



Illinois Environmental Protection Agency

Bureau of Water • 1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276

Division of Public Water Supplies, Permit Section Application for Operating Permit

This form may be completed online, a copy saved locally and printed before it is signed. You may also complete a printed copy manually. Submit the completed and signed form to the Illinois EPA, Bureau of Water, Permit Section at the address listed above.

Facility Name: South Sangamon Water Commission **Facility ID:** IL 1670080
Address 1: 9199 Buckhart Road **Construction Permit No.:** 1019 -FY 2013
Address 2: _____ **Permit Type:** Plant Improvement
City: Rochester **State:** IL **Zip Code:** 62563 **Date Permit Issued:** May 9, 2013
County: Sangamon
Project Title: Chemical Addition of ORA-CLE
Firm Name: Water Solutions Unlimited, Inc.

Application Requirements (check when complete):

Project Status: Final Permit Number, Facility Number, and Facility Name identified on the Lab Report(s).
(Check One) Partial Samples analyzed by the Membrane Filter technique.
 Sample results attached to the Application. (If a new well was constructed, provide a copy of the sample results as required by Section II, Part g of the C-I application).
Partial A, B, C, etc.

If you select Partial, you must also submit the following items:

Cover letter describing which sections were completed.
 General project layout plans.
 For water main projects, identify the length the Partial: _____ LF

Date of Project Completion: Jul 1, 2013 (Provide the date construction was completed on the project or partial)

Certified Operator in Responsible Charge:

Name: Daniel L. Held **Classification:** A **Number:** 053984045
Telephone: (217) 381-2206

Owner of the Completed Project:

Name: Del McCord **Title:** Comm. and Chairman **Telephone:** (217) 483-2451
Address: 116 E. Mulberry **City:** Chatham **State:** IL **Zip Code:** 62929

12/10/2013

Owner/Authorized Personnel Signature

Date

The Owner hereby certifies that the project named and described has been constructed in accordance with plans and specifications approved by the Illinois EPA. See instructions for further information. For Verbal Approvals, please call 217-782-4697.

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))

***** FOR IEPA USE ONLY *****
 This operating permit 1019 -FY 2013 issued on JAN - 2 2014 is valid until revoked. This permit is valid only for the work completed under the Construction Permit of the same number.

David C. Cook, P.E.,
Acting Manager, Permit Section
Division of Public Water Supplies

RECEIVED

DEC 20 2013



Illinois Environmental Protection Agency

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 Partial Samples analyzed by the Membrane Filter technique.
 Sample results attached to the Application. (If a new well was constructed, provide a copy of the sample results as required by Section II, Part g of the C-I application).
Partial A, B, C, etc.

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- Cover letter describing which sections were completed.
- General project layout plans.
- For water main projects, identify the length the Partial: _____ LF

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Certified Operator in Responsible Charge:

Name: Daniel L. Held **Classification:** A **Number:** 053984045
Telephone: (217) 381-2206

Owner of the Completed Project:

Name: Del McCord **Title:** Comm. and Chairman **Telephone:** (217) 483-2451
Address: 116 E. Mulberry **City:** Chatham **State:** IL **Zip Code:** 62929

Del McCord

12/10/2013

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Date

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***** FOR IEPA USE ONLY *****

This operating permit _____ -FY _____ issued on _____ is valid until revoked. This permit is valid only for the work completed under the Construction Permit of the same number.

Instructions for Operating Permit Application

The Operating Permit Application must be submitted for all Public Water Supply projects that required a construction permit. The Operating Permit *must* be obtained before the project is placed in service.

Fill out the top section using the corresponding Construction Permit for reference.

Facility Name is the name of the village, city or entity distributing community water supplies.

Facility ID Number can be found on the Construction Permit. This number is specific to your facility.

Address is the same as the address on the Construction Permit.

Construction Permit Number is the assigned permit number of the corresponding Construction Permit. The Operating Permit and the corresponding Construction Permit will have the same permit number.

Permit Type identifies whether the project involved is a Water Main, a Plant Improvement or Both.

Date Permit Issued is the date the Construction Permit was granted.

Date of Project Completion is the date construction was completed for the section of project you are requesting the Operating Permit for. If you are requesting an Operating Permit for a Partial project, the Date of Project Completion is the date construction was completed on that partial section. The Date of Project Completion will never be a date in the future, and must be a date *after* the issue date of the Construction Permit.

Title of Project is the same title of project listed on the corresponding Construction Permit. The Operating Permit and the Construction Permit will have the same Title of Project.

Firm Name is the engineering entity that designed the project.

Project Status will either be Final or Partial.

Final: If construction on the project is complete, you will select **Final**.

Partial: If construction on the total project is only *partially* complete, but you want to operate the completed section, you will select **Partial**. If this is the first partial, you will identify it as "Partial A", if this is the second partial, you will identify it as "Partial B" and so forth. Once the last partial section has been completed, identify it as such and also select Final in the Project Status.

The **Certified Operator in Responsible Charge** and **Owner of the Completed Project** should fill out his/her respective section. Please print your name legibly and sign where appropriate. By signing the application, the owner hereby certifies that the project named and described has been constructed in accordance with plans and specifications approved by the Illinois EPA, including specifications for bacteriological samples, and that bacteriological samples (if required) were taken under the supervision of a representative from the Public Water Supply. The owner also certifies that the project will be operated in accordance with the provisions of the Illinois Environmental Protection Act and the Rules and Regulations adopted by the Illinois Pollution Control Board pursuant to provisions of the Act.

Requests for **Verbal Approval** and questions can be addressed at (217) 782-4697 or (217) 782-1020/9470.

Disinfection and bacteriological analysis must be performed for the completed project in accordance with the requirements of AWWA C651 or C53-03. For projects requiring these procedures, the sample results must be attached to the application. The construction permit number should be clearly visible on the sample results. Samples are to be taken every 1,200 feet of new water main unless otherwise approved by the Illinois EPA. Samples must be measured using the Membrane Filter technique, Colilert/ Colisure will not be accepted for new construction projects.

This form may be completed online, a copy saved locally and printed before it is signed. You may also complete a printed copy manually. Print this form on yellow paper if possible, and submit the completed form to the Illinois EPA, Bureau of Water, Permit Section at the following address:

Illinois Environmental Protection Agency
Division of Public Water Supplies, Permit Section #13
1021 North Grand Avenue East, PO Box 19276
Springfield, IL 62794-9276

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 North Grand Avenue, East; Post Office Box 19276; Springfield, IL 62794-9276

Division of Public Water Supplies

Telephone 217/782-1724

PUBLIC WATER SUPPLY CONSTRUCTION PERMIT

SUBJECT: SOUTH SANGAMON WATER COMMISSION (Sangamon County-1670080)

Permit Issued to:
Manager, South Sangamon Water Commission
P.O. Box 83
Rochester, IL 62563

RECEIVED
MAY 10 2013

Added to on 5/17/
Steve Harnedy
Tony Mott

Per Proj # 9315293
PERMIT NUMBER: 1019-FY2013

BY: DVM

DATE ISSUED: May 9, 2013
PERMIT TYPE: Plant Improvement

The issuance of this permit is based on plans and specifications prepared by the engineers/architects indicated, and are identified as follows. This permit is issued for the construction and/or installation of the public water supply improvements described in this document, in accordance with the provisions of the "Environmental Protection Act", Title IV, Sections 14 through 17, and Title X, Sections 39 and 40, and is subject to the conditions printed on the last page of this permit and the ADDITIONAL CONDITIONS listed below.

FIRM: Donald V. Morrison, P.E.
NUMBER OF PLAN SHEETS: 2
TITLE OF PLANS: "Chemical Addition of ORA-CLE"

PROPOSED IMPROVEMENTS:

Install a ORA-CLE feed system consisting of a chemical feed pump (maximum capacity of 38 gpd), scale, and complete with piping, controls and appurtenances

ADDITIONAL CONDITIONS:

1. There are no further conditions to this permit.

DCC:GAZ: dsa

cc: Donald V. Morrison, P.E.
Springfield Region



David C. Cook, P.E.
Acting Manager Permit Section

Donald V. Morrison, PE, LLC

infrastructure management & engineering consulting

2635 Yeager Road, Suite D West Lafayette, IN 47906 - 1355

Tel: (765) 497-0911 FAX: (765) 497-9019
ecologistics@ecologistics-limited.com

April 14, 2013

Mr. Dan Held, Assistant Manager
South Sangamon Water Commission
P.O. Box 83
Rochester, IL 62563

Re: Application Protocol
Chemical Addition Construction Permit

Dear Dan;

Attached are two originals and four copies of the construction permit application forms (6 each) for ORA-CLE chemical addition facilities for the Water Treatment Plant. To complete the forms (for the originals and four copies) I need on the State Form:

- Del McCord's signature added to the application form at no. 10.2
See the colored sticky arrows.
- Del McCord's signature added to the application form at no. 10.5.
See the colored sticky arrows.
- Your signature as Contact added to the transmittal letter to IL EPA.
See the colored sticky arrows.

Please forward the:

- Originals (2 each) in the post paid envelop to Illinois EPA.
- One copy in the post paid envelop to Steve Harnedy.
- One copy to Troy Mott.
- One copy in the post paid envelop to me.
- Please keep the remaining copy in your files.

You may call me at (800) 890 – 6543 x 14, (765) 497 - 0911, FAX (765) 497 – 9019 and or email dmorrison@mainstreamllc.biz .

Sincerely,



Donald V. Morrison, PE, LLC
An Affiliated Business of Main Stream LLC

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF PUBLIC WATER SUPPLIES
PERMIT SECTION
1021 NORTH GRAND AVENUE, EAST
POST OFFICE BOX 19276
SPRINGFIELD, IL 62794-9276

APPLICATION FOR CONSTRUCTION PERMIT

1. Name of Public Water Supplies South Sangamon Water Commission PWSID 1670080
2. Municipality or Township South Sangamon Water Commission County Sangamon
3. Location of Project South Sangamon Water Commission Treatment Plant
4. Title of Plans Chemical addition of ORA-CLE
- Number of Construction Drawing 2
5. Documents being submitted:
- | | |
|---|--|
| <input checked="" type="checkbox"/> Construction Permit Application | <input checked="" type="checkbox"/> Engineers Design Summary |
| <input checked="" type="checkbox"/> Schedule A - Cost Estimate | <input type="checkbox"/> Schedule C-I - Well Drilling Only |
| <input type="checkbox"/> Schedule B - Water Main Construction | <input type="checkbox"/> Schedule C-II - Well Completion |
| <input checked="" type="checkbox"/> Specifications | <input type="checkbox"/> Permit Fee (Water Main Only) |
| <input checked="" type="checkbox"/> Construction Drawings | |
6. Scope of Project: Chemical addition of ORA-CLE for the control of deposits in the transmission lines.
- 7.0 ILLINOIS COMMERCE COMMISSION CERTIFICATION (For privately owned water companies)
- 7.1 Has application been made to the Illinois Commerce Commission for a Certificate of Public Convenience and Necessity?
 Yes No
- 8.0 New Public Water supplies: Where the developer intends to relinquish ownership of a new public water supply to the homeowners served by that public water supply, he must submit to the Agency a copy of the Protection Covenants for effecting the transfer. Those Covenants must be approved by the ICC and should accompany this application.
- 9.0 Infringement on Existing Public Water Supplies:
- 9.1 Will any part of this project be located within the boundaries of an area served by another public water supply? Yes No
- 9.2 If yes, name of that water supply _____

10.3 The Water Main Permit fee does not apply to:

- a) Any Department, Agency or Unit of State Government.
- b) Any unit of Local government where all of the following conditions are met;
 - 1) The cost of the installation or extension is paid wholly from monies of the unit of local government, state grants or loans, federal grants or loans, or any combination thereof.
 - 2) The unit of local government is not given monies, reimbursed or paid, either in whole or in part, by another person (except for State grants or loans or federal grants or loans; and
 - 3) I/We _____
^(Unit of local government & signature of authorized official)^

hereby certify that subsections 10.3(b)(1) and 10.3(b)(2) have been met.

10.4 Agreement to Furnish Water (This section must be completed if applicable)

The _____
^(City, Town, Village, Water Company or Water Authority)^

has agreed to furnish water to the area in which water main extensions are proposed by

_____ ^(Developer)^

according to plans titled " _____ " " "

prepared by _____
^(Engineering Firm)^

The undersigned acknowledges the public water supply's responsibility for examining the plans and specifications to determine the proposed extensions meet local laws, regulations, and ordinances.

Date: _____ By: _____
^(Signature of Authorized Public Water Supply Official)^ (Title)

10.5 Certification by Owner(s) of Completed Public Water Supply Improvement(s)

I/We hereby certify that I/We have read and thoroughly understand the conditions and requirements of this submittal. I/We hereby agree to accept ownership of the project upon satisfactory completion.

Del McCord
^NAME OF OWNER OF COMPLETED PROJECT^

P.O. Box 83, Rochester, IL 62563
^STREET, CITY, STATE & ZIP CODE^

Del McCord 4/19/13
^SIGNATURE^ DATE

Village Manager
^TITLE^

10.6 AUTHORITY TO SIGN APPLICATION

10.6.1 Applications signed by a person other than a responsible municipal official, corporation officer, or owner, must be accompanied by evidence of authority to sign the application, unless documentation of such authority is on file with the Division of Public Water Supplies.

10.6.2 Evidence of authority to sign the application on field with this Division Yes No

IEPA - DIVISION OF PUBLIC WATER SUPPLIES - PERMIT SECTION
SCHEDULE A - ENGINEER'S COST ESTIMATE

Requests by various agencies and state and federal representatives for information on the cost of water works improvements have been numerous. Therefore, we feel there is a need for obtaining and compiling this information. We would appreciate your cooperation by supplying us with this data with each set of plans and specifications. Please submit the cost data with each of your projects sent in for approval.

1. Name of Public Water Supply South Sangamon Water Commission

2. SOURCE

A. Stream intake, impoundment.	\$	
B. Well (s).	\$	
C. Others	\$	
TOTAL		\$ 0.00

3. TREATMENT

A. Aeration facilities and detention basins.	\$	
B. High service pumps.	\$	
C. Filtration and/or ion exchange softening	\$	
D. Mixing and settling basins and/or flocculation equipment.	\$	
E. Chlorination and fluoridation equipment.	\$	2,000.00
F. Recarbonation, chemical feeders, chemical handling equipment	\$	
G. Lab, buildings and miscellaneous.	\$	
TOTAL		\$ 2,000.00

4. WASTE DISPOSAL FACILITIES

A. Pumps and piping.	\$	
B. Holding structures	\$	
C. Treatment unit.	\$	
TOTAL		\$ 0.00

5. STORAGE

A. Ground level tank(s).	\$	
B. Elevated tank(s).	\$	
C. Pressure tank(s).	\$	
TOTAL		\$ 0.00

6. DISTRIBUTION SYSTEM

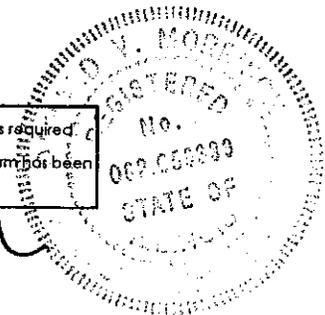
A. Feeder mains, booster pump(s) and station(s).	\$	
B. Water main extension(s)	\$	
C. Complete distribution.	\$	
TOTAL		\$ 0.00

7. TOTAL PROJECT COST

\$ 2,000.00

IL 532-0843

This Agency is authorized to require this information under Illinois Compiled Statutes, 1415 ILCS 5/39 (1998). Disclosure of this information is required under that Section. Failure to do so may prevent this form from being processed and could result in your application being denied. This form has been approved by the Forms Management Center.



[Handwritten Signature]

Donald V. Morrison, PE, LLC

Infrastructure management & engineering consulting

2635 Yeager Road, Suite D West Lafayette IN 47906 - 1355

Tel: (765) 497-0911 FAX: (765) 497-9019
dmorrison@mainstreamllc.biz

April 15, 2013

Narrative Chemical Feed Permit for ORA-CLE For South Sangamon Water Commission PWSID# IL 1670080

The South Sangamon Water Commission wishes to feed a deposit control agent called ORA-CLE in which will be supplied by Water Solutions Unlimited, Inc. ORA-CLE will help clean the distribution transmission lines.

This product is NSF certified and is non-hazardous (pH 7-8). It is a form of hypochlorous acid in a very dilute form. The product weighs 8.4 pounds/gallon and will be supplied into a new 800 gallon bulk tank. The bulk tank will be within new secondary containment area of about 10 ft by 10 ft by 2 ft high. The product will be fed at a feed rate between 5 and 20 mg/L. Normal dose may be as high as 15 mg/l. The maximum use level for ORA-CLE from NSF is 88 mg/L. The product will be injected last into the finished water transmission line going from the Treatment Building to water distribution.

The high service pumps flow rates are either 1000 to 1300 gpm. A new LMI B111-490SI chemical addition pump will be used. (38 gpd max @ 150 psi., see calculations).

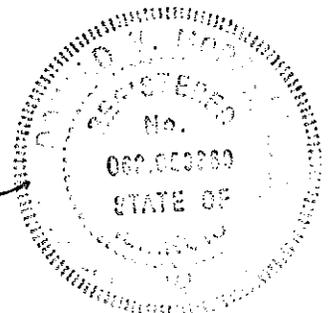
The chemical injection pump will be activated whenever the high service pump(s) is energized. Piping, Tubing, New Pumps, New Tanks and Appurtenances will be NSF listed or compliant to AWWA standards.

A 3/8 inch diameter poly tube will deliver the chemical to the 3/4 inch diameter injection point. An injection check valve will be used at the injection point, a corporation stop. ORA-CLE will be fed from a 40 gallon day tank. The day tank will be on an Adam scale which will measure the product used. The day tank will be on a spill pallet for secondary containment. The day tank will be filled with a new transfer pump. No venting to the outside is required.

Please contact me toll free at (800) 890 - 6543, direct at (765) 497 - 0911, call or text (765) 426 - 4948 or email dmorrison@mainstreamllc.biz with any questions. Thank you.

Donald V. Morrison, PE, LLC

Don Morrison, PE



Calculations for
Construction Permit Application for
S Sangamon W Comm
PWSID#: IL 1670080

**Instantaneous Flow Calculations to
Range ORA-CLE Chemical Addition Pump and for Weight Scale Observations**

LOWEST

Lowest Pump Capacity: gpm or (gpm * 1440 / 1,000,000 = MGD) MGD
 MGD * 8.34 * mg/l @ lowest expected dosage * Chemical Density / Water Density = lbs/day @ lowest expected dosage
 1.44 8.34 5 8.4 8.34 1 = lbs/day @LED
 lbs/day @ lowest expected dosage / 1440 = lbs/min @ lowest expected dosage (for scale observation)
 60.480 / 1440 = lbs/min @LED
 lbs/day @ lowest expected dosage / density of chemical = gallons/day @ lowest expected dosage
 60.480 / 8.4 = gpd @LED
 gallons/day @ lowest expected dosage / 24 = gallons/ hr @ lowest expected dosage (for chemical pump lowest rate)
 7.200 / 24 = gph @ LED

HIGHEST

Highest Pump Capacity gpm or (gpm * 1440 / 1,000,000 = MGD) MGD
 MGD * 8.34 * mg/l @ highest expected dosage * Chemical Density / Water Density = lbs/day @ highest expected dosage
 1.872 8.34 20 8.4 8.34 1 = lbs/day @HED
 lbs/day @ highest expected dosage / 1440 = lbs/min @ highest expected dosage (for scale observation)
 314.496 / 1440 = lbs/min @HED
 lbs/day @ highest expected dosage / density of chemical = gallons/day @ highest expected dosage
 314.496 / 8.4 = gpd @HED
 gallons/day @ highest expected dosage / 24 = gallons/ hr @ highest expected dosage (for chemical pump lowest rate)
 37.440 / 24 = gph @ HED

CHEMICAL ADDITION PUMP SELECTED

Use Chemical Addition Pump by Model Maximum gpd
 Maximum dosage from NSF is: ppm
 (GPD of maximum chemical addition)*(lbs/gal of chemical / lbs/gal of water) / minimum treated water flow GPD = ppm
 38 8.4 8.34 1440000 = ppm
 This is less than the allowable limit.

**Expected Average Daily Flow Calculations to
Size ORA-CLE Day Tank and 30 Day Inventory Requirement**

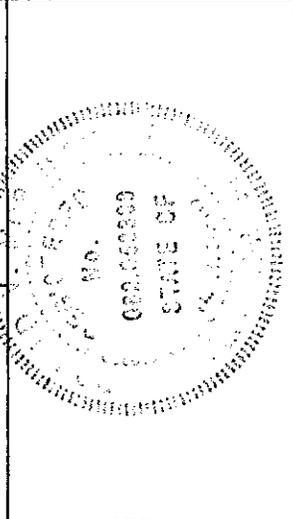
Average Daily Flow MGD Average Dosage mg/l
 MGD * 8.34 * mg/l @ expected average dosage = lbs/day @ expected average dosage
 0.8 8.34 15 1 = lbs/day @AED
 lbs/day @ expected average dosage / density of chemical = gallons/day @ expected average dosage
 100.08 / 8.4 = gpd @ AED
 gallons/day @ expected average dosage * 3 = gallons day tank
 11.91429 3 = gallons @ AED
 Use gallon day tank
 gallons/day @ expected average dosage * 30 = gallons inventory
 11.91429 30 = gallons @ AED

Should you have any questions, please call us toll free at (800) 896-6543 or email at dmorrison@mainstreamllc.biz

Donald V. Morrison, PE



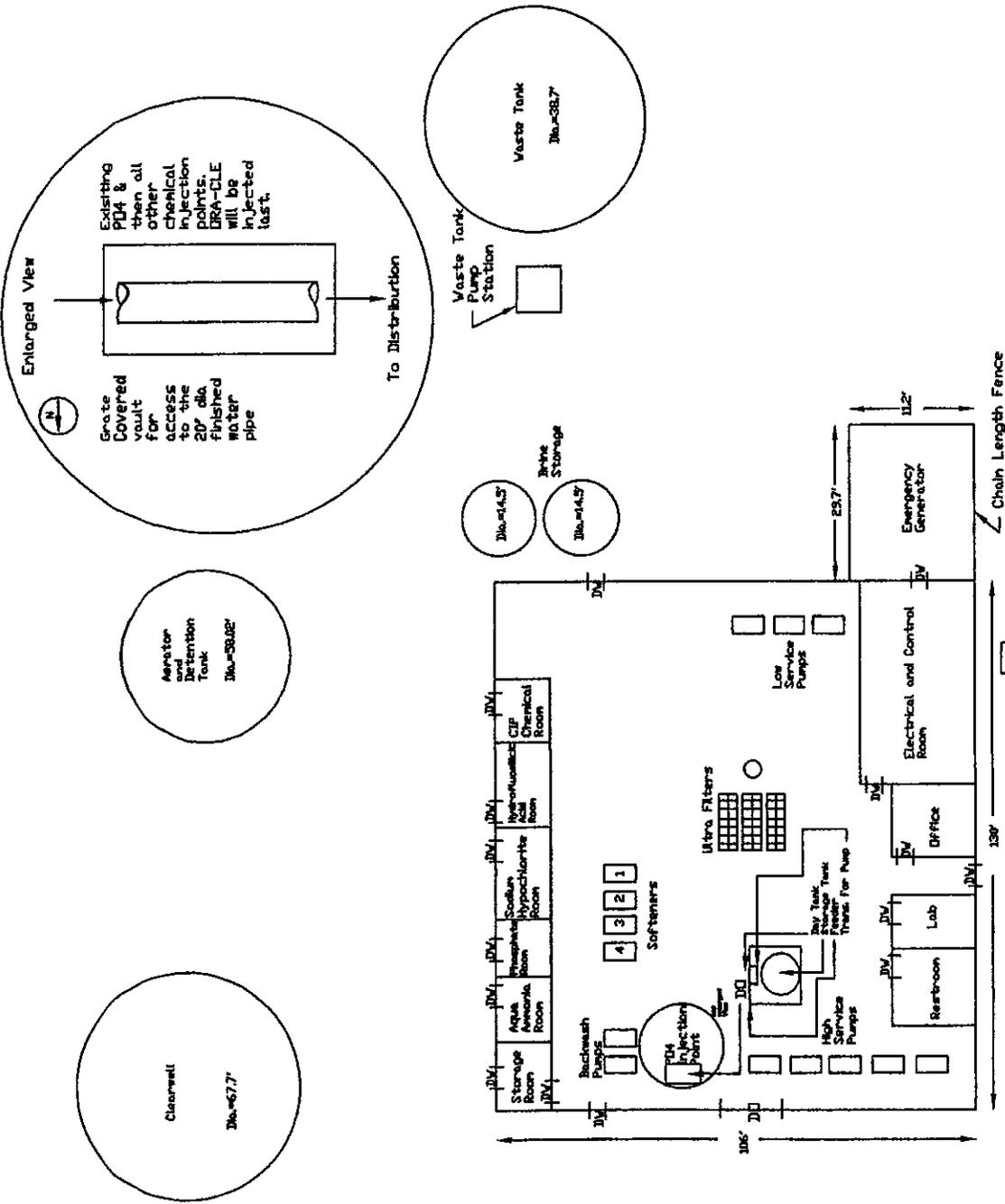
Project: 9315293 Date: 15-2013
 Scale: Not to scale
 Drawn/Checked: JLM/JMV



I hereby certify that this plan, specification, or report was prepared by or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Illinois.
 Print Name: Donald V. Morrison
 Signature: [Handwritten Signature]
 License #: 062-059389
 My License renewal date is 11-30-2013
 Revisions:

Construction Permit Application
 South Sangamon, IL
 DBA-CLE
 PVSID #IL 167.0080

File Location: FILES\2\JVPE\Projects\9315292\PlanView\9315293
Donald V Morrison PE, LLC
 Consultants In Infrastructure Management & Engineering
 2635 Yeager Road, Suite B
 West Lafayette, IN 47906-1336
 Phone: 765-497-1901 Fax: 765-497-9419



Plan View

Specification Sheet

Series B

GENERAL

Chemical metering pumps shall be positive displacement, Liquifram™ type pumps that are UL and CUL approved. Output volume shall be adjustable while pumps are in operation from zero to maximum capacity of:

- B11, B71, B91 - 1.6 GPH (6.1 liters per hour)
- B12, B72, B92 - 2.5 GPH (9.5 liters per hour)
- B13, B73, B93 - 4.5 GPH (17.0 liters per hour)
- B14, B74, B94 - 7.0 GPH (26.5 liters per hour)

Chemical metering pumps shall be capable, without a hydraulically backed diaphragm, of injecting solutions against pressures up to:

- B11, B71, B91 - 150 psig(10.3 bar)
- B12, B72, B92 - 100 psig(6.9 bar)
- B13, B73, B93 - 50 psig(3.4 bar)
- B14, B74, B94 - 30 psig(2.1 bar)

SERIES B1

Adjustments shall be by means of readily accessible dial knobs, one for changing stroke length and the other for changing stroke frequency. Both knobs are to be located opposite the liquid handling end.

SERIES B7

Control of Series B7 metering pumps shall be selectable between internal and external pulsing by means of a 3-position center-off switch. Stroke length shall be adjustable by means of readily accessible dial knob. When in external pulsed mode, Series B7 units shall accept signals without the use of electrical timer or internal timer. Pressure capacity shall be adjustable to reduce noise, vibration and wear.

SERIES B9

Series B9 metering pumps shall have a clear liquid crystal display. Control shall be selectable between internal and external pulsing by means of a tactile keypad. Internal stroke frequency shall be adjustable from 1 stroke per hour to 100 strokes per minute. Pressure capacity

shall be keypad adjustable to reduce noise, vibration and wear. Metering pump shall be capable of dividing or multiplying pulse inputs from 1 to 999 or responding directly or inversely to a 4-20mA input signal.

DRIVE

The pump drive shall be totally enclosed with no exposed moving parts. Solid state electronic pulser shall be fully encapsulated and supplied with quick connect terminals at least 3/16" (4.75 mm) wide. Electronics shall be housed in chemical resistant enclosure at the rear of the pump for maximum protection against chemical spillage. Electrical power consumption shall not exceed 29 watts per hour under full speed and maximum pressure conditions. Pump weight shall not exceed 15 lbs (6.9 kg).

AUTOMATIC PRESSURE RELIEF

To eliminate need for pressure relief valve, Liquifram™ shall automatically stop pulsating when discharge pressure exceeds pump pressure rating by not more than 35%.

MATERIAL

Chemical metering pump housing shall be of chemically resistant glass fiber reinforced thermoplastic. All exposed fasteners shall be stainless steel. Chemical metering pump valves shall be ball type, with ceramic balls¹. Valve seat and seal ring shall be renewable by replacing the combination seat-seal ring² or cartridge valve assembly. Pump head shall be of transparent acrylic³ material capable of resisting the pumped chemical. Fittings and connections at pump head shall be PVC⁴.

CHECK VALVES AND TUBING

A total of 16 ft (4.8 m) of polyethylene tubing⁵ shall be provided per pump complete with compression connections. A foot valve with integral one piece strainer shall be provided for the suction line, and an injection/back pressure check valve with 1/2" NPT male connection for the injection point. The injection check valve shall incorporate a dilating orifice which prohibits scale formation and accumulation of crystalline deposits.

Notes:

1. Type 316 stainless steel or PTFE may be specified.
2. Hypalon[®], PTFE or Polypret[®] may be specified.
3. PVDF, PVC, Polypropylene, or Type 316 stainless steel may be specified.
4. PVDF, Polypropylene, or Type 316 stainless steel may be specified.
5. 6 ft (1.8 m) of vinyl suction tubing may be specified in place of polyethylene for the suction side only. 1/4" or 1/2" pipe thread may be specified.

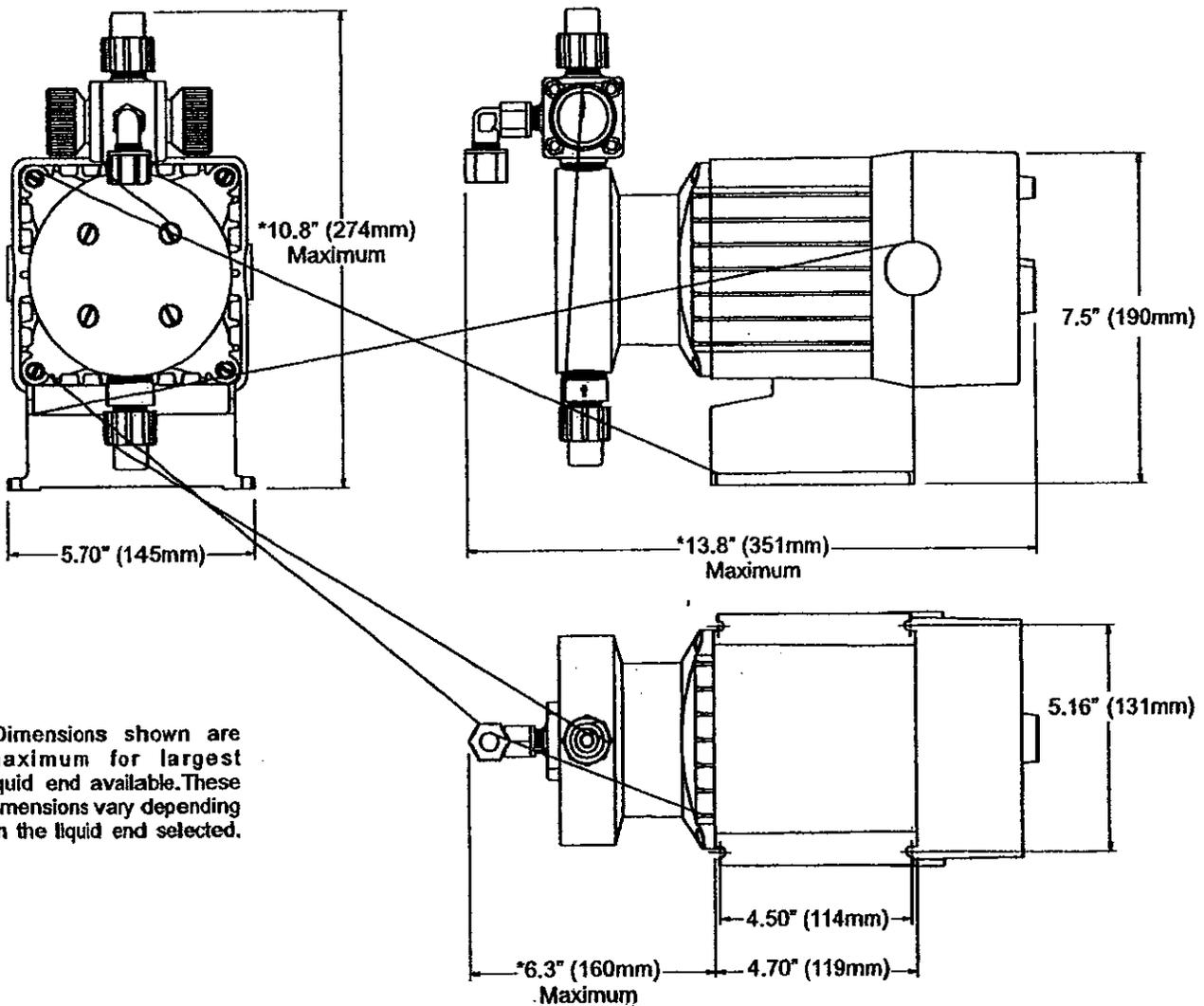


8 Post Office Square
Acton, MA 01720 USA
TEL: (978) 263-9800
FAX: (978) 264-9172
<http://www.lmipumps.com>

Replaces same of Rev. F 7/96
1034, G 12/99

B Series

LE Codes	w	x	Y	Z
71T, 72T, 75T, 81T, 82T, 85T	3.25 (82.5mm)	8.5 (216.0mm)	.65 (16.5mm)	10.70 (271.8mm)
71S, 72S, 75S 81S, 82S, 85S	4.55(115.6mm)	9.7 (246.5mm)	.65 (16.5mm)	12.00 (304.8mm)
74, 94	3.25 (82.5mm)	8.5 (216.0mm)	.65 (16.5mm)	10.70 (271.8mm)
76, 86	3.55 (90.2mm)	9.5 (241.3mm)	.65 (16.5mm)	11.00 (279.4mm)
77, 97	3.25 (82.5mm)	8.5 (216.0mm)	.65 (16.5mm)	10.70 (271.8mm)
91T, 92T, 95T	3.25 (82.5mm)	8.5 (216.0mm)	.65 (16.5mm)	10.70 (271.8mm)
91S, 91FS 92S, 95S	4.55(115.6mm)	9.7 (246.5mm)	.65 (16.5mm)	12.00 (304.8mm)



*Dimensions shown are maximum for largest liquid end available. These dimensions vary depending on the liquid end selected.

Data Sheet

Series B

Electronic Metering Pumps

Configuration

Model -

Manual Control
Speed (stroking frequency) and stroke length manually adjustable

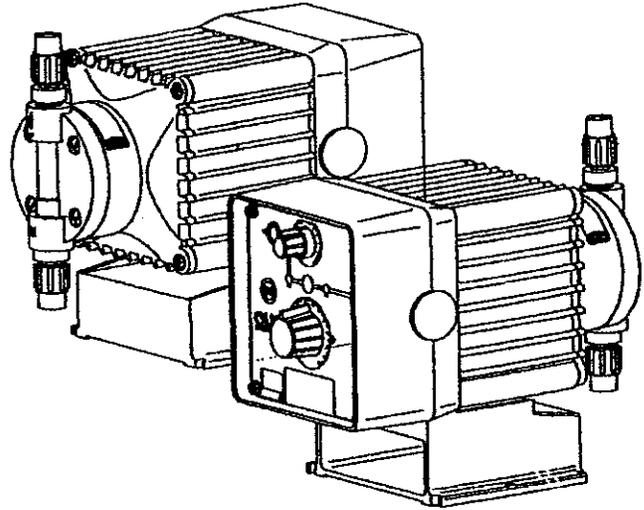
B11 --- 1.6 GPH (6.1 l/h) --- 150 psi (10.30 Bar)
B12 --- 2.5 GPH (9.5 l/h) --- 100 psi (6.90 Bar)
B13 --- 4.5 GPH (17.0 l/h) --- 50 psi (3.50 Bar)
B14 --- 7.0 GPH (26.5 l/h) --- 30 psi (2.07 Bar)

Instrument Responsive / Manual Control
Manual adjustment features of Series B1 plus switch conversion to external control for automatic systems.

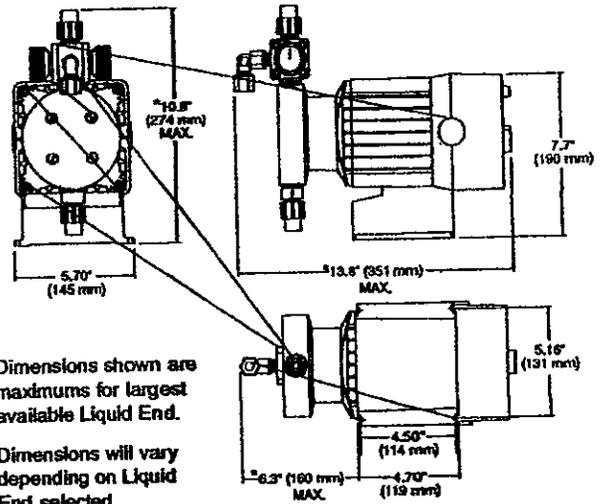
B71 --- 1.6 GPH (6.1 l/h) --- 150 psi (10.30 Bar)
B72 --- 2.5 GPH (9.5 l/h) --- 100 psi (6.90 Bar)
B73 --- 4.5 GPH (17.0 l/h) --- 50 psi (3.50 Bar)
B74 --- 7.0 GPH (26.5 l/h) --- 30 psi (2.07 Bar)
B91 --- 1.6 GPH (6.1 l/h) --- 150 psi (10.30 Bar)
B92 --- 2.5 GPH (9.5 l/h) --- 100 psi (6.90 Bar)
B93 --- 4.5 GPH (17.0 l/h) --- 50 psi (3.50 Bar)
B94 --- 7.0 GPH (26.5 l/h) --- 30 psi (2.07 Bar)

- 1 ----- 120 VAC, US Plug
- 2 ----- 240 VAC, US Plug
- 3 ----- 220-240 VAC, DIN Plug
- 5 ----- 240-250 VAC, UK Plug
- 6 ----- 240-250 VAC, AU/ST/NZ Plug
- 7 ----- 220-240 VAC, SWISS Plug

See next page for complete Liquid End specifications and selection.



Dimensions



Specifications

B11, B71, B91 B12, B72, B92 B13, B73, B93 B14, B74, B94	1	100	10%	29 watts	15 lbs (6.9 kg)
--	---	-----	-----	----------	--------------------

Replaces same of Rev. F 3/97
1417. G 2/98



Configuration Data & Materials of Construction

B91	390SI†	0.9	Acrylic / PGC™	Ceramic	Fluorofilm™	PGC™/Polyprel®	4FV	PE .375" O.D.
	391SI†	0.9	PGC™ / PGC™	Ceramic	Fluorofilm™	PGC™/Polyprel®	4FV	PE .375" O.D.
	392SI†	0.9	PVDF / PVDF	Ceramic	Fluorofilm™	PVDF/Polyprel®	4FV	PE .375" O.D.
	393SI†	0.9	PVDF / PVDF	Ceramic	Fluorofilm™	PVDF/PTFE	4FV	PE .375" O.D.
	85 HV	0.9	Polypropylene	316 S.S.	Fluorofilm™	PTFE		PE .5" O.D. Vinyl .938" O.D.
	86	0.9	Acrylic / PP	316 S.S.	Fluorofilm™	Hypalon®		PE .5" O.D. Vinyl .938" O.D.
	89	0.9	UHMW PE	Ceramic	Hypalon®	Hypalon®		PE .5" O.D. Vinyl .500" O.D.
	91FS	0.9	Acrylic / PVDF	PTFE	Hypalon®	Hypalon®	4FV	PE .375" O.D. Vinyl .375" O.D.
	92S**	0.9	PVC	Ceramic	Fluorofilm™	PTFE	4FV	PE .375" O.D.
	94S**	0.9	PVC	Ceramic	Fluorofilm™	PTFE	4FV	Pipe 1/4" NPT M
95S**	0.9	Polypropylene	Ceramic	Fluorofilm™	PTFE	4FV	PE .375" O.D.	
297	0.9	316 S.S.	316 S.S.	Fluorofilm™	316 S.S.		Pipe 1/4" NPT M	
B93	360SI†	1.8	Acrylic / PGC™	Ceramic	Fluorofilm™	PGC™/Polyprel®	4FV	PE .375" O.D.
	361SI†	1.8	PGC™ / PGC™	Ceramic	Fluorofilm™	PGC™/Polyprel®	4FV	PE .375" O.D.
	362SI†	1.8	PVDF / PVDF	Ceramic	Fluorofilm™	PVDF/Polyprel®	4FV	PE .375" O.D.
	363SI†	1.8	PVDF / PVDF	Ceramic	Fluorofilm™	PVDF/PTFE	4FV	PE .375" O.D.
	71FS	1.8	Acrylic / PVDF	PTFE	Hypalon®	Hypalon®	4FV	PE .5" O.D. Vinyl .5" O.D.
	72S**	1.8	PVC	Ceramic	Fluorofilm™	PTFE	4FV	PE .5" O.D.
	74S**	1.8	PVC	Ceramic	Fluorofilm™	PTFE	4FV	Pipe 1/4" NPT M
	75HV	1.8	Polypropylene	316 S.S.	Fluorofilm™	PTFE		PE .5" O.D. Vinyl .938" O.D.
	75S**	1.8	Polypropylene	Ceramic	Fluorofilm™	PTFE	4FV	PE .5" O.D.
	76	1.8	Acrylic / PP	316 S.S.	Fluorofilm™	Hypalon®		PE .5" O.D. Vinyl .938" O.D.
79	1.8	UHMW PE	Ceramic	Hypalon®	Hypalon®		PE .5" O.D. Vinyl .500" O.D.	
277	1.8	316 S.S.	316 S.S.	Fluorofilm™	316 S.S.		Pipe 1/4" NPT M	
B94	310SI†	3.0	Acrylic / PGC™	Ceramic	Fluorofilm™	PGC™/Polyprel®	4FV	PE .375" O.D.
	311SI†	3.0	PGC™ / PGC™	Ceramic	Fluorofilm™	PGC™/Polyprel®	4FV	PE .375" O.D.
	312SI†	3.0	PVDF / PVDF	Ceramic	Fluorofilm™	PVDF/Polyprel®	4FV	PE .375" O.D.
	313SI†	3.0	PVDF / PVDF	Ceramic	Fluorofilm™	PVDF/PTFE	4FV	PE .375" O.D.
	115S**	3.0	Acrylic	Ceramic	Fluorofilm™	Polyprel®	4FV	PE .5" O.D. Vinyl .5" O.D.
	125S**	3.0	PVC / PVDF	Ceramic	Fluorofilm™	Polyprel®	4FV	PE .5" O.D.
	155S**	3.0	Polyprel®	Ceramic	Fluorofilm™	PTFE	4FV	PE .5" O.D.
	217	3.0	316 S.S.	316 S.S.	Fluorofilm™	316 S.S.		Pipe 1/4" NPT M

See front page for voltage code specifications.

** These Liquid Ends are available without a 4FV.

† To specify 1/4" NPT male, change 'T' to 'P'. To specify black, UV resistant tubing, change 'F' to 'U'. To specify Bleed 4FV, change 'S' to 'B'. To specify 3FV, change 'S' to 'T'.

3FV Indicates that the pump is equipped with an LMI Three Function Valve (pressure relief, priming aid, line drain).

4FV Indicates that the pump is equipped with an LMI Four Function Valve. This diaphragm type anti-siphon/pressure relief valve is installed on the pump head. It provides anti-siphon protection and aids in priming, even under pressure.

Fluorofilm™ is a copolymer of PTFE and PFA. Polyprel® is an elastomeric PTFE copolymer.

Polyprel is a registered trademark of Liquid Metrics, Inc. Fluorofilm, Liquifram, PGC are trademarks of Liquid Metrics, Inc. Hypalon is a registered trademark of E. I. du Pont de Nemours & Co., Inc.

Output Information

B71, B71, B91	0.002	1.6	0.006	6.1	0.10	101	0.10	1.01	150 psi (10.30 Bar)
B72, B72, B92	0.003	2.5	0.009	9.5	0.16	158	0.16	1.58	100 psi (6.90 Bar)
B73, B73, B93	0.005	4.5	0.017	17.0	0.28	284	0.28	2.84	50 psi (3.50 Bar)
B74, B74, B94	0.007	7.0	0.027	26.5	0.44	442	0.44	4.42	30 psi (2.07 Bar)

* Minimum output is based on one (1) stroke per minute and 10% stroke setting, minimum output can be reduced further in external mode.

Series B9 pumps may be programmed for strokes per hour for lower outputs.

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Printed in USA

Specifications subject to change without notice.

Technical Specifications

Model number	CPWplus 6 CPWplus 6P	CPWplus 15 CPWplus 15P	CPWplus 35 CPWplus 35P CPWplus 35W CPWplus 35M CPWplus 35L	CPWplus 75 CPWplus 75P CPWplus 75W CPWplus 75M CPWplus 75L	CPWplus 150 CPWplus 150P CPWplus 150W CPWplus 150M CPWplus 150L	CPWplus 200 CPWplus 200P CPWplus 200W CPWplus 200M CPWplus 200L
Capacity x readability	6kg x 2g 13lb x 0.005lb 212oz x 0.1oz 13lb:1oz x 1oz	15kg x 5g 33lb x 0.01lb 520oz x 0.2oz 32lb:16oz x 1oz	35kg x 10g 75lb x 0.02lb 1200oz x 0.5oz 74lb:16oz x 1oz	75kg x 20g 165lb x 0.05lb 2640oz x 1oz 164lb:16oz x 1oz	150kg x 50g 330lb x 0.1lb 5280 oz x 2 oz 329lb:16oz x 2oz	200kg x 50g 440lb x 0.1lb 7040 oz x 2 oz 439lb:16oz x 2oz
Repeatability (S.D.)	2g / 0.005lb	5g / 0.01lb	10 g / 0.02lb	20 g / 0.05lb	50 g / 0.1lb	50 g / 0.1lb
Linearity (+/-)	4g / 0.01lb	10g / 0.02lb	20 g / 0.04lb	40 g / 0.1lb	100 g / 0.2lb	100 g / 0.2lb

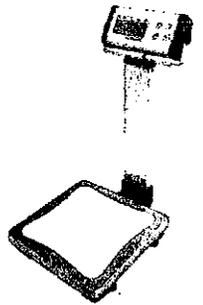
	CPWplus	CPWplus - P	CPWplus - W	CPWplus - M	CPWplus - L
Platform size					
300 x 300 mm / 11.8" x 11.8"	■	■			
500 x 500 mm / 19.7" x 19.7"			■	■	
900 x 600 mm / 35.4" x 23.6"					■
Power Option					
12 VAC, 150 mA power supply supplied	■	■	■	■	■
6 x AA size batteries	■	■			
Internal rechargeable battery			■	■	■
Other Specifications					
Tare	Full range tare by subtraction lb, kg, oz, lb:oz				
Weighing Units	Weighing, Dynamic / Animal weighing, Display hold				
Applications	2 -3 seconds				
Stabalization Time	Bi-directional RS-232				
Interface	Automatic External - user selectable cal weight				
Calibration	1.0" / 25mm Backlit LCD digits				
Display	low battery, stable, zero, net weight and hold symbols				
Humidity	Up to 90% RH non-condensing				
Operating Temperature	32°F - 104°F / 0°C to 40°C				
Indicator Dimensions (wxdxh)	10.6" x 3.1" x 1.2" / 270 x 80 x 30mm				

- Accessories**
- Item No. 7954 - Hard carry case (CPWplus basic model only)
 - Item No. 8023 - Printer
 - Item No. 9014 - RS-232 cable
 - Item No. 9061 - AdamDU - Data collection program
 - Item No. 9013 - Rubber non-slip mat for CPWplus - L

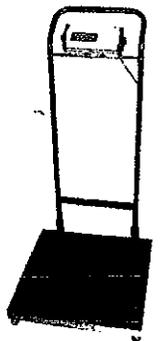
CPWplus



CPWplus - P



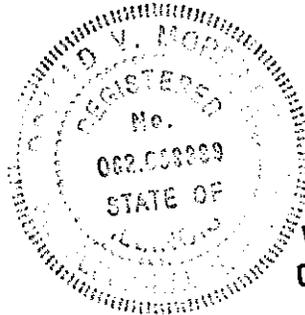
CPWplus - W



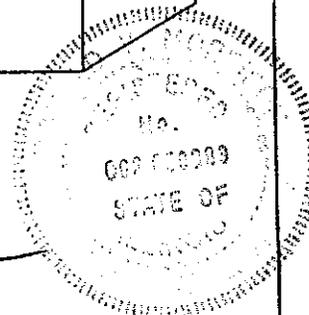
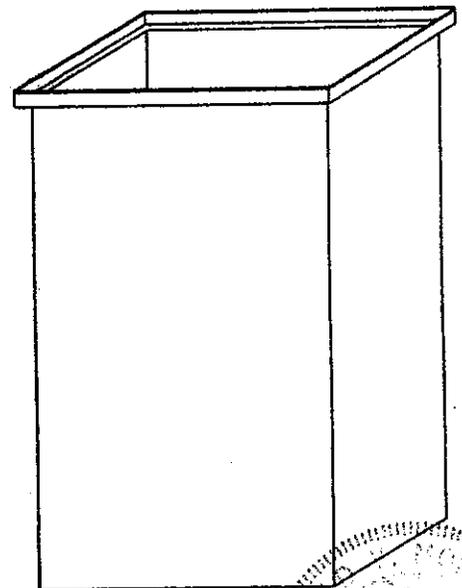
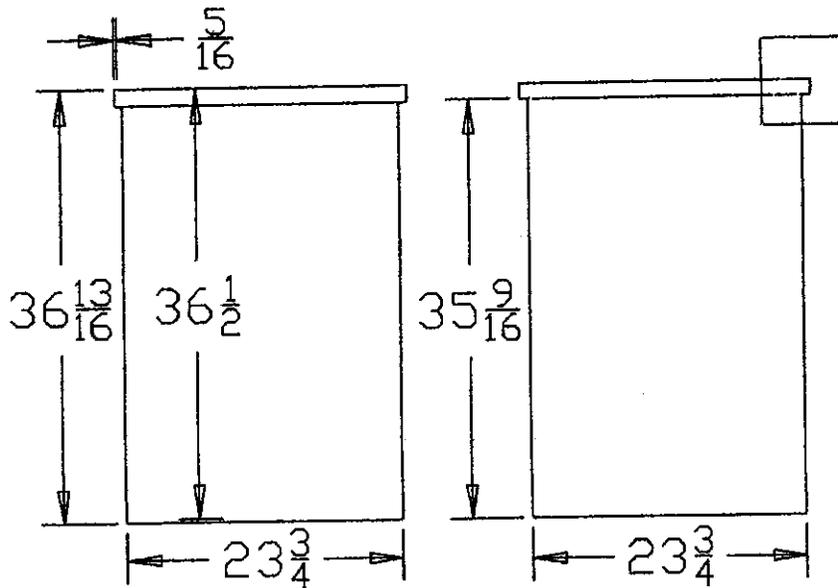
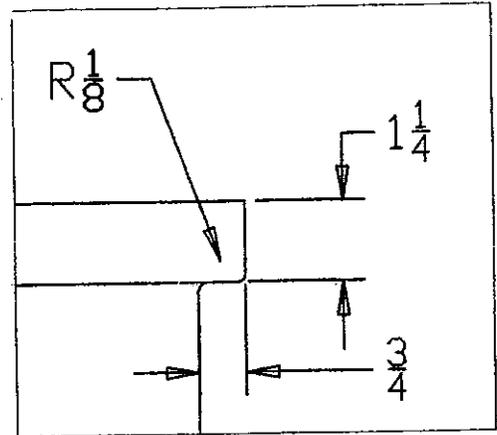
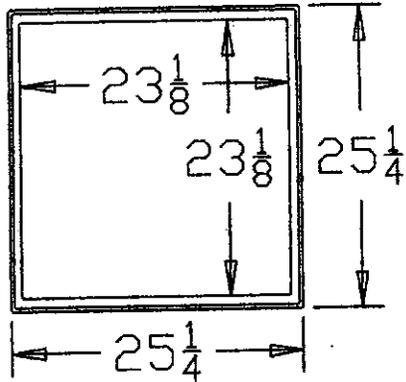
CPWplus - M



CPWplus - L

Catalogue options: Cover #6372



Tank walls recommended to be fully supported by 2x4's/angle iron & plywood/flakeboard.

Capacity: 90 US gal.
 Not recommended for fuels or oils.
 Max. operating temp. 140° F. - Intermittent service to 160° F.

DIMENSIONS ARE IN INCHES		NAME	DATE
TOLERANCES:		DRAWN	MRS
FRACTIONAL ± 1/8		CHECKED	09/08/05
ANGULAR: MACH ±		ENG APPR.	
TWO PLACE DECIMAL ±		MFG APPR.	
THREE PLACE DECIMAL ±		QA	

Heavy Duty Polyethylene Tank w/Internal Flange #6326

TAMCO

1390 Neubrecht Road
 Lima, Ohio 45801

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MATERIAL
 Molded MDPE
 FINISH ---
 DO NOT SCALE DRAWING

COMMENTS
 Translucent
 UV stabilized

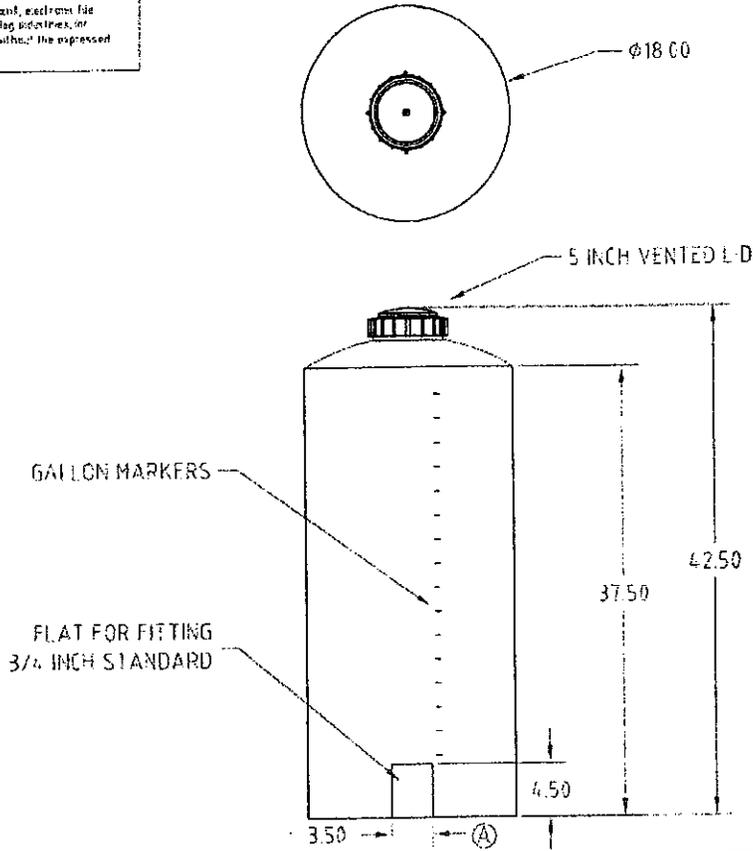
SIZE (STOCK NO.)	6326	REV.
A		
SCALE: none	WEIGHT:	SHEET 1 OF 1

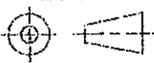
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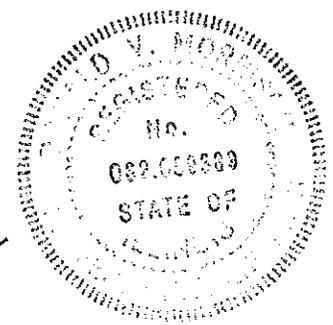
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VT0040-18

A



DRAWN / DATE DHJ 9/19/03		MATERIAL / SHOT WEIGHT HDPE / 17 LBS		 Ace Roto-Mold A DIVISION OF DEN HARTOG INDUSTRIES, INC. 4010 HOSPERS DRIVE S., BOX 425, HOSPERS, IOWA 51238	
APPRD. / DATE CCH 11/19/07		CLIENT / DESCRIPTION 40 GALLON VERTICAL TANK		SCALE NONE	
REV. DESCRIPTION DATE APPR.		THIRD ANGLE PROJECTION ANSI 14.5M		PART NO. VT0040-18	
ALL DIMENSIONS ARE IN DECIMAL INCHES TOLERANCES UNLESS OTHERWISE SPECIFIED ± 1% @ 68°F		 NOTES: 1. NOM. WALL THK 2. BLACK, GREEN, WHITE OR YELLOW COLOR			

CHEMICAL FEED Tubing & Fittings

Chemical Feed Tubing

- High working pressures
- Choose from PVC, polyethylene and high-density polyethylene
- Meets FDA standards

There is a big difference in the quality of tubing from one brand to another. For chemical feed applications where chlorine is used extensively, we have chosen to stock only the very best brands and grades available. In unattended facilities, you need tubing you can trust.

Our premium industrial-strength tubing is extruded from high-quality resin for long-term strength and durability in your treatment plant. Its resistance to stress cracking greatly exceeds that of ordinary tubing found at local hardware stores. With this high-quality tubing, you'll see longer life, less maintenance and fewer hours of downtime.

Choose the best tubing for your application

PVC suction and polyethylene discharge tubing are available for general chemical feed applications. LLDPE (linear low density polyethylene) tubing meets NSF 61 standards for potable water treatment. Translucent high-density polyethylene discharge tubing is ideal for use with aggressive chemicals like sodium hypochlorite. Black high-density polyethylene discharge tubing is the best choice for applications involving gas chlorinators. Clear braided PVC tubing works great in chemical transfer applications (sold by the foot).

When determining size, remember that tubing is measured using OD (outside diameter), vs. pipe and hose which are measured using ID (inside diameter).

Note: Tubing is sold only in the prepackaged lengths shown.

Tubing sizes, whether plastic, copper, or steel are measured OD. Therefore, the ID can vary depending on wall thickness.

operator notes

Pipe sizes on the other hand are measured ID. Variations in wall thickness due to different classes or materials will result in different ODs for a given size pipe.

PVC Suction Tubing

COLOR	OD	ID	WORKING PSI @ 73°F	25' ROLL STOCK #	EACH	50' ROLL STOCK #	EACH	100' ROLL STOCK #	EACH	FULL ROLL, 250'	EACH
Clear	3/4"	3/8"	55	17185	\$ 7.29	17207	\$ 13.49	62412	\$ 20.19	62425	\$ 103.95
Clear	1"	3/4"	55	17198	8.49	17200	15.79	62401	23.79	62426	131.95
Clear	1 1/2"	1 1/8"	50	17197	13.19	17210	24.49	62423	39.99	62427	162.95
Clear	2"	1 3/4"	45	17199	11.29	17211	20.89	62403	31.19	62428	171.95
Clear	2 1/2"	2"	45	17199	27.99	17212	61.49	62405	77.99	62429	226.95/250'

Polyethylene Discharge Tubing

COLOR	OD	ID	WORKING PSI @ 73°F	25' ROLL STOCK #	EACH	50' ROLL STOCK #	EACH	100' ROLL STOCK #	EACH	FULL ROLL, 250'	EACH
Translucent	1/2"	3/16"	205	17200	\$ 3.00	17213	\$ 7.39	62407	\$ 10.99	62434	\$ 67.95
Black	1/2"	3/16"	205	17107	3.99	17111	7.39	62430	10.99	62424	57.95
Translucent	3/4"	1/2"	214	17201	7.99	17214	14.99	62408	21.99	62425	115.95
Black	3/4"	1/2"	214	17202	7.99	17215	14.99	62411	21.99	62426	115.95
Translucent	1"	3/4"	153	17203	9.99	17216	18.49	62413	27.95	62427	144.95
Black	1"	3/4"	153	17204	9.99	17217	18.49	62415	27.95	62428	144.95
Black	1 1/2"	1 1/8"	119	17205	13.49	17218	24.95	62416	37.95	62429	198.00

LLDPE (Polyethylene Tubing—Meets NSF 61 Standards)

COLOR	OD	ID	WORKING PSI @ 73°F	25' ROLL STOCK #	EACH	50' ROLL STOCK #	EACH	100' ROLL STOCK #	EACH
Translucent	1/2"	3/8"	358	79018	\$ 5.09	79017	\$ 9.29	79016	\$ 13.59
Translucent	3/4"	1/2"	214	79021	9.99	79020	18.49	79019	27.95
Translucent	1"	3/4"	153	79024	12.49	79023	22.95	79022	34.95
Translucent	1 1/2"	1 1/8"	119	79023	16.99	79026	31.95	79025	47.95

Translucent High-Density Polyethylene Discharge Tubing

COLOR	OD	ID	WORKING PSI @ 73°F	25' ROLL STOCK #	EACH	50' ROLL STOCK #	EACH	100' ROLL STOCK #	EACH
Translucent	1/2"	3/8"	456	79006	\$ 6.49	79006	\$ 10.99	79004	\$ 16.49
Translucent	3/4"	1/2"	272	79009	9.39	79008	16.99	79007	24.95
Translucent	1"	3/4"	194	79012	12.99	79011	22.95	79010	33.95
Translucent	1 1/2"	1 1/8"	151	79015	18.99	79014	28.95	79013	43.95

Black High-Density Polyethylene Discharge Tubing

COLOR	OD	ID	WORKING PSI @ 73°F	25' ROLL STOCK #	EACH	50' ROLL STOCK #	EACH	100' ROLL STOCK #	EACH	FULL ROLL, 250'	EACH
Black	1/2"	3/8"	300	17206	\$ 39.95	17210	\$ 59.95	62417	\$ 114.95	62484	\$ 429.95
Black	3/4"	1/2"	225	---	---	---	---	62424	159.95	---	---

Clear Braided PVC Tubing (sold by foot)

COLOR	OD	ID	WORKING PSI @ 73°F	PER FOOT STOCK #	EACH
Clear, Braided	1 1/2"	1 1/8"	125	60566	\$ 1.39
Clear, Braided	1 3/4"	1"	125	60567	2.89
Clear, Braided	2"	1 1/2"	125	60568	6.79
Clear, Braided	1.93"	1 1/2"	76	201702	3.99
Clear, Braided	2 1/2"	2"	56	201703	6.00
Clear, Not Braided	3/4"	1/2"	45	43120	1.29

Don't see your tubing? Give us a call -- we can provide a wide variety of tubing. We can usually get it to you within a few days!



WSU ORA-CLE
(Organic Removal Agent-Chlorine Enhancer)

Properties

Description	Electrolyzed Hypochlorous Acid Solution
Weight	8.45 pounds per gallon
Color	Clear, Colorless Liquid
Odor	Odorless in Treated Water Solutions Unlimited
pH	7.0 - 8.0
Max. Use Level	7,500 mg/L

- **WSU ORA-CLE is NSF Certified according to Standard 60 specifications. It is registered as a SCALE CONTROL AGENT.**
- **The product is considered *Not Hazardous* to health standards under OSHA Hazard Communication Standard (29 CFR 1910.1200).**

Applications

WSU ORA-CLE is designed to remove organic deposits (biofilm) from system metal surfaces. The mechanism appears to be the dissolving of the sticky external binding agent that protects a biofilm from chemical attack. Once the exterior layers are removed, disinfectants such as chlorine can penetrate and kill the bacteria. Normal feed rates are between 1 to 50 mg/L, but the NSF Maximum Use Level is registered at 7,500 mg/L.

WSU ORA-CLE can be used in Municipal Drinking water distribution systems. It can also be used for Food processing and other commercial and industrial applications.

Directions for Use

In municipal systems, WSU ORA-CLE is fed using a chemical feed pump, scale for measurement, and day tank. Please contact your Water Solutions Unlimited, Inc. for assistance at 1-800-359-3570.

For More Information or Technical Assistance: Call 1-800-359-3570 or look us up on the Web at www.getwsu.com



MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: WSU ORA-CLE

Synonyms: None

COMPANY INFORMATION

Water Solutions Unlimited, Inc.
295 Industrial Dr.
Franklin, Indiana 46131

Toll Free: 800-359-3570
Phone: 317-736-6868
Fax: 317-736-4322

2. COMPOSITION/INFORMATION ON INGREDIENTS

Specific chemical identity of ingredients withheld as proprietary information. Refer to remaining sections for information concerning the properties and effects of ingredients.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Material is considered non-hazardous

POTENTIAL HEALTH EFFECTS

Likely Routes of Exposure: skin contact and inhalation

EYE CONTACT: May be irritating to eye tissue.

SKIN CONTACT: May be irritating to skin tissue.

INHALATION: Inhalation of the mist or vapor may cause irritation.

INGESTION: Ingestion may be irritating to gastrointestinal system.

Refer to Section 11 for toxicological information.

4. FIRST AID MEASURES

IF IN EYES, immediately flush with water for 15 minutes. Seek medical attention.

IF ON SKIN, wash exposed areas with water. Immediate first aid is not likely to be required. However, this material can be removed with water. Wash heavily contaminated clothing before reuse.

IF INHALED, immediate first aid is not likely to be required. However, if symptoms occur, remove to fresh air. Remove material from eyes, skin and clothing.

IF SWALLOWED, do not induce vomiting. Drink plenty of water and seek medical attention.

5. FIRE FIGHTING MEASURES

FLASH POINT: not combustible

HAZARDOUS PRODUCTS OF COMBUSTION: not applicable

EXTINGUISHING MEDIA: not applicable

UNUSUAL FIRE AND EXPLOSION HAZARDS: none

6. ACCIDENTAL RELEASE

Contain large spills with dikes and transfer the material to appropriate containers for reclamation or disposal. Absorb remaining material or small spills with an inert material and then place in a chemical waste container. Flush residual spill area with large amounts of water.

Refer to Section 13 for disposal information and Sections 14 and 15 for reportable quantity information.

7. HANDLING AND STORAGE

HANDLING: HANDLE IN ACCORDANCE WITH GOOD INDUSTRIAL HYGIENE AND SAFETY PRACTICES. THESE PRACTICES INCLUDE AVOIDING UNNECESSARY EXPOSURE AND REMOVAL OF MATERIAL FROM EYES, SKIN, AND CLOTHING.

STORAGE: Store in a cool, dry place out of direct sunlight to maintain product performance.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

EYE PROTECTION: Where there is potential for eye contact, wear goggles and have eye flushing equipment immediately available.

SKIN PROTECTION: Wear appropriate protective clothing and chemical resistant gloves to prevent skin contact.

RESPIRATORY PROTECTION: Avoid breathing vapor or mist.

9. PHYSICAL AND CHEMICAL PROPERTIES

Chemical Formula: Proprietary

Appearance: Clear liquid

Odor: slight Chlorine odor

pH: 7.5 ± 0.5

Boiling Point: 100 C

Freezing Point: < 0 deg. C

Lbs/Gallon: 8.45 ± .10

NOTE: These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

10. STABILITY AND REACTIVITY

STABILITY: Product is stable under normal conditions of storage and handling.

MATERIALS TO AVOID: Acids or low pH liquids.

HAZARDOUS DECOMPOSITION PRODUCTS: Low concentrations of hydrochloric acid.

HAZARDOUS POLYMERIZATION: Reaction with acids or low pH liquids may produce low concentrations of chlorine gas.

11. TOXICOLOGICAL INFORMATION

Oral - LD50 - N/A

Eye Irritation - N/A

Skin Irritation - N/A

12. ECOLOGICAL INFORMATION

Vendor has not conducted environmental toxicity studies or biodegradation studies with this product or ingredients in this product.

13. DISPOSAL CONSIDERATIONS

This material when discarded is not a hazardous waste as that term is defined by the Resource, Conservation and Recovery Act (RCRA), 40 CFR 261. Consult your attorney or appropriate regulatory officials for information on such disposal.

14. TRANSPORT INFORMATION

Please apply the appropriate regulations to properly classify your shipment for transportation.

This product is not hazardous under the applicable DOT, ICAO/IATA, or IMDG regulations.

15. REGULATORY INFORMATION

16. OTHER INFORMATION

This material is certified to ANSI/NSF Standard 60 by NSF® International for use in potable water systems.

Revised MSDS dated 3/08/12

Product Use: potable water treatment

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, Water Solutions Unlimited, Inc. 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 suitability for their purposes prior to use. In no event will Water Solutions Unlimited, Inc. be responsible for damages of any nature whatsoever resulting from the use of or reliance upon Information. Do not use ingredient information and/or percentages in this MSDS as a product specification or a certificate of analysis.

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OFFICIAL LISTING

NSF International Certifies that the products appearing on this Listing conform to the requirements of NSF/ANSI Standard 60 - Drinking Water Treatment Chemicals - Health Effects

This is the Official Listing recorded on March 15, 2012.

Water Solutions Unlimited
295 Industrial Drive
P.O. Box 347
Franklin, IN 46131
800-359-3570
317-736-6868

Facility: Franklin, IN

Chemical/ Trade Designation	Function	Max Use	
Ammonium Sulfate			
WSU Ammonia	Disinfection & Oxidation	10	mg/L
WSU Ammonium Sulfate-Dry	Disinfection & Oxidation	25	mg/L
Blended Phosphates			
WSU 110	Corrosion & Scale Control Sequestering	32	mg/L
WSU 118	Corrosion & Scale Control Sequestering	29	mg/L
WSU 120	Corrosion & Scale Control Sequestering	32	mg/L
WSU 135	Corrosion & Scale Control Sequestering	29	mg/L
WSU 140	Corrosion & Scale Control Sequestering	30	mg/L
WSU 150	Corrosion & Scale Control Sequestering	30	mg/L
WSU 158	Corrosion & Scale Control Sequestering	29	mg/L
WSU 175	Corrosion & Scale Control Sequestering	30	mg/L
WSU 178	Corrosion & Scale Control Sequestering	29	mg/L
WSU 189	Corrosion & Scale Control Sequestering	31	mg/L
WSU 310	Corrosion & Scale Control Sequestering	12	mg/L
WSU 318	Corrosion & Scale Control Sequestering	12	mg/L
WSU 319	Corrosion & Scale Control Sequestering	12	mg/L
WSU 320	Corrosion & Scale Control Sequestering	12	mg/L

Note: Additions shall not be made to this document without prior evaluation and acceptance by NSF International.
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WSU 340	Corrosion & Scale Control Sequestering	12	mg/L
WSU 350	Corrosion & Scale Control Sequestering	12	mg/L
WSU 358	Corrosion & Scale Control Sequestering	12	mg/L
WSU 375	Corrosion & Scale Control Sequestering	12	mg/L
WSU 378	Corrosion & Scale Control Sequestering	12	mg/L
WSU 389	Corrosion & Scale Control Sequestering	12	mg/L
WSU HYPO-CLEAN	Corrosion & Scale Control Sequestering	29	mg/L
Miscellaneous Treatment Chemical [CL]			
WSU ORA-CLE	Scale Control	7500	mg/L

[CL] The residual levels of chlorine (hypochlorite ion and hypochlorous acid), chlorine dioxide, chlorate ion, chloramine and disinfection by-products shall be monitored in the finished drinking water to ensure compliance to all applicable regulations.

Facility: Greenwood, IN

Chemical/ Trade Designation	Function	Max Use
Hydrogen Peroxide [HP]		
WSU CA 500 [1] [2] [3] [4]	Other	NA
Miscellaneous Water Supply Products		
WSU MC 444 [1] [2] [3] [5]	Other	NA
WSU MC 477 [1] [2] [3] [5]	Other	NA
Phosphoric Acid		
WSU FW 833 [1] [2] [6]	Other	NA
WSU TC 622 [1] [2] [7]	Other	NA
Sodium Bicarbonate		
WSU NE 444 [1] [2] [8]	Other	NA
Sodium Hydroxide		
WSU NE 222 [1] [2] [8]	Other	NA

- [1] This product is designed to be used off-line and flushed out prior to using the system for drinking water, following manufacturer's use instructions.
- [2] The pH of the influent and effluent water should be monitored to ensure that all traces of the product have been removed before placing into service.
- [3] This product functions as a in situ filter media cleaner.
- [4] This product is to be used in conjunction with WSU MC 444 or MC447.
- [5] This product is to be used in conjunction with WSU CA-500 Catalyst.
- [6] For WSU FW 833: This product functions as a cleaner for interior filter walls.
- [7] For WSU TC 622: This product functions as a cleaner for interior water tower and ground storage tank walls.
- [8] This product functions as a neutralizer for off-line filter cleaners.
- [HP] Use of this product shall be followed by chlorination to remove levels of hydrogen peroxide. Chlorine residuals shall not exceed 4 mg/L, the EPA's proposed maximum residual level.

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