring batteries.

ARTESIAN LABORATORIES, INC.
P.O. BOX 3718
CHARLESTON, WV 25337

Hydro®

Hydro Systems Company 3798 Round Bottom Rd., Cincinnati, OH 45244 USA

Phone: 513-271-8800

Fax: 513-271-0160

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969531

Hydro Systems Europe 19 Marino Way, Hogwood Lane Industrial Estate, Finchampstead, Wokingham, Berks. RG40 4RF England

Tel: 44 (0)1734 328899

Fax: 44 (0)1734 328238

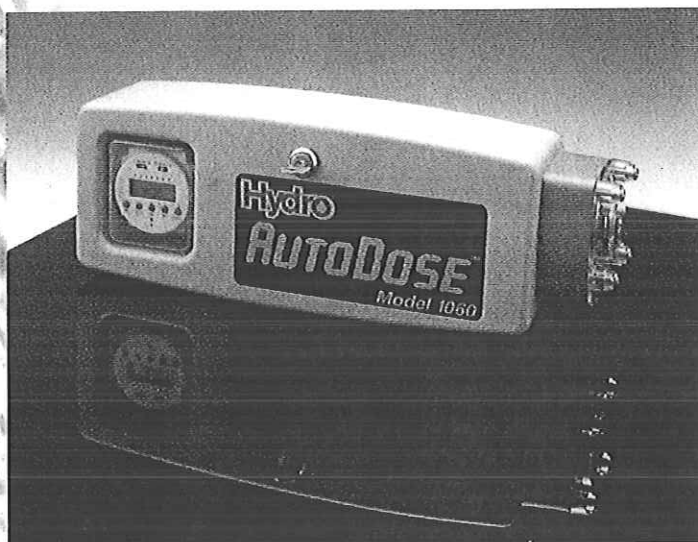
AutoDose[™] Dispensing Systems

Using flexible programming capability, the 1000 Series AutoDose[™] Pumps dose drains, cooling towers, boilers, pools, lubrication systems or other areas at the appropriate times. An easily programmed timer, which is housed in a moisture/vapor-resistant enclosure, turns the pump on and off to ensure regular dosing of chemicals.

Superior design for optimum performance and ease of use

It's widely accepted that it is easier to maintain drains than to unstop clogged ones. But maintenance of drains and other systems requires consistent application of maintenance chemicals. This is the job the AutoDose line of dispensers were designed for. Look at what the AutoDose dispensers have to offer:

- ▲ Molded cabinet is durable and corrosion resistant, even in demanding applications.
- ▲ The timer is visible when the cabinet is locked. It is secured from unauthorized reprogramming and insulated from moisture and vapors, yet the program can be monitored.
- ▲ During normal operation, the timer runs on the same power source as the pump, simplifying system maintenance (only one set of batteries to replace).
- ▲ Internal backup battery in timer maintains program even when main power source is disconnected or inoperative.
- ▲ Separate enclosure/access door for the timer: the timer isn't exposed to moisture or vapors even when the system cabinet is opened.
- ▲ Exterior pump location allows service without unlocking system cabinet.



Model 1060

Maximum flexibility for customized dosing

Hydro's AutoDose pump systems offer great flexibility. Here's what they offer in terms of customization of dispensing:

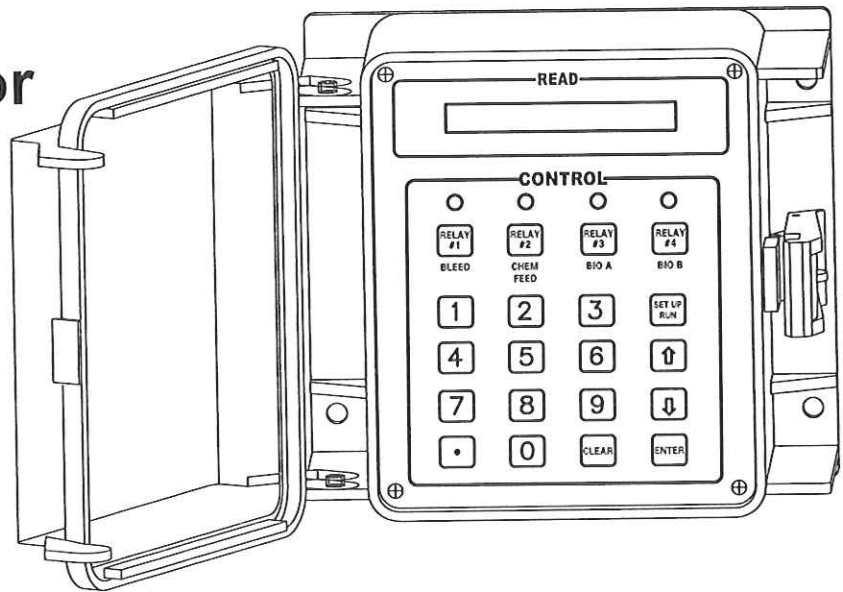
- ▲ choice of days, time (AM or PM) and dose durations (in one minute increments),
- ▲ up to 8 dosing periods per 24 hours,
- ▲ capability to dose every day, or just on specific days, and
- ▲ tube options (Norpren and Viton) for compatibility with a wide variety of products.

But maybe the most important benefit gained by using the AutoDose pumps is that they don't forget to add a dose! This can greatly enhance the performance of the treatment product.

MicroTron Tower Controller

Microprocessor Control of:

- Conductivity
- pH
- ORP
- Chemical Feed
- Biocide Control



Key Features

- 12 Bit Input Resolution
- Simple Step Through Menu
- One Point Calibration
- Raised Dome Keypads
- Relay Test Keys
- Non-Volatile Memory
- No Battery Required
- User Defined Security Code
- 2 Year Warranty
- Remote Communication Option
- Expanded Set Up Parameters
- Prewired Configuration

Application

The MicroTron series of controllers provide a wide range of options and features for a custom tailored unit to meet your unique systems needs.

MicroTron controllers can be configured with conductivity control of bleed, pH and/or ORP control. Selectable chemical feed timers and biocide timers are also available plus many more options and features (see reverse side).

The MicroTron series of controllers for recirculating water systems, such as cooling towers, offer the most flexibility in features and functions for the price.

Base Functions

All MicroTron controller model numbers can be broken down as follows and will always start with an M or L.

- M** MicroTron controller with VFD display
- L** MicroTron controller with LCD display
- C** Conductivity control with temperature
- C-2** Adds make-up conductivity function
- F** Single programmable feed timer
- F-2** Dual programmable feed timers
- F-3** Triple programmable feed timers
- B** Single 28 day timer
- B-2** Dual 28 day timer
- B-3** Triple 28 day timer
- P** pH control
- P-2** pH control with dual set points
- R** ORP control

MicroTron controls have a maximum of 5 relay outputs. Each letter designation above (except M and L) uses one relay. Letters with a -2 or -3 indicate the use of more relays. (C-2 uses only one relay)

Example Model Number: MCFB-2

Options

Your unit may be supplied with one or more options listed at the end of the model number, for example MCFB-2EHJ. This list represents our most popular options. For a complete list of options, consult the factory.

- A** Conduit Connections
- A-6** On/Off Power Switch (Adds Lower Enclosure)
- A-7** Lower Enclosure
- C-1** 0-5V Non-Isolated Output
- C-4** Single 4-20 mA Non-Isolated Output
- C-6** Single Isolated 4-20 mA Output
- D** 220 V Service (Must be conduit unit)
- E** Mounted Flow Switch Assembly 150 psi
- G** Serial Line Connection
- H** Serial Line Connection With Modem
- J** Windows Software
- L** Additional Output Cord
- M** Alarm Relay
- M-1S** Sonic Alarm Buzzer with Silence Switch
- N** Non Standard Conductivity Scales
- Q** Alternate electrodes
- R** Molex Connector on Conductivity Electrode
- V** Digital input for Bleed-Off Water Meter
- W** Power Relay 1.5 HP Maximum, 25 Amps
- X** Tank Low Level Alarm with Level Wand(s)
- Y** Bleed Flow Alarm (requires a Flow Switch)
- Z-6** Accepts 2 Water Meter Inputs
- Z-11** Lockout Chem Feed with Low Cond. Alarm

Specifications

Electrical

- **Input:** 115 VAC, 50/60 Hz
 - **Control:** 115 VAC, 15 Amp Total Capacity
- Prewired units are supplied with an eight foot power cord and 11" output receptacles.

Operational

- **Display:** VFD 1 x 16 florescent alphanumeric
LCD 1 x 16 backlit alphanumeric
- **Conductivity Control:** 0-5000 μ S/cm scale
- **pH:** 0-14 scale
- **ORP:** +/- 1000 millivolts scale
- **Accuracy:** +/- 1%
- **Feed Timers (Selectable):**
Pulse: 99 min, 59 sec run time, 1-99 counts
% of Time: 1-99 minute cycle, 1-99% on time
Feed with Bleed: Limit timer 0-99 minutes
Post Feed Bleed: 1-99% of bleed cycle with 0-99.59 minute limit timer
- **Biocide Timer:** 28 day programmable

Enclosure

Heavy duty NEMA 4X type high impact thermoplastic with padlockable gasketed Lexan viewing door.

Environment

Ambient temperature: 0° to 125°F (-17 to 52°C)
Relative humidity: 0 to 100%

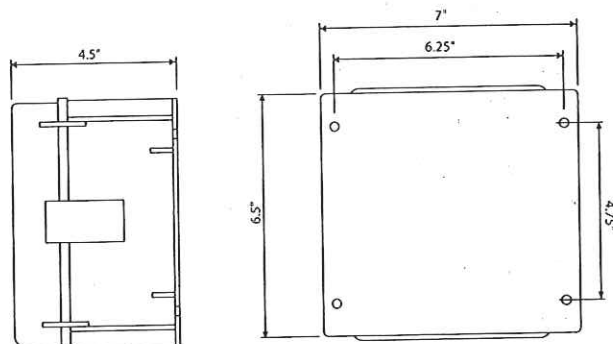
Electrodes

Standard electrodes are supplied in 3/4" SCH 80 PVC female slip tees with quick release nut.

- **Conductivity:** TE-4A 150 psi / 140°F(58°C) Max
- **pH:** TPE-2 100 psi / 140°F(58°C) Max
- **ORP:** TOE-2 100 psi / 140°F(58°C) Max

Shipping Weight: Approximately 6 lbs.

Dimensions: W 7" x H 6.5" x D 4.5"



Get the Advantage

By-Pass & Filter Feeders

By-Pass Feeders

Neptune By-Pass Feeders are a convenient method of introducing treatment chemicals into closed circulating water systems.

Neptune By-Pass Feeders are ideal for use with chilled water treatment such as air conditioning systems or hot water treatment in heating systems or large engine water jackets.

Neptune offers two styles of By-Pass Feeders: A vertical style with dish bottom in and a vertical style with dish bottom out.

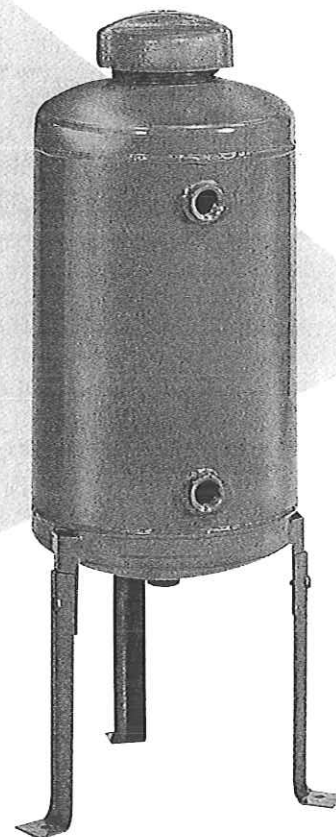
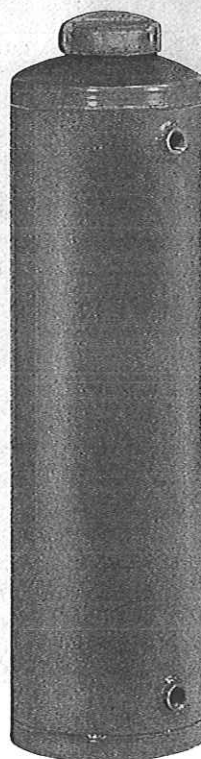
A new high pressure cap rated to 300 psi is now available. The first closure improvement in over a decade.

Neptune
CHEMICAL PUMP CO., INC.

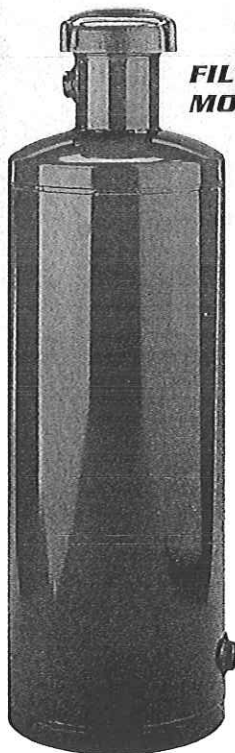
BY-PASS FEEDERS - VERTICAL STYLE

**DISH BOTTOM IN
MODEL VTF-10HP**

**DISH BOTTOM OUT
MODEL DBF-5HP**



**FILTER FEEDER
MODEL FTF-5HP**



Filter Feeders

The Neptune Filter Feeder combines chemical addition and filtering in one piece of equipment. It is a convenient way to introduce powders or liquid chemicals into hot or cold water closed circulating systems.

- Eliminates need for separate By-Pass Feeder and filter.
- Filtration can be achieved at the same time as chemical addition.
- Extended neck with top inlet allows simple installation of filter or dissolving basket.
- Filter bags are available in coarse and fine grades. (Order separately.)
- Filter bags are quickly and easily replaced.

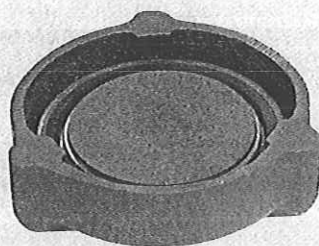
By-Pass Feeders

NEW!
The first closure
improvement in
over a decade!

Caps

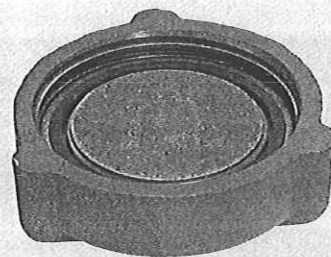
Neptune offers two styles of quick opening, wide-mouth caps.

Both caps offer better sealing with less force and eliminate the need for tools. Cap design binds cap tightly when under pressure, making it impossible to remove the cap by hand until pressure is bled from the tank.



STANDARD CAP

Three lug, 1/3 turn design
rated to 200 psi.



HIGH PRESSURE CAP

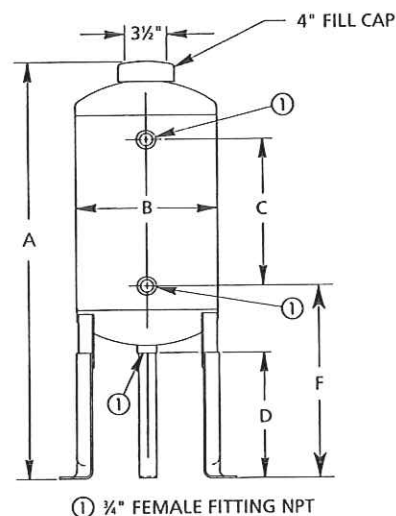
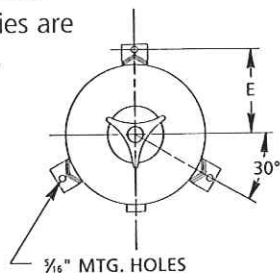
Coarse thread, 2 1/2 turn design
rated to 300 psi.

Vertical Style - Dish Bottom Out

The "DBF" series features wide-mouth caps manufactured by Neptune. These caps utilize a square section "O" ring seal and will **close easily by hand**. Advantages of this series are demountable leg extensions and a **full bottom drain**.

Specifications

- Working pressure: to 300 PSI max. at 200°F
- Tank shell:
 - 2 gallon unit – 11 gauge steel
 - 5 gallon unit – 10 gauge steel
- Tank heads:
 - 2 gallon unit – 11 gauge steel
 - 5 gallon unit – 9 gauge steel
- Cap: cast iron with Buna N "□" ring. Wide mouth, easy open/easy close.



MODEL NUMBER	APPROX. CAPACITY	MAX. PRESSURE*	A	B	C	D	E	F	SHIP WEIGHT
DBF-2	2 Gallons	200 psi	31 1/4"	6"	12 3/4"	8 3/8"	4 1/8"	13 3/4"	23 lbs.
DBF-2HP	2 Gallons	300 psi	31 1/4"	6"	12 3/4"	8 3/8"	4 1/8"	13 3/4"	23 lbs.
DBF-5	5 Gallons	200 psi	29 3/4"	10"	10 1/2"	8"	6 1/8"	13"	38 lbs.
DBF-5HP	5 Gallons	300 psi	29 3/4"	10"	10 1/2"	8"	6 1/8"	13"	38 lbs.

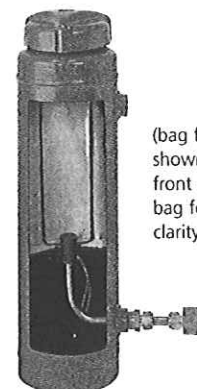
*At 200°F Max.

Filter Bag Kits

Available for all "VTF" and "DBF" models. Kit includes bag, bag frame, tubing and connectors. The addition of a filter bag allows the By-Pass Feeder to function simultaneously as a side stream filter. (A clean bag is rated at approximately 30 microns.)

VTF-2 with filter bag kit installed

MODEL	FOR USE ON
FBK-2	VTF-2, VTF-2HP, DBF-2, DBF-2HP
FBK-5	VTF-5, VTF-5HP, DBF-5, DBF-5HP
FBK-10	VTF-10HP only



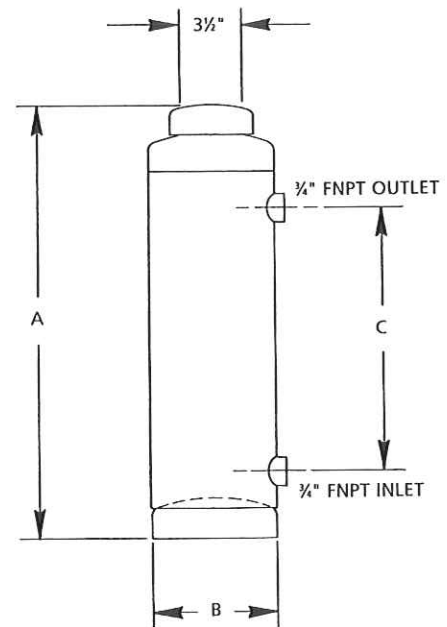
(bag frame shown in front of bag for clarity only)

Vertical Style - Dish Bottom In

The "VTF" series is the most popular and economical of the by-pass feeders available from Neptune. The series uses the same **easy close** caps described in the "Dish Bottom Out" style.

Specifications

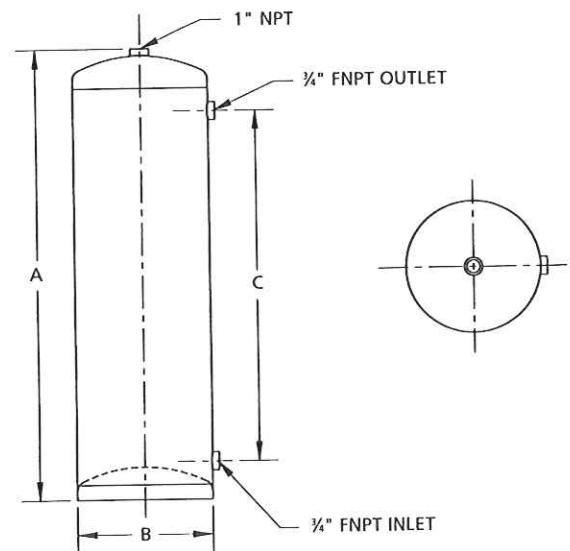
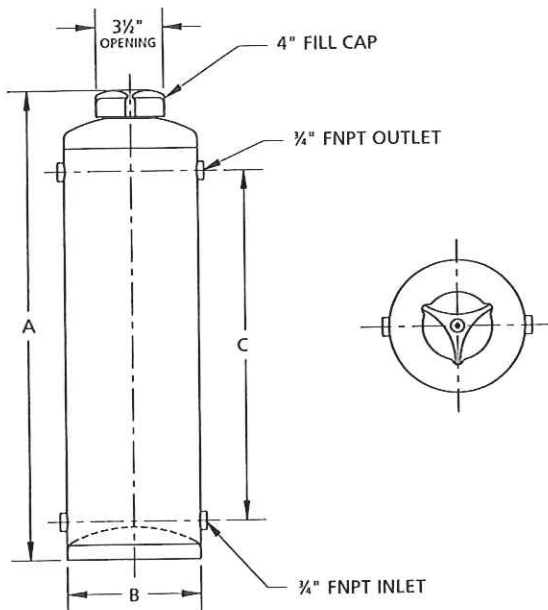
- Working pressure: to 300 PSI max. at 200°F
- Tank shell:
2 gallon unit – 11 gauge steel
5, 10 & 12 gallon units – 10 gauge steel
- Tank heads:
2 gallon unit – 11 gauge steel
5, 10 & 12 gallon units – 9 gauge steel
- Cap: cast iron with Buna N "□" ring.
Wide mouth, easy open/easy close.



Standard Models

MODEL NUMBER	APPROX. CAPACITY	MAX. PRESSURE*	A	B	C	SHIP WEIGHT
VTF-2	2 Gallons	200 psi	21 1/4"	6"	12 3/4"	23 lbs.
VTF-2HP	2 Gallons	300 psi	21 1/4"	6"	12 3/4"	23 lbs.
VTF-5	5 Gallons	200 psi	19 3/4"	10"	10 1/2"	37 lbs.
VTF-5HP	5 Gallons	300 psi	19 3/4"	10"	10 1/2"	37 lbs.
VTF-10HP	10 Gallons	300 psi	35 3/4"	10"	26 1/2"	60 lbs.
VTF-12HP	12 Gallons	300 psi	42"	10"	32 3/4"	68 lbs.

*At 200°F Max.



Four Fitting Models

MODEL NUMBER	APPROX. CAPACITY	MAX. PRESSURE*	A	B	C	SHIP WEIGHT
VTF-2X4HP	2 Gallons	300 psi	21 1/4"	6"	12 3/4"	23 lbs.
VTF-5X4HP	5 Gallons	300 psi	19 3/4"	10"	10 1/2"	37 lbs.

*At 200°F Max.

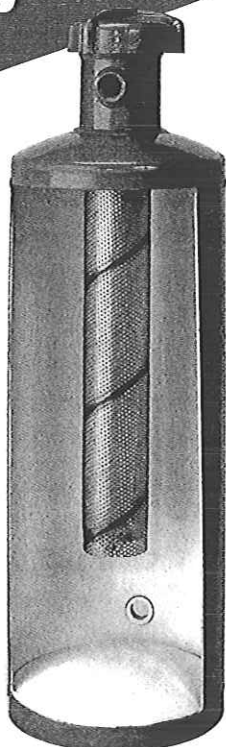
Feeder Bodies

MODEL NUMBER	APPROX. CAPACITY	MAX. PRESSURE*	A	B	C	SHIP WEIGHT
VTF-2-1	2 Gallons	300 psi	20"	6"	12 3/4"	23 lbs.
VTF-5-1	5 Gallons	300 psi	18"	10"	10 1/2"	37 lbs.

*At 200°F Max.

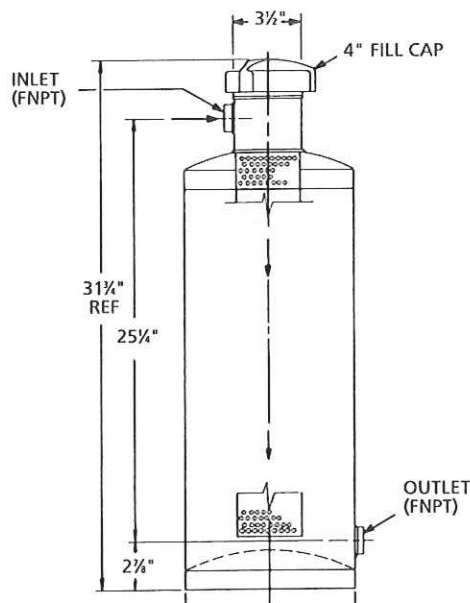
Filter Feeders

**MODEL
FTF-5HP**



Features

- Stainless steel dissolving basket holds and fully supports the filter bag inside.
- Standard connections are 3/4". Larger 1 1/2" connections are available for high flow applications where reduced nozzle velocity is desirable.



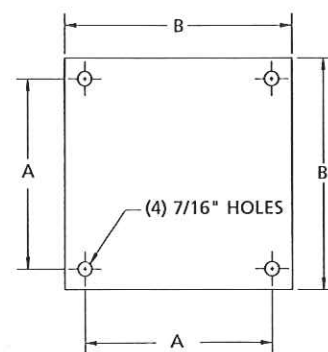
ALL MODELS

MODEL NUMBER	APPROX. CAPACITY	MAX. PRESSURE*	DIAM.	CONN. SIZE	ANCHOR BOLT PLATE	
					A	B
FTF-2HP	2½ gals.	300 psi	6"	¾" FNPT	—	N/A —
FTF-2CL	2½ gals.	300 psi	6"	¾" FNPT	5½"	7"
FTF-5HP	7½ gals.	300 psi	10"	¾" FNPT	—	N/A —
FTF-5CL	7½ gals.	300 psi	10"	¾" FNPT	10¾"	12"
FTF-5150HP	7½ gals.	300 psi	10"	1½" FNPT	—	N/A —
FTF-5150CL	7½ gals.	300 psi	10"	1½" FNPT	10¾"	12"

*At 200°F Max.

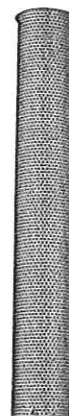
Optional Leg Set with anchor bolts fits Models FTF-5HP and FTF-5150HP. Elevates feeder 9". Order "FTF-LEGS".

- Model FTF-5150HP features oversize 1 1/2" inlet and outlet connections. Can be used for system clean-up with high volume pumps where high flow rates are desired for fast clean-up or flush-out prior to start-up.
- Working pressure: 300 PSI max. at 200°F
- Tank shell: 10 gauge steel
Tank heads: 9 gauge steel
Cap: cast iron with Buna N "O" ring
- "CL" Models feature a welded base to allow bolting to the floor or other mounting surface. Four holes for 3/8" bolts are provided on each Anchor Bolt Plate.



**ANCHOR BOLT PLATE
FOR "CL" MODELS**

MODEL FTF-2CL



**STAINLESS
STEEL BASKET**



**FILTER
BAG**

Filter Bags

(Not included with basic unit. Both bag types fit all "FTF" models.)

PART NO.	TYPE	QUANTITY	DESCRIPTION
106453	Fine	Pkg. of 1	5-micron ringtop bag
106462	Coarse	Pkg. of 1	20-micron elastic cuff bag

Neptune
CHEMICAL PUMP CO., INC.

P.O. Box 247 • Lansdale, PA 19446-0247
Tel: 215-699-8700 • Fax: 215-699-0370
Toll-Free Fax: 1-800-255-4017
Web Site: <http://www.neptune1.com>
E-mail: pump@neptune1.com

SOLD BY:

ARTESIAN LABORATORIES, INC
P.O. BOX 3718
CHARLESTON, WV 25307



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

06/08/2012

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Silverstein & Maddox Insurance Inc. 821 Smith St Charleston, WV 25301	CONTACT NAME: Lisa Sword	FAX (A/C, No): (304)343-0513
	PHONE (A/C, No, Ext): (304)343-9518	E-MAIL ADDRESS: lisa@smiww.com
INSURED Artesian Laboratories Inc. P O Box 3718 Charleston, WV 25337	INSURER(S) AFFORDING COVERAGE	
	INSURER A:	
	INSURER B: Erie Insurance Group	
	INSURER C:	
	INSURER D: Erie Insurance Group	
	INSURER E:	
INSURER F:		

COVERAGES

CERTIFICATE NUMBER:

REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL SUBR INSR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
	GENERAL LIABILITY COMMERCIAL GENERAL LIABILITY CLAIMS-MADE <input type="checkbox"/> OCCUR <input type="checkbox"/> GEN'L AGGREGATE LIMIT APPLIES PER POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC <input type="checkbox"/>					EACH OCCURRENCE \$ DAMAGE TO RENTED PREMISES (Ea occurrence) \$ MED EXP (Any one person) \$ PERSONAL & ADV INJURY \$ GENERAL AGGREGATE \$ PRODUCTS - COMP/OP AGG \$
B	AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> NON-OWNED AUTOS		Q045830003	4/8/2012	4/8/2013	COMBINED SINGLE LIMIT (Ea accident) \$ 300,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
	UMBRELLA LIAB <input type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> DED <input type="checkbox"/> RETENTION \$ <input type="checkbox"/>					EACH OCCURRENCE \$ AGGREGATE \$
D	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) <input type="checkbox"/> Y/N <input type="checkbox"/> N/A If yes, describe under DESCRIPTION OF OPERATIONS below		Q897300131	5/23/2012	5/23/2013	<input checked="" type="checkbox"/> WC STATU-TORY LIMITS <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$ 100,000 E.L. DISEASE - EA EMPLOYEE \$ 100,000 E.L. DISEASE - POLICY LIMIT \$ 500,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

CERTIFICATE HOLDER

CANCELLATION

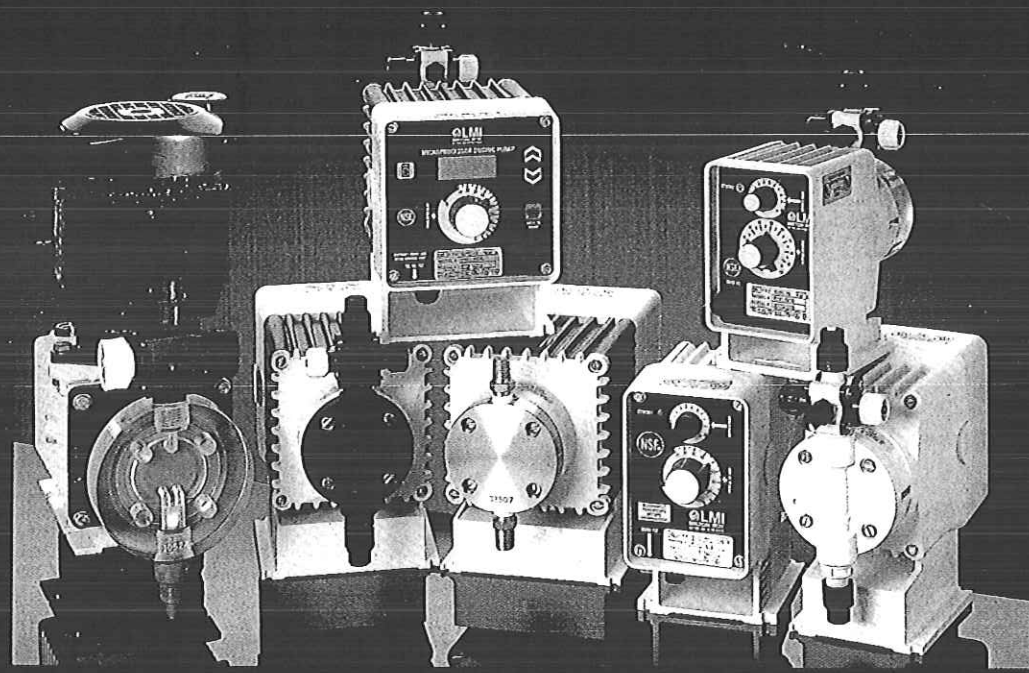
State of West Virginia
General Services Division, Building 1
1900 Kanawha Blvd. E, Room MB-60
Charleston, WV 25305

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Lisa D. Sword

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 **LMI**
MILTON ROY

Metering Pumps

Excellence through Versatility

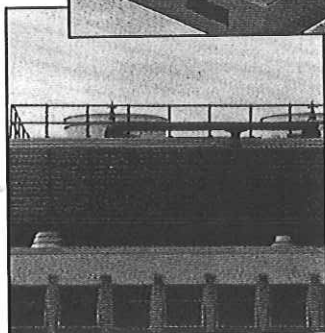
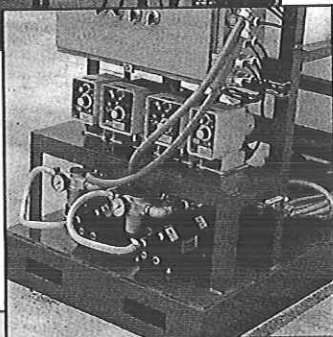
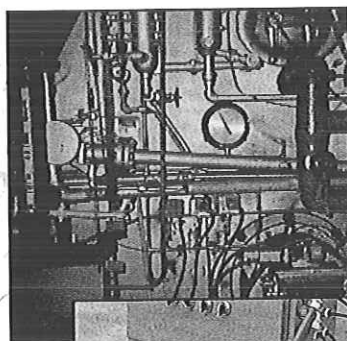


Liquid Metronics Incorporated has been providing quality products and service to the water treatment industry worldwide for over 20 years.

Leading the way in the metering pump industry, LMI introduced the first full line of electronic metering pumps and accessories. The breadth of LMI's product line extends from low-cost metering pumps for domestic potable water treatment to highly-sophisticated custom designs for specific customer applications.

Today, LMI continues to shape the future of the industry by offering the next generation of our trademark yellow and black metering pumps, the LiquiPro™ Series. This series of electronic metering pumps offers simple installation and maintenance with its unique cartridge valve design, as well as quick and easy "hands free" priming three and four function valves.

Utilizing superior designs and industry experience, as well as a state-of-the-art facility and highly trained service representatives, LMI offers Water Treatment Professionals the quality and reliability they've come to expect.



Waste Water Treatment

Cooling Water Treatment

Boiler Water Treatment

Municipal Water Treatment

Fertilizer Injection

Laboratory Fluid Metering

Fluoridation

Paper Chemical Feed

Domestic Potable Water

Swimming Pool

How A Metering Pump Works

LMI's solenoid-driven metering pumps are used for the precise injection of chemicals into a process or system. The mechanically actuated diaphragm design has only one moving part, which is permanently lubricated. The simplicity and efficiency of this design results in a pump that consumes very little power, enabling the pump to be totally enclosed in a chemically resistant housing for installation in the harshest environments.

Durable Stroke Adjustment Mechanism

A rigid stroke bracket and large stroke knob offer precise, repeatable performance and simple adjustment over entire output range.

NEMA 4X/ IP65 Housings

Totally enclosed, chemically resistant polypropylene housing for the ultimate protection against corrosive environments.

EPU

LMI's Electromagnetic Power Unit (EPU) is designed for efficiency and consistent performance over a wide operating and temperature range.

Accurate Speed Control

Provides precise stroke rate and a turndown ratio up to 1000:1 for unmatched versatility.

Fully Encapsulated Electronics

Completely enclosed electronics provide protection against moisture, corrosive atmospheres and damage from vibration or mechanical shock.

Pump Status LED

Status LED provides a quick visual indication of pump speed and operation.

Multi-Function Valves

The industry standard for over 20 years, features Fluorofilm™ diaphragms for long life and ramp style knobs for "hands free" priming with standard 3FV or optional 4FV. The Bleed 4FV option offers auto-degassing for pumping chemicals prone to gassing.

Fluorofilm™ Liquiframs™

The unique manufacturing process of LMI diaphragms ensures outstanding chemical resistance and flexibility for long life.

Cartridge Valves

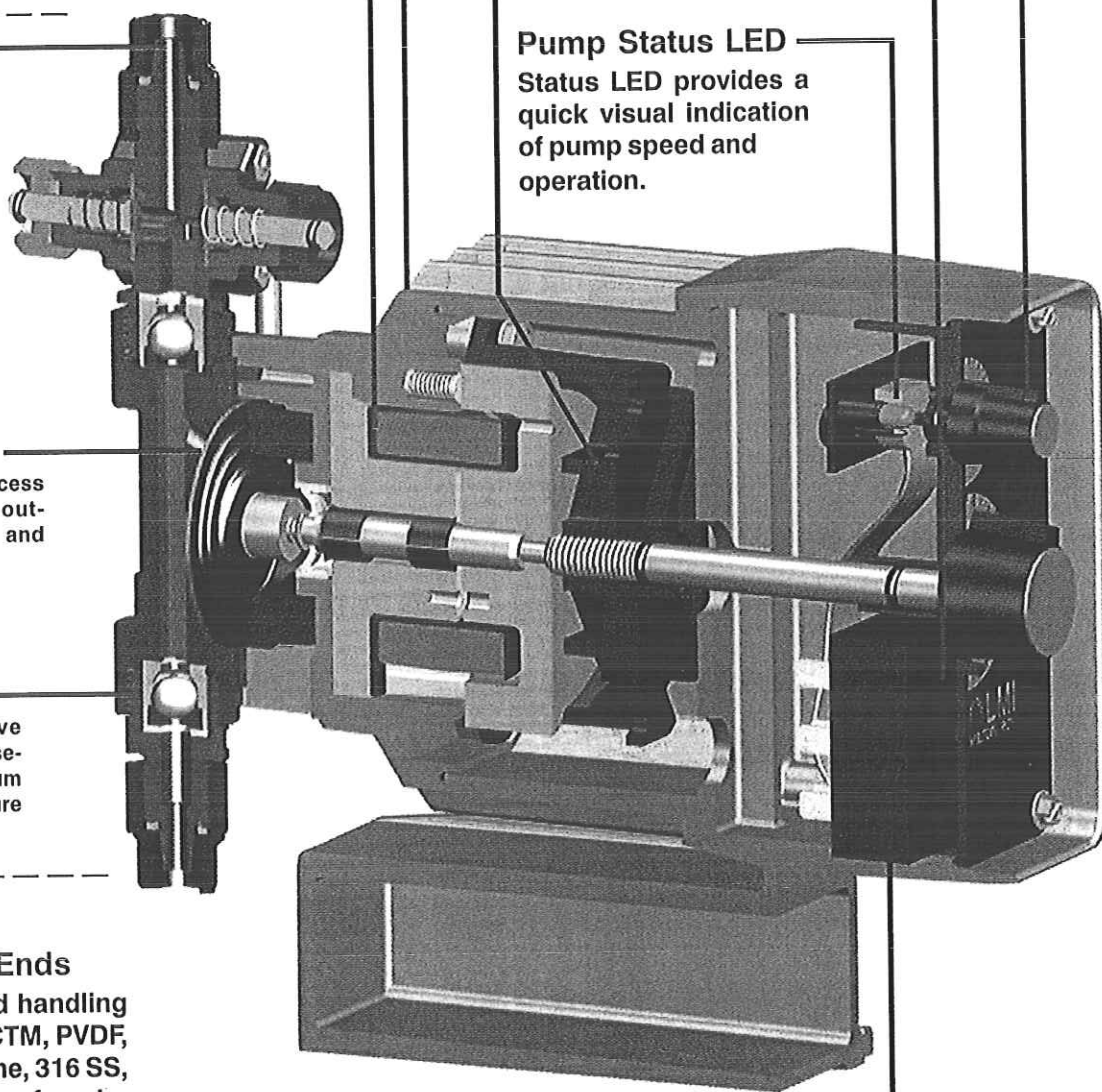
Unique cartridge valves have closely guided balls and triple sequential valve seats for optimum performance over entire pressure range.

Variety of Liquid Ends

A wide selection of Liquid handling assemblies including PGCTM, PVDF, PVC, Acrylic, Polypropylene, 316 SS, UHMWPE. Configurations for viscous chemicals and slurries provide flexibility in all applications.

Manual or External Control

Dual-manual control of speed and stroke length or external control by means of a 4-20 mA or pulse input for flow proportional applications and system integration.

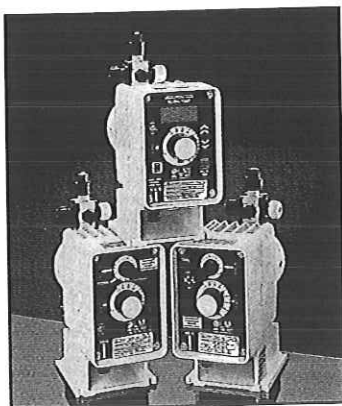


Electronic Metering Pumps

LMI's family of electronic metering pumps offer:

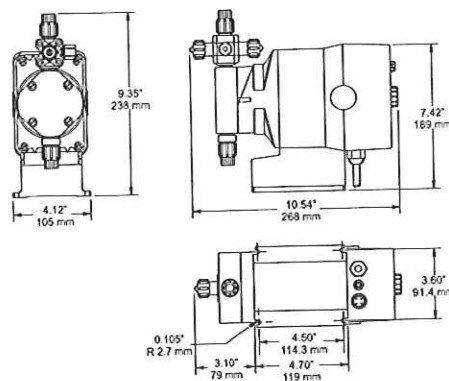
- Adjustable stroke frequency and the flexibility of up to 1000:1 turndown ratio
- Manually adjustable stroke length provides accurate pump output adjustment
- NEMA 4X / IP65 enclosures for protection against corrosive environments
- Time tested electronics for reliable, repeatable performance
- Totally encapsulated electronics for protection against moisture and corrosive conditions
- Priming valves with Flourofilm™ diaphragms and ramp style knobs for "hands free" priming

Series A

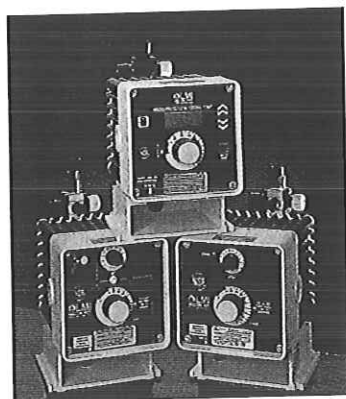


Key Features / Benefits

- Rigid stroke bracket assembly for highly accurate/consistent dosing performance
- Advanced control options for simplified system integration (pulse multiply/divide, 4-20 mA, remote on/off)
- 5-level power control option to reduce system shock and extend the life of the pump
- External pacing for flow proportional applications



Series B / Series C

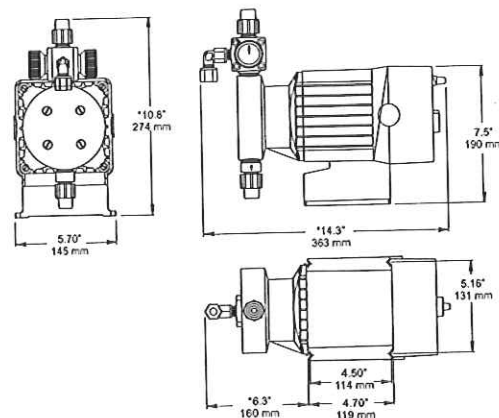


Maximum Output

Series A: 2.0 GPH (7.6 l/h)
 Series B: 7.0 GPH (26.5 l/h)
 Series C: 25.0 GPH (95.0 l/h)

Maximum Pressure

Series A: 250 psi (17.3 Bar)
 Series B: 150 psi (10.3 Bar)
 Series C: 300 psi (20.7 Bar)



Series P

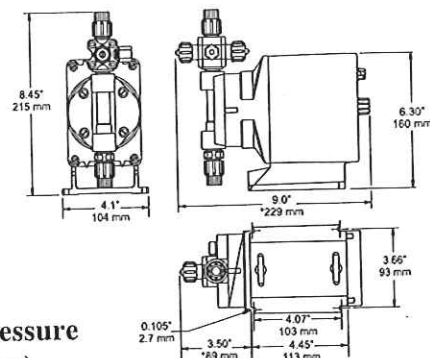


Key Features/Benefits

- High quality construction for durability
- Compact size; ideal for OEM applications
- Fixed speed versions for simple, low cost applications

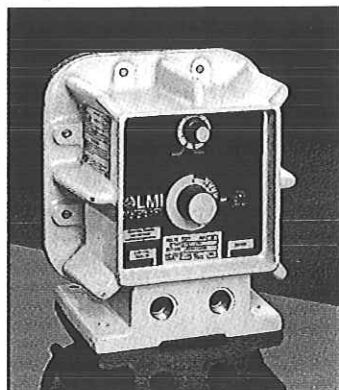
Maximum Output
 2.0 GPH (7.6 l/h)

Maximum Pressure
 250 psi (17.3 Bar)



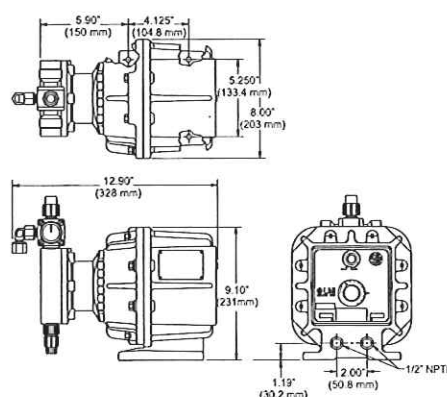
Specialized Electronic Metering Pumps

Series E7 Explosion Proof



Key Features/Benefits

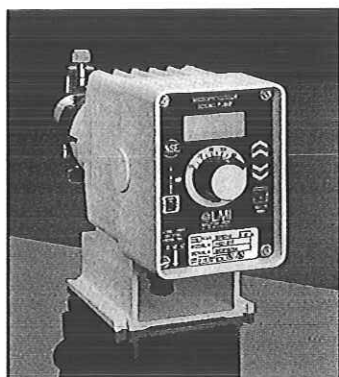
- Rugged, urethane coated cast housing for applications in hazardous environments
- Manual control or external control without the need for costly motor and control options
- Designed to meet or exceed all standards for Class I, Division I, Groups C and D; Class II, Division I, Groups E, F, and G



Maximum Output
20.0 GPH (76.0 l/h)

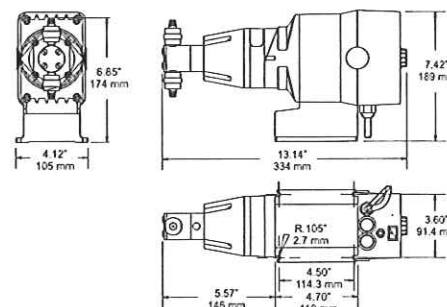
Maximum Pressure
300 psi (20.7 Bar)

Series H9 High Pressure



Key Features/Benefits

- Unique liquid handling assembly for low output injection into high pressure systems
- Advanced control options for system integration (pulse multiply/divide, 4-20 mA, remote on/off)
- 5-level power control option to reduce system shock and extend the life of the pump



Maximum Output
.14 GPH (.50 l/h)

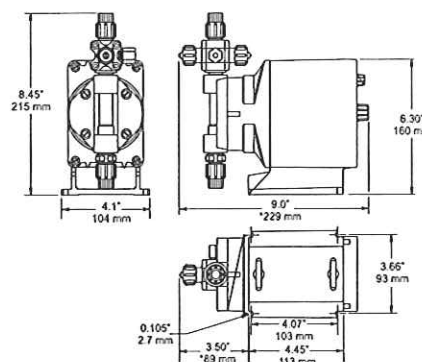
Maximum Pressure
1000 psi (70.0 Bar)

Series J5 12 VDC



Key Features/Benefits

- 12VDC power for remote applications where AC electrical power is unavailable
- Low power consumption (1.6 amp average current draw or 19 watts at maximum speed)
- Manual or external control for flow proportional applications

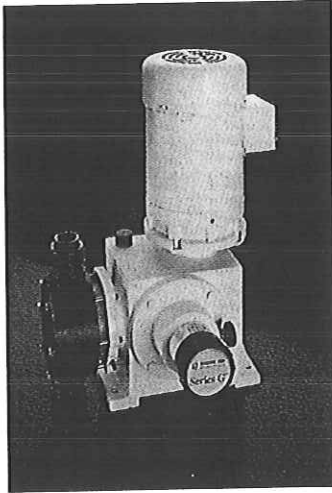


Maximum Output
2.0 GPH (7.6 l/h)

Maximum Pressure
140 psi (9.7 Bar)

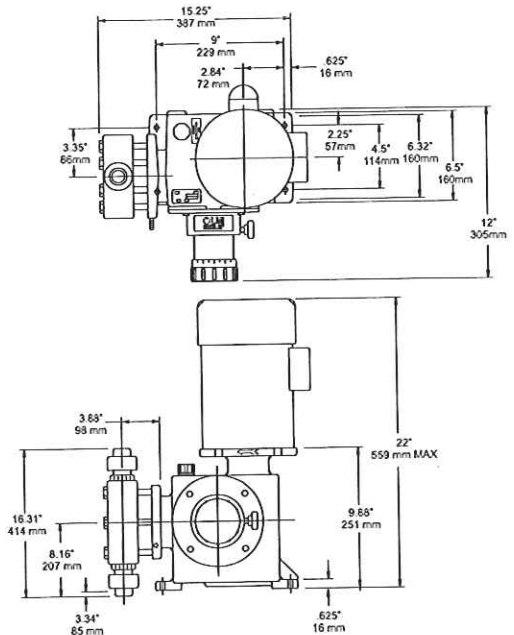
Motor Driven Metering Pumps

Series G



Features / Benefits:

- Mechanically actuated diaphragm (MAD)
- Variable eccentric design delivers smooth output
- Variable speed drives for external control (4-20mA)
- Durable, compact epoxy coated cast housing
- Vertical "C" face motor mount in S6C or metric (IEC) standard 80 frame, V1 flange mount
- Liquid end materials: PVC, Polypropylene, PVDF and 316 S.S.



Maximum Output
1135 l/h (300 GPH)

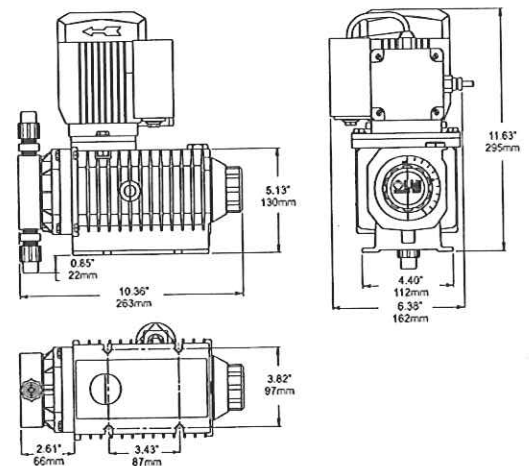
Maximum Pressure
10.0 Bar (150 psi)

Series M



Features / Benefits:

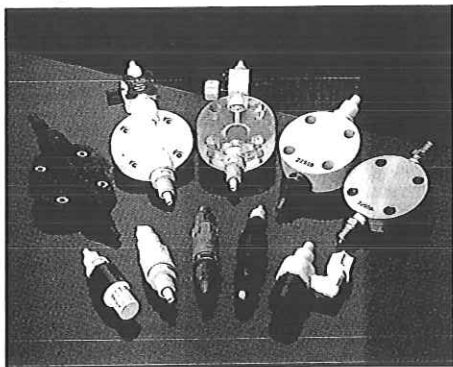
- Mechanically actuated diaphragm (MAD)
- Totally enclosed, fan-cooled motor
- High suction lift
- Rugged, compact, urethane coated cast housing for durability in a variety of environments
- Optional "MC" wall mount controller provides external control of both pulse and 4-20mA signals



Maximum Output
35 GPH (133 l/h)

Maximum Pressure
120 psi (8.6 Bar)

Liquid Handling Assemblies



LMI offers a wide selection of liquid handling assemblies with flexible tubing and pipe thread connections. Configurations for viscous chemicals and slurries provide total flexibility in all applications

- PVC
- Acrylic
- PGCTM
- Polypropylene
- PVDF
- UHMWPE
- 316 SS

Repair & Preventative Maintenance Kits



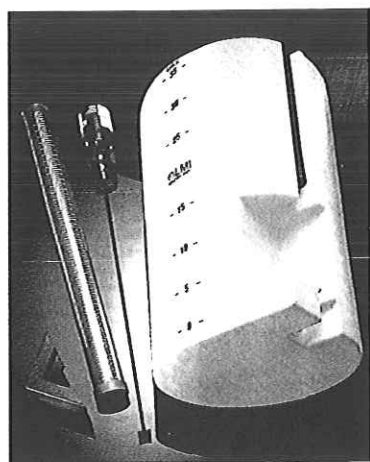
RPM Pro Pac™ kits include the recommended replacement parts for the LiquiPro™ Series Metering Pumps. These kits provide an easy, economical solution to annual pump maintenance.

Accessories



LMI offers a complete line of accessories to customize and complete your installation

- 4FV/3FV/Bleed 4FV
- Agitators
- Back Pressure Valves
- Calibration Cylinders
- Conduit Connection Kit
- Corp Stop & Nozzle Assemblies
- Digi-Pulse™ Flow Monitors
- Extension Cable Assemblies
- Flow indicator
- Fluoride Saturator
- Flowmeter
- Remote Programmable Flowmeter
- Liquid & Low Level Switches
- Micropace™ Control Modules
- Pressure Relief Valves
- Primer Flush Kit
- Pulse Transmitter
- Pump Mounting Accessories
- Remote Auto Flush Controllers
- Seal Ring Kit
- Splash Guard
- Suction Tubing Accessories
- Syphon Breaker
- Tanks
- Tubing Connector Assemblies





ARTESIAN
PROCESS CHEMICALS GROUP
Post Office Box 3718 • Charleston, WV 25337

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