



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.: 0801 -FY 2013
 Address 2: _____ Permit Type: Plant Improvement
 City: Rochester State: IL Zip Code: 62563 Date Permit Issued: Mar 12, 2013
 County: Sangamon

Project Title: Chemical Addition of Blended Liquid Phosphates in the forms of WSU 110, 118, 137, 158, 178
 Firm Name: Water Solutions Unlimited, Inc.

Application Requirements (check when complete):

Project Status: (Check One) Final Permit Number, Facility Number, and Facility Name identified on the Lab Report(s).
 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: Apr 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 _____ -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
Post Office Box 83
Rochester, IL 62563

PERMIT NUMBER: 0801-FY2013

DATE ISSUED: March 12, 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, PE, LLC

NUMBER OF PLAN SHEETS: None

TITLE OF PLANS: "Specs Only' Change in Polyphosphate to WSU 110, WSU 118, WSU 137, WSU 158 & WSU 178"

PROPOSED IMPROVEMENTS:

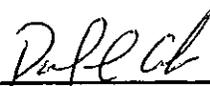
Install a new 50 gallon day tank to the existing polyphosphate feed system and include WSU 110, WSU 118, WSU 137, WSU 158 and WSU 178 (all by Water Solutions Unlimited) to the list of approved polyphosphates

ADDITIONAL CONDITIONS:

1. There are no further conditions to this permit.

DCC:CLK: dsa

cc: Donald V. Morrison, PE, LLC
Springfield Region



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

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David C. Cook, P.E.
Acting Manager Permit Section
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Facility Name: SOUTH SANGAMON WATER COMMISSION **Facility ID:** IL 1670080
Address 1: Manager, South Sangamon Water Commission **Construction Permit No.:** 0801 -FY 2013
Address 2: Post Office Box 83 **Permit Type:** Plant Improvement
City: Rochester **State:** IL **Zip Code:** 62563 **Date Permit Issued:** March 12, 2013
County: Sangamon
Project Title: 'Specs Only' Change in Polyphosphate to WSU 110, WSU 118, WSU 137, WSU 158 & WSU 178
Firm Name: Donald V. Morrison, PE, LLC

Application Requirements (check when complete):

- Project Status: (Check One)**
- Final
 - Permit Number, Facility Number, and Facility Name identified on the Lab Report(s).
 - Partial
 - Samples analyzed by the Membrane Filter technique.
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- General project layout plans.
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Date of Project Completion: _____ (Provide the date construction was completed on the project or partial)

Certified Operator in Responsible Charge:

Name: _____ **Classification:** _____ **Number:** _____
Telephone: _____

Owner of the Completed Project:

Name: _____ **Title:** _____ **Telephone:** _____
Address: _____ **City:** _____ **State:** _____ **Zip Code:** _____

Owner/Authorized Personnel Signature

Date

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

STANDARD CONDITIONS FOR CONSTRUCTION/DEVELOPMENT PERMITS ISSUED BY THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

The Illinois Environmental Protection Agency Act (Illinois Compiled Statutes, Chapter 111-1/2, Section 1039) grants the Environmental Protection Agency authority to impose conditions on permits which it issues.

These standard conditions shall apply to all permits which the Agency issues for construction or development projects which require permits under the Divisions of Water Pollution Control, Air Pollution Control, Public Water Supplies, and Land and Noise Pollution Control. Special conditions may also be imposed by the separate divisions in addition to these standard conditions.

1. Unless this permit has been extended or it has been voided by a newly issued permit, this permit will expire one year after this date of issuance unless construction or development on this project has started on or prior to that date. (See below).
2. The construction or development of facilities covered by this permit shall be done in compliance with applicable provisions of Federal laws and regulations, the Illinois Environmental Protection Act, and Rules and Regulations adopted by the Illinois Pollution Control Board.
3. There shall be no deviations from the approved plans and specifications unless a written request for modification of the project, along with plans and specifications as required, shall have been submitted to the Agency and a supplemental written permit issued.
4. The permittee shall allow any agent duly authorized by the Agency upon the presentation of credentials:
 - a. to enter at reasonable times the permittee's premises where actual or potential effluent, emission or noise sources are located or where any activity is to be conducted pursuant to this permit.
 - b. to have access to and copy at reasonable times any records required be kept under the terms and conditions of this permit.
 - c. to inspect at reasonable times, including during any hours of operation of equipment constructed or operated under this permit, such equipment or monitoring methodology or equipment required to be kept, used, operated, calibrated and maintained under this permit.
 - d. to obtain and remove at reasonable times samples of any discharge or emission of pollutants.
 - e. to enter at reasonable times and utilize any photographic, recording, testing, monitoring or other equipment for the purpose of preserving, testing, monitoring, or recording any activity, discharge, or emission authorized by this permit.
5. The issuance of this permit:
 - a. shall not be considered as in any manner affecting the title of the permits upon which the permitted facilities are to be located;
 - b. does not release the permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the proposed facilities;
 - c. does not release the permittee from compliance with the other applicable statutes and regulations of the United States, of the State of Illinois, or with applicable local laws, ordinances and regulations;
 - d. does not take into consideration or attest to the structural stability of any units or parts of the project;
 - e. in no manner implies or suggests that the Agency (or its officers, agents or employees) assumes any liability directly or indirectly for any loss due to damage, installation, maintenance, or operation of the proposed equipment or facility.
6. These standard conditions shall prevail unless modified by special conditions.
7. The Agency may file a complaint with Board of modification, suspension or revocation of a permit:
 - a. upon discovery that the permit application misrepresentation or false statements or that all relevant facts were not disclosed; or
 - b. upon finding that any standard or special conditions have been violated; or
 - c. upon any violation of the Environmental Protection Act or any Rule or Regulation effective thereunder as a result of the construction or development authorized by this permit.

For Division of Public Water Supply Construction Permits, construction on this project, once started, may continue for four years before this permit expires. A request for extension shall be filed at least 90 days prior to the permit expiration date.



ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-2829

PAT QUINN, GOVERNOR

JOHN J. KIM, DIRECTOR

DIVISION OF PUBLIC WATER SUPPLIES
TELEPHONE 217/782-1724/FAX 217/782-0075

Donald V Morrison P.E.
Donald V. Morrison, PE, LLC
2635 Yeager Road, Suite D
West Lafayette, IN 47906-1356

Project Received Date: 3/1/2013
Fee Paid:
Facility Number: IL1670080
Letter Mail Date: 3/5/2013

LOG NUMBER: 2013-0801 - 0

Facility SOUTH SANGAMON WATER COMMISSION

Title: Chemical Addition of Blended Liquid Phosphates in the Fors of WSU 110, 118, 137, 158, 178

PLEASE REFER TO THE ABOVE LOG NUMBER IN ANY CORRESPONDENCE CONCERNING THIS PROJECT. PLEASE DIRECT ANY RESPONSE TO THE PERMIT SECTION.

Your Application for Construction Permit package has been received. There is inconsistent information. Please send the items indicated below to this office.

The address on Section 9.6 of the application does not match the water system address on file at the Agency. Our records indicate that the address of the water system is P.O. Box 83. Future correspondence, including the construction permit will be delivered to the address on file. If the water system wishes to change the address on file, please complete a new notification form, <http://www.epa.state.il.us/water/operator-cert/drinking-water/forms/notification-of-ownership.pdf>. If you have any questions, please call (217) 782-1724.

At this time there is a 30 day turn around time for issuance of permits. This 30 day time period includes the date of receipt. Please hold calls until after this period has elapsed.

Public Water Supply forms are available on the I.E.P.A. web site (www.epa.state.il.us). One original and one copy of every form and sealed plans are required.

DCC: cdb

CC: DEL McCORD
SOUTH SANGAMON WATER COMMISSION
9199 BUCKHART ROAD
ROCHESTER, IL 62563

4302 N. Main St., Rockford, IL 61103 (815) 987-7760
595 S. State, Elgin, IL 60123 (847) 608-3131
2125 S. First St., Champaign, IL 61820 (217) 278-5800
2009 Mall St., Collinsville, IL 62234 (618) 346-5120

9511 Harrison St., Des Plaines, IL 60016 (847) 294-4000
5407 N. University St., Arbor 113, Peoria, IL 61614 (309) 693-5462
2309 W. Main St., Suite 116, Marion, IL 62959 (618) 993-7200
100 W. Randolph, Suite 10-300, Chicago, IL 60601 (312) 814-6026



MAINSTAY COMPOSITE LINER
1-800-777-6644

Mailed in
Chatham on
2/28/13

Dan's Copy

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

February 1, 2013

Mr. Dan Held, Assistant Manager
South Sangamon Water Commission
9199 Buckhart Road
Rochester, IL 62563

Re: Instructions for Chemical Addition Construction Permit

Dear Dan;

Attached are two originals and four copies of the construction permit application forms (6 each) for the WSU chemical blends additions 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 cover 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.

Put the remaining copy in your files. No permit fee is required. See the suggested attached cover letter to IL EPA. 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



Don Morrison, PE
Senior Environmental Engineer

Attachments: Construction Permit Application Forms

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 blended liquid phosphates in the forms of WSU 110, 118, 137, 158, 178
- 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 liquid phosphate blends in the finished water line after the clear well for the sequestration of manganese and iron.
- 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 _____

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.

9.3 Describe that portion of the project within the boundaries of the other public water supply

10.0 CERTIFICATIONS

10.1 Certificate by Design Engineer

I hereby certify that I am familiar with the information contained in this application, and that to the best of my knowledge and belief such information is true, complete and accurate.

Donald V Morrison, PE

062 059389

^ENGINEER'S NAME^

^REGISTRATION NUMBER^

Donald V Morrison, PE, LLC

(765) 497-0911

^FIRM^

^TELEPHONE^

2635 Yeager Rd Suite D, West Lafayette, IN 47906

^ADDRESS^

Donald V. Morrison

^SIGNATURE^

February 1, 2013

DATE

10.2 Certificate by Applicant(s)

Commencing January 1, 1990, Section 16.1 of the Environmental Protection Act (Ill. Rev. Stat. 1987, Ch. 111 2, par. 1016.1, as amended by P.A. 86-670) requires the agency to collect a fee for certain applications for the installation or extension of water mains. There are no permits fees for other improvements to public water supply systems and only certain water main projects will be affected.

In accordance with the Act effective January 1, 1990, I/We hereby agree to pay the appropriate fee for this Permit to install or extend Water main. Except for the conditions listed below in 10.3 the following fee schedule shall apply: **Note:** The fee schedule has been modified to include the increased permit fees as authorized under Public Act 93-32.

Fee	Length of Water main
<input type="checkbox"/> \$ 0	200 feet or less
<input type="checkbox"/> \$240	Greater than 200 feet, but not more than 1,000 feet
<input type="checkbox"/> \$720	Greater than 1,000 feet, but not more than 5,000 feet
<input type="checkbox"/> \$1200	Greater than 5,000 feet

Please check the appropriate fee; make check or money order payable to: Treasurer, State of Illinois and submit along with this application. Any fee remitted to the Agency shall not be refunded at any time or for any reason, either in whole or in part.

I/We hereby certify that I/We have read and thoroughly understand the conditions and requirements of this submittal. I/We hereby agree to conform with the Standard Conditions and with any Special Conditions made part of this Construction Permit. All such Conditions shall be as authorized by the Environmental Protection Act and the Rules adopted by the Pollution Control Board under authority granted by the Act.

Del McCord

^NAME OF APPLICANT FOR PERMIT TO CONSTRUCT^

9199 Buckhart Road, Rochester, IL 62563

^ADDRESS^

Del McCord

^SIGNATURE^

2/20/13

DATE

Village Manager

^TITLE^

Please note that Chapter 148 of the Ill. Revised Statutes Section 72 requires that a trust disclosure statement be provided when a trustee of a land trust makes application to the State of Illinois for any permit.

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

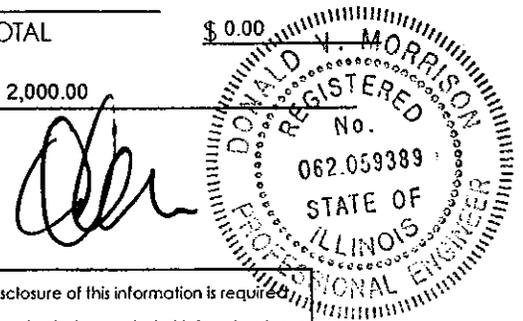
6. DISTRIBUTION SYSTEM

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.

**Treatment Narrative
For South Sangamon Water Commission
PWSID IL 1670080
For WSU 110, 118, 137, 158, 178**

The South Sangamon Water Commission wishes to apply for a chemical feed permit to feed liquid blended phosphates into their finished water line after the clear well in which will be supplied by Water Solutions Unlimited, Inc. The WSU 110, 118, 137, 158 and 178 are liquid blended phosphates which will provide sequestration of manganese and iron. South Sangamon Water Commission is currently using liquid blended phosphates from Carus Chemical.

Water Solutions Unlimited, Inc. recommends a liquid blended phosphate, WSU 118, (11.5 # per gallon – 35% phosphate as PO4), and would also like to permit for WSU 137 (11.5 # per gallon – 35% phosphate as PO4), WSU 158 (11.5 # per gallon – 35% phosphate as PO4), WSU 178 (11.4 # per gallon – 35% phosphate as PO4), WSU 110 (11.3 # per gallon – 33% phosphate as PO4).

The current injection point will be used, which is the finished 20" water line after the clear well.

The feed rate range will be 2.0 to 4.0 mg/L. The flow range is 1000-1300 gpm. The existing PULSAtron series MP 60 gpd/150 psi pump will be used (serial # 09/11.39415), and will be energized when the high service pumps activate.

The PULSAtron pump will handle the 65-70 maximum back pressure. A ½ inch poly tube will deliver the chemical to the injection points. An injection check valve will be used at the injection point which will enter a corporation stop with solution tube. An anti-siphon device will be part of the chemical feed pump. All chemical feed lines, piping and fitting will be NSF listed or to AWWA standards.

There will be two changes to the current chemical feed system. The chemical will be delivered in a 275 gallon tote. The existing transfer pump will be used to pump the chemical from the tote to a new 50 gallon day tank. The 50 gallon day tank will rest on the existing Force Flow scale used for measuring the amount of product used. The chemical feed area has secondary containment and ventilation to the outside. The contents of the day tank will be 50% by volume finished water and 50% by volume blended phosphates.



Calculations for
Construction Permit Application for
S. Sangamon Water Com
PWSID#: IL 1670080

**Instantaneous Flow Calculations to
Range WSU 110 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 2 11.3 8.34 0.165 = lbs/day @LED
 lbs/day @ lowest expected dosage / 1440 = lbs/min @ lowest expected dosage (for scale observation)
 197.236 / 1440 = lbs/min @LED
 lbs/day @ lowest expected dosage / density of chemical = gallons/day @ lowest expected dosage
 197.236 / 11.3 = gpd @LED
 gallons/day @ lowest expected dosage / 24 = gallons/ hr @ lowest expected dosage (for chemical pump lowest rate)
 17.455 / 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 4 11.3 8.34 0.165 = lbs/day @HED
 lbs/day @ highest expected dosage / 1440 = lbs/min @ highest expected dosage (for scale observation)
 512.815 / 1440 = lbs/min @HED
 lbs/day @ highest expected dosage / density of chemical = gallons/day @ highest expected dosage
 512.815 / 11.3 = gpd @HED
 gallons/day @ highest expected dosage / 24 = gallons/ hr @ highest expected dosage (for chemical pump lowest rate)
 45.382 / 24 = gph @ HED

CHEMICAL ADDITION PUMP SELECTED

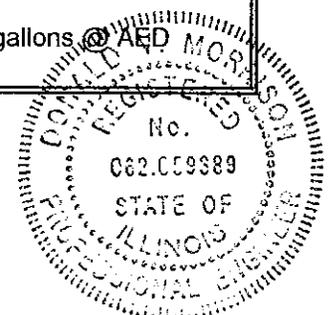
Use Chemical Addition Pump by Model Maximum gpd
 Maximum dosage from NSF is: ppm
 (GPD of maximum chemical addition)*(lbs/gal of chemical / lbs/gal of water) / minimum treated water flow GPD = ppm
 0.165 60 11.3 8.34 1440000 = ppm
 This is less than the allowable limit.

**Expected Average Daily Flow Calculations to
Size WSU 110 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
 1.25 8.34 3 0.165 = lbs/day @AED
 lbs/day @ expected average dosage / density of chemical = gallons/day @ expected average dosage
 189.54545 / 11.3 = gpd @ AED
 gallons/day @ expected average dosage * 3 = gallons day tank
 16.77393 3 = gallons @ AED
 Use gallon day tank
 gallons/day @ expected average dosage * 30 = gallons inventory
 16.77393 30 = gallons @ AED

Should you have any questions, please call us toll free at (800) 890 - 6543 or email at dmorrison@mainstreamllc.biz

Donald V. Morrison, PE



Calculations for
Construction Permit Application for
S. Sangamon Water Com
PWSID#: IL 1670080

**Instantaneous Flow Calculations to
Range WSU 118 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 2 11.5 8.34 0.175 = lbs/day @LED
 lbs/day @ lowest expected dosage / 1440 = lbs/min @ lowest expected dosage (for scale observation)
 189.257 / 1440 = lbs/min @LED
 lbs/day @ lowest expected dosage / density of chemical = gallons/day @ lowest expected dosage
 189.257 / 11.5 = gpd @LED
 gallons/day @ lowest expected dosage / 24 = gallons/ hr @ lowest expected dosage (for chemical pump lowest rate)
 16.457 / 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 4 11.5 8.34 0.175 = lbs/day @HED
 lbs/day @ highest expected dosage / 1440 = lbs/min @ highest expected dosage (for scale observation)
 492.069 / 1440 = lbs/min @HED
 lbs/day @ highest expected dosage / density of chemical = gallons/day @ highest expected dosage
 492.069 / 11.5 = gpd @HED
 gallons/day @ highest expected dosage / 24 = gallons/ hr @ highest expected dosage (for chemical pump lowest rate)
 42.789 / 24 = gph @ HED

CHEMICAL ADDITION PUMP SELECTED

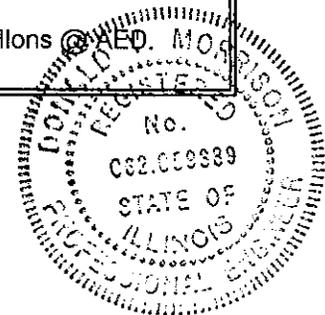
Use Chemical Addition Pump by Model Maximum gpd
 Maximum dosage from NSF is: ppm
 (GPD of maximum chemical addition)*(lbs/gal of chemical / lbs/gal of water) / minimum treated water flow GPD = ppm
 0.175 60 11.5 8.34 1440000 = ppm
 This is less than the allowable limit.

**Expected Average Daily Flow Calculations to
Size WSU 118 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
 1.25 8.34 3 0.175 = lbs/day @AED
 lbs/day @ expected average dosage / density of chemical = gallons/day @ expected average dosage
 178.71429 / 11.5 = gpd @ AED
 gallons/day @ expected average dosage * 3 = gallons day tank
 15.54037 3 = gallons @ AED
 Use gallon day tank
 gallons/day @ expected average dosage * 30 = gallons inventory
 15.54037 30 = gallons @ AED

Should you have any questions, please call us toll free at (800) 890 - 6543 or email at dmorrison@mainsreamllc.biz

Donald V. Morrison, PE



Calculations for
 Construction Permit Application for
 S. Sangamon Water Com
 PWSID#: IL 1670080

**Instantaneous Flow Calculations to
 Range WSU 137 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 2 11.5 8.34 0.175 = lbs/day @LED
 lbs/day @ lowest expected dosage / 1440 = lbs/min @ lowest expected dosage (for scale observation)
 189.257 / 1440 = lbs/min @LED
 lbs/day @ lowest expected dosage / density of chemical = gallons/day @ lowest expected dosage
 189.257 / 11.5 = gpd @LED
 gallons/day @ lowest expected dosage / 24 = gallons/ hr @ lowest expected dosage (for chemical pump lowest rate)
 16.457 / 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 4 11.5 8.34 0.175 = lbs/day @HED
 lbs/day @ highest expected dosage / 1440 = lbs/min @ highest expected dosage (for scale observation)
 492.069 / 1440 = lbs/min @HED
 lbs/day @ highest expected dosage / density of chemical = gallons/day @ highest expected dosage
 492.069 / 11.5 = gpd @HED
 gallons/day @ highest expected dosage / 24 = gallons/ hr @ highest expected dosage (for chemical pump lowest rate)
 42.789 / 24 = gph @ HED

CHEMICAL ADDITION PUMP SELECTED

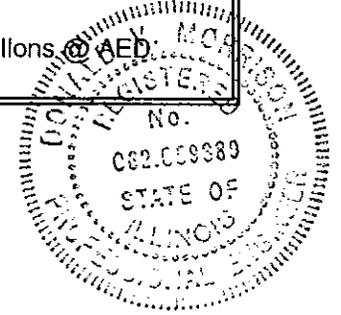
Use Chemical Addition Pump by Model Maximum gpd
 Maximum dosage from NSF is: ppm
 (GPD of maximum chemical addition) * (lbs/gal of chemical / lbs/gal of water) / minimum treated water flow GPD = ppm
 0.175 60 11.5 8.34 1440000 = ppm
 This is less than the allowable limit.

**Expected Average Daily Flow Calculations to
 Size WSU 137 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
 1.25 8.34 3 0.175 = lbs/day @AED
 lbs/day @ expected average dosage / density of chemical = gallons/day @ expected average dosage
 178.71429 / 11.5 = gpd @ AED
 gallons/day @ expected average dosage * 3 = gallons day tank
 15.54037 3 = gallons @ AED
 Use gallon day tank
 gallons/day @ expected average dosage * 30 = gallons inventory
 15.54037 30 = gallons @ AED

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Donald V. Morrison, PE



Calculations for
Construction Permit Application for
S. Sangamon Water Com
PWSID#: IL 1670080

**Instantaneous Flow Calculations to
Range WSU 158 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 2 11.5 8.34 0.175 = lbs/day @LED
 lbs/day @ lowest expected dosage / 1440 = lbs/min @ lowest expected dosage (for scale observation)
 189.257 / 1440 = lbs/min @LED
 lbs/day @ lowest expected dosage / density of chemical = gallons/day @ lowest expected dosage
 189.257 / 11.5 = gpd @LED
 gallons/day @ lowest expected dosage / 24 = gallons/ hr @ lowest expected dosage (for chemical pump lowest rate)
 16.457 / 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 4 11.5 8.34 0.175 = lbs/day @HED
 lbs/day @ highest expected dosage / 1440 = lbs/min @ highest expected dosage (for scale observation)
 492.069 / 1440 = lbs/min @HED
 lbs/day @ highest expected dosage / density of chemical = gallons/day @ highest expected dosage
 492.069 / 11.5 = gpd @HED
 gallons/day @ highest expected dosage / 24 = gallons/ hr @ highest expected dosage (for chemical pump lowest rate)
 42.789 / 24 = gph @ HED

CHEMICAL ADDITION PUMP SELECTED

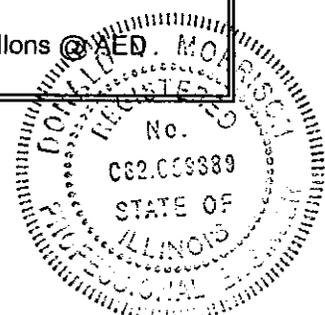
Use Chemical Addition Pump by Model Maximum gpd
 Maximum dosage from NSF is: ppm
 (GPD of maximum chemical addition) * (lbs/gal of chemical / lbs/gal of water) / minimum treated water flow GPD = ppm
 0.175 60 11.5 8.34 1440000 = ppm
 This is less than the allowable limit.

**Expected Average Daily Flow Calculations to
Size WSU 158 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
 1.25 8.34 3 0.175 = lbs/day @AED
 lbs/day @ expected average dosage / density of chemical = gallons/day @ expected average dosage
 178.71429 / 11.5 = gpd @ AED
 gallons/day @ expected average dosage * 3 = gallons day tank
 15.54037 3 = gallons @ AED
 Use gallon day tank
 gallons/day @ expected average dosage * 30 = gallons inventory
 15.54037 30 = gallons @ AED

Should you have any questions, please call us toll free at (800) 890 - 6543 or email at dmorrison@mainstreamk.com

Donald V. Morrison, PE



Calculations for
Construction Permit Application for
S. Sangamon Water Com
PWSID#: IL 1670080

**Instantaneous Flow Calculations to
Range WSU 178 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 2 11.4 8.34 0.175 = lbs/day @LED
 lbs/day @ lowest expected dosage / 1440 = lbs/min @ lowest expected dosage (for scale observation)
 187.611 / 1440 = lbs/min @LED
 lbs/day @ lowest expected dosage / density of chemical = gallons/day @ lowest expected dosage
 187.611 / 11.4 = gpd @LED
 gallons/day @ lowest expected dosage / 24 = gallons/ hr @ lowest expected dosage (for chemical pump lowest rate)
 16.457 / 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 4 11.4 8.34 0.175 = lbs/day @HED
 lbs/day @ highest expected dosage / 1440 = lbs/min @ highest expected dosage (for scale observation)
 487.790 / 1440 = lbs/min @HED
 lbs/day @ highest expected dosage / density of chemical = gallons/day @ highest expected dosage
 487.790 / 11.4 = gpd @HED
 gallons/day @ highest expected dosage / 24 = gallons/ hr @ highest expected dosage (for chemical pump lowest rate)
 42.789 / 24 = gph @ HED

CHEMICAL ADDITION PUMP SELECTED

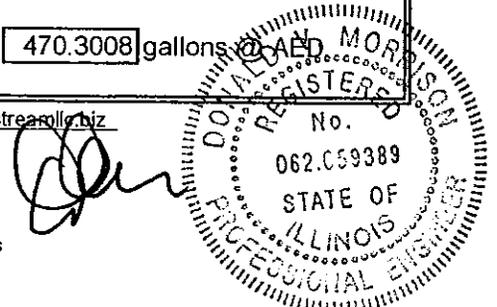
Use Chemical Addition Pump by Model Maximum gpd
 Maximum dosage from NSF is: ppm
 (GPD of maximum chemical addition) * (lbs/gal of chemical / lbs/gal of water) / minimum treated water flow GPD = ppm
 0.175 60 11.4 8.34 1440000 = ppm
 This is less than the allowable limit.

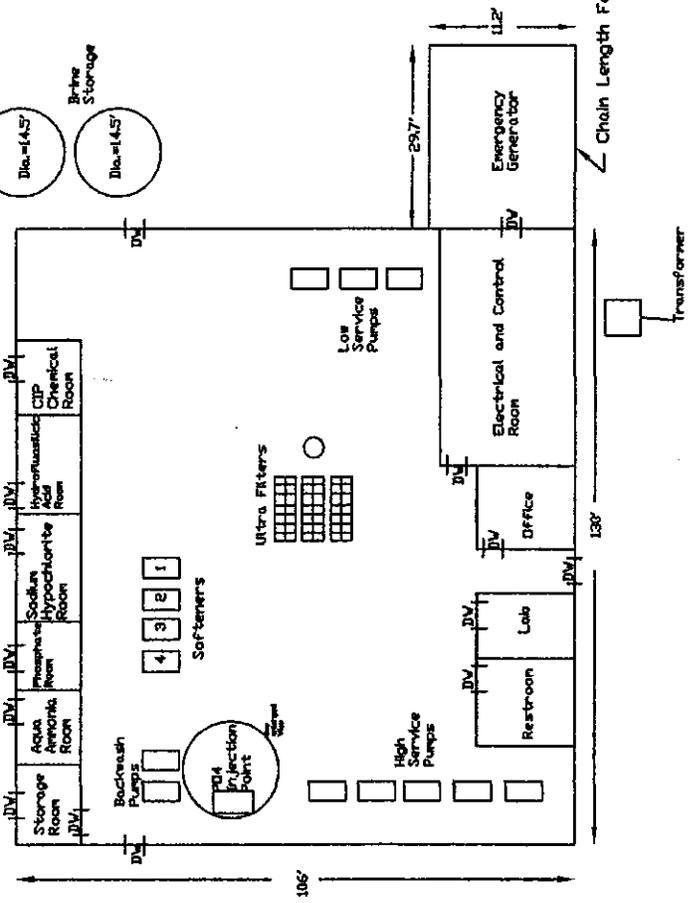
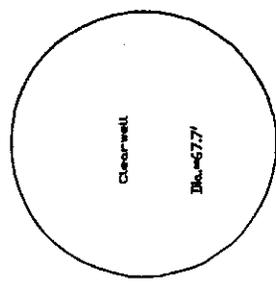
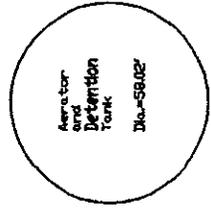
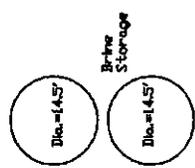
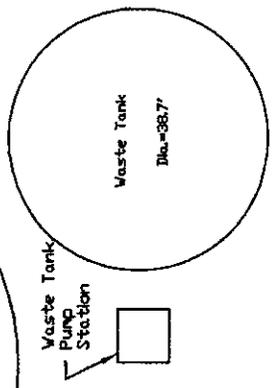
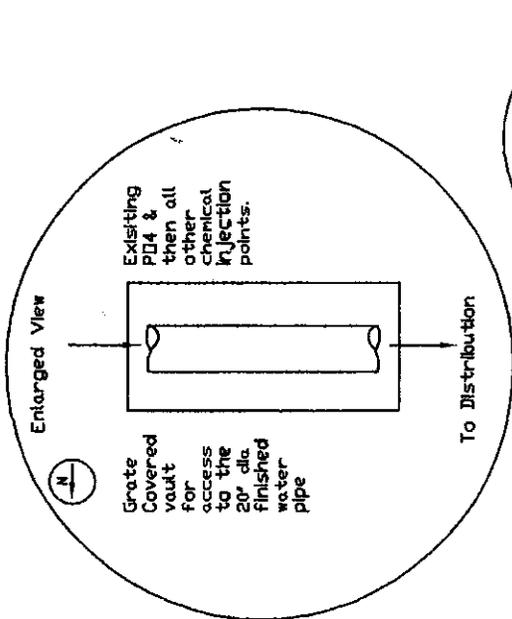
**Expected Average Daily Flow Calculations to
Size WSU 178 Day Tank and 30 Day Inventory Requirement**

Average Daily Flow MGD Average Dosage mg/l
 MGD * 8.34 * mg/l @ expected average dosage = lbs/day @ expected average dosage
 1.25 8.34 3 0.175 = lbs/day @AED
 lbs/day @ expected average dosage / density of chemical = gallons/day @ expected average dosage
 178.71429 / 11.4 = gpd @ AED
 gallons/day @ expected average dosage * 3 = gallons day tank
 15.67669 * 3 = gallons @ AED
 Use gallon day tank
 gallons/day @ expected average dosage * 30 = gallons inventory
 15.67669 * 30 = gallons @ AED

Should you have any questions, please call us toll free at (800) 890 - 6543 or email at dmorrison@mainstreamllc.biz

Donald V. Morrison, PE

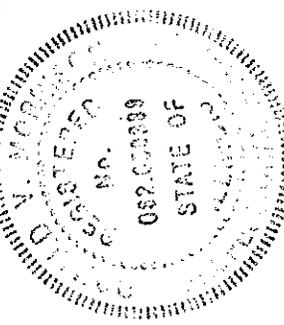




Plan View

Project: 9315282 Date: 2-9-2013

Scale: Not to scale Drawn/Checked: LJM/DVN



I hereby certify that this plan, specification, or report was prepared by me 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)

Signature: Date: 2-9-13 License #: 062.059389 My License renewal date is 11-30-2013

Revisions:

Construction Permit Application
South Sangamon, IL
WSU 118, WSU 118, WSU 137, WSU 158
PVSID #IL 1670080

File Location: FILES/DVN/PE/Projects/9315282/PlanView9315282

Donald V Morrison PE, LLC
Consultants in Infrastructure Management & Engineering

2635 Yeager Road, Suite B
West Lafayette, IN 47906-1356
Phone: 765-497-9811 Fax: 765-497-9819

PULSAFEEDER

An IDEX Water & Wastewater Business

IDEX

novatech

INTERNATIONAL

sales@novatech-usa.com

www.novatech-usa.com

Tel: (866) 433-6682

Tel: (281) 359-8538

Fax: (866) 433-6684

Fax: (281) 359-0084

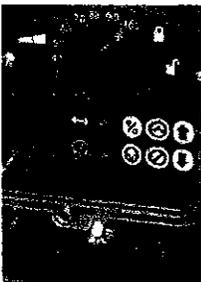
The Pulsatron Series MP is a true microprocessor controlled instrument for precise and accurate metering control. Packed with standard features, the Series MP include automatic control via 4-20mA or 20-4 mA inputs, external pace with stop feature and 16 character LCD display with support for English, French, and German languages.

Nineteen distinct models are available, having pressure capabilities to 300 PSIG (21 BAR) @ 3 GPD (0.5 lph), and flow capacities to 504 GPD (79.5 lph) @ 20 PSIG (13 BAR), with a turndown ratio of 1000:1. Metering performance is reproducible to within $\pm 2\%$ of maximum capacity.

Features

- Automatic Control, Fully scalable 4-20mA current signal.
- Flow Verification on select sizes.
- Flow Totalization.
- Relay Output for computer interface or AC power.
- Simple Prompts in plain language.
- Available in four languages, English, French, German, and Spanish.
- Alarm Signals for signal loss, full count, circuit failure, pulse overflow and pulse rate high.
- Liquid low-level indicator capability is standard.
- Timed Sequences can be set for selected intervals and rate for repetitive metering.
- Pulse Signals can be multiplied or divided by 1 to 999.
- Flow Rate is displayed as GPH, GPD, or LPH.
- Large easy to read backlit LCD display.

Controls



Manual Stroke Rate

- Turn-Down Ratio 100:1

Stroke Length

- Turn-Down Ratio 10:1

4-20mA or 20-4mA Input

- Automatic Control
- Fully Scalable
- Turn-Down Ratio 100:1

Flow Verification

- Monitors pump output to protect against loss of flow.
- Visual Notification

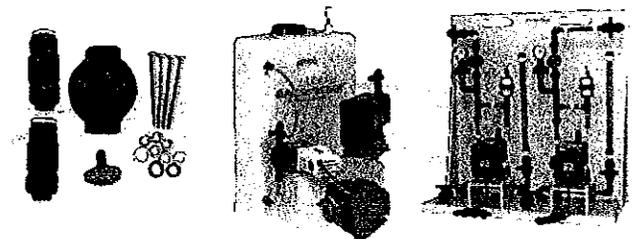
Operating Benefits

- Reliable metering performance.
- Rated "hot" for continuous duty.
- High viscosity capability.
- Leak-free, sealless, liquid end.



Aftermarket

- KOPkits
- Gauges
- Dampeners
- Pressure Relief Valves
- Tanks
- Pre-Engineered Systems
- Process Controllers (PULSAbue, MicroVision)



PULSATRON[®] Series MP

Electronic Metering Pumps

PULSAFeeder® Series MP

Specifications and Model Selection

MODEL	LMK2	LMB2	LMA2	LMD3	LMB3	LMA3	LMK3	LMF4	LMD4	LMB4	LMH4	LMG4	LME4	LMK5	LMH5	LMH6	LMK7	LMH7	LMH8
Capacity nominal	GPH 0.3	0.21	0.25	0.50	0.50	0.50	0.60	0.85	0.90	100	170	175	185	2.50	3.75	5.00	8.00	10.00	2100
Capacity (max.)	GPD 3	5	6	12	12	12	14	20	22	24	41	42	44	60	76	120	192	240	504
Pressure (max.)	PSIG 300	250	150	250	150	100	100	250	150	100	250	150	100	150	150	100	50	35	20
Connectio	BAR 21	17	10	17	10	7	7	17	10	7	17	10	7	10	10	7	3.3	2.4	13
Tubing	14" ID X 3/8" OD 3/8" ID X 12" OD												3/8" ID X 12" OD 12" ID X 3/4" OD (LPH8 ONLY) FLOWVERIFICATION (See Note)						
Piping	14" FNPT												14" FNPT 12" FNPT						

Note: Flow Verification: Available on K3, B4 and E4 with connection code F, H6, K7 and H7 with connection code H: 14" ID x 3/8" OD only.

Engineering Data

Pump Head Materials Available: GFPPPL, PVC, PVDF, 316 SS

Diaphragm: PTFE-faced CSPE-backed

Check Valves Materials Available:

Seats/O-Rings: PTFE, CSPE, Viton

Balls: Ceramic, PTFE, 316 SS, Alloy C

Fittings Materials Available: GFPPPL, PVC, PVDF

Bleed Valve: Same as fitting and check valve selected, except 316SS

Injection Valve & Foot Valve Assy: Same as fitting and check valve selected

Tubing: Clear PVC, White PE

Important: Material Code - GFPPPL=Glass-filled Polypropylene, PVC=Polyvinyl Chloride, PE=Polyethylene, PVDF=Polyvinylidene Fluoride, CSPE=Generic formulation of Hypalon, a registered trademark of E.I. DuPont Company. Viton is a registered trademark of E.I. DuPont Company. PVC wetted end recommended for sodium hypochlorite.

Engineering Data

Reproducibility: +/- 2% at maximum capacity

Viscosity Max CPS: For viscosity up to 3000 CPS, select connection size 3, 4, B or C with 316SS ball material. Flow rate will determine connection/ball size. Greater than 3000 CPS require spring loaded ball checks. See Selection Guide for proper connection.

Controls: 6-Station Membrane Switch

Status Display: 16-Position LCD Dot Matrix Backlight

LED Indicator Lights, Panel Mount: Power On - Green, Pulsing - Green Flashing, Stop - Red

Stroke Frequency Max SPM: 125

External Stroke Frequency Control (Automatic): 4-20 mADC, 20-4 mADC External Pacing

Output Relay (Signal Level Option): 24 VDC, 10 mA

Output Relay (Power Option): 250 VAC, 50/60 HZ, 0.5A

Stroke Frequency Turn-Down Ratio: 100:1

Stroke Length Turn-Down Ratio: 10:1

Power Input: 115 VAC/50-60 HZ/1 ph, 230 VAC/50-60 HZ/1 ph

Average Current Draw:

@ 115 VAC; Amps: 1.0 Amps

@ 230 VAC; Amps: 0.5 Amps

Peak Input Power: 300 Watts

Average Input Power @ Max SPM: 130 Watts

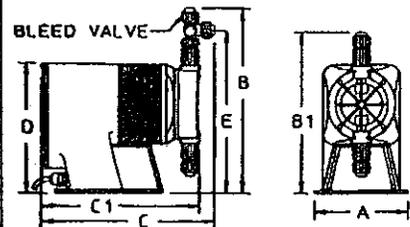
Custom Engineered Designs Pre-Engineered Systems

Pulsafeeder's Pre-Engineered Systems are designed to provide complete chemical feed solutions for all electronic metering applications. From stand alone simplex pH control applications to full-featured, redundant sodium hypochlorite disinfection metering, these rugged fabricated assemblies offer turn-key simplicity and industrial-grade durability. The UV-stabilized, high-grade HDPE frame offers maximum chemical compatibility and structural rigidity. Each system is factory assembled and hydrostatically tested prior to shipment.

Dimensions

Series MP Dimensions (Inches)																	
Model No.	A	B	B1	C	C1	D	E	Shpg Wt	Model No.	A	B	B1	C	C1	D	E	Shpg Wt
LMA2	5.4	10.3	-	10.8	-	7.5	8.9	13	LMH4	6.2	10.9	-	11.2	-	8.2	9.5	21
LMA3	5.4	10.6	-	10.7	-	7.5	9.2	13	LMH5	6.2	11.3	-	11.2	-	8.2	9.9	21
LMB2	5.4	10.3	-	10.8	-	7.5	8.9	13	LMH6	6.2	11.3	-	11.2	-	8.2	9.9	21
LMB3	5.4	10.6	-	10.7	-	7.5	9.2	13	LMH7	6.1	11.7	-	11.2	-	8.2	10.3	21
LMB4	5.4	10.6	-	10.7	-	7.5	9.2	13	LMH8*	6.1	-	10.9	-	10.6	8.2	-	25
LMD3	5.4	10.6	-	11.2	-	7.5	9.2	15	LMK2	5.4	10.3	-	10.8	-	7.5	8.9	13
LMD4	5.4	10.6	-	11.2	-	7.5	9.2	15	LMK3	5.4	10.6	-	10.7	-	7.5	9.2	13
LME4	5.4	10.6	-	11.2	-	7.5	9.2	15	LMK5	5.4	10.9	-	11.7	-	7.5	9.5	18
LMF4	5.4	10.6	-	11.7	-	7.5	9.2	18	LMK7	6.1	11.7	-	11.2	-	8.2	10.3	21
LMG4	5.4	10.6	-	11.7	-	7.5	9.2	18									

NOTE: Inches X 2.54 = cm / * the LMH8 is designed without a bleed valve available



PULSAFEEDER

27101 Airport Rd
Punta Gorda, FL 33982
Phone: ++1(941) 575-3800
Fax: ++1(941) 575-4085

An ISO 9001 and ISO 14001 Certified Company

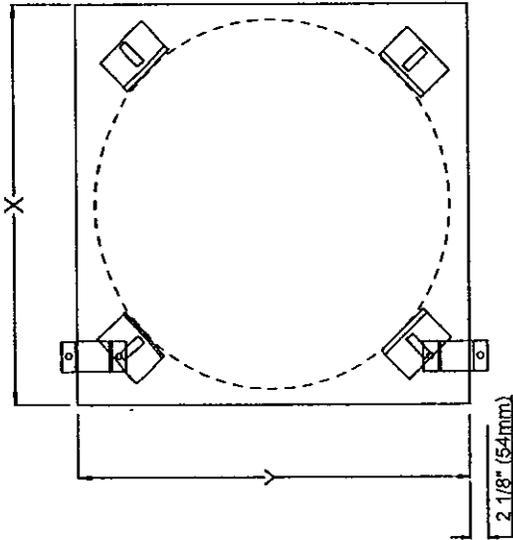
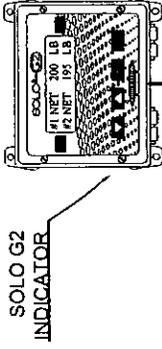
novatech
INTERNATIONAL

sales@novatech-usa.com
www.novatech-usa.com
Tel: (866) 433-6682 Fax: (866) 433-6684
Tel: (281) 359-8538 Fax: (281) 359-0084

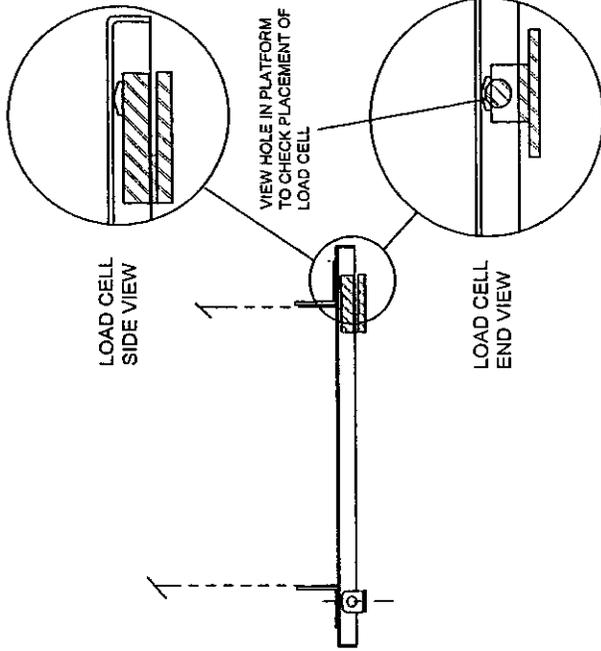
SUBMITTAL DATA:

Qty	Platform Model No.	Cable Length	Display Increments

Solo Indicator Model No. _____
 4-20mA Per Channel _____
 Relays Per Channel _____ DRY / SOLID STATE _____
 Other Options: _____



IMPORTANT!
 For accurate measurement, adjust clips so that tank is centered on platform.

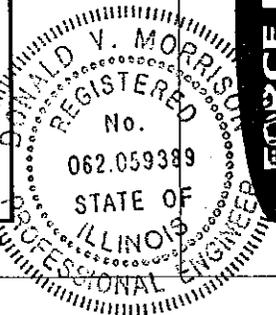


MODEL NUMBERS (for Load Cell & Platform)

Model No.	Metric	X	Y	Z
30-DR LP	30-DR KLP	30"	30"	3.25"
36-DR LP	36-DR KLP	36"	36"	3.25"
40-DR LP	40-DR KLP	40"	40"	3.25"
50-DR LP	50-DR KLP	50"	50"	3.25"
54-DR LP	54-DR KLP	54"	54"	3.25"
60-DR LP	60-DR KLP	60"	60"	3.25"
72-DR LP	72-DR KLP	72"	72"	3.25"

Capacities: 1000 lbs. to 20,000 lbs (to designate capacity in model number, drop two zeros from desired capacity (i.e. 30-DR10LP = 1000# capacity))
 Other Models: (For stainless steel platform add "S" to end of model number.)

MODEL NUMBER (for SOLO G2 Indicator)
 SRG2-1 1-Channel SOLO G2 Indicator
 SRG2-2 2-Channel SOLO G2 Indicator



2430 Stanwell Dr, Concord, Ca 94520 USA
 1-800-893-6723 US & Canada, Fax: 925-686-6713
 WWW.FORCEFLOW.COM / INFO@FORCEFLOW.COM



Drawn by: KBV
 Date: 3/04/09
 Verified:
 Scale:

ELECTRONIC LOW PROFILE
 CHEM-SCALE
 with SOLO G2 INDICATOR

Drawing Number
31454

Chemical Feed Tubing

Check out our new low prices!

- 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 unmanned 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.

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.

operator notes

PVC Suction Tubing

COLOR	OD	ID	WORKING PSI @ 73°F	25 FOOT ROLL		50 FOOT ROLL		100 FOOT ROLL		FULL ROLL, 500 FEET	
				STOCK #	EACH	STOCK #	EACH	STOCK #	EACH	STOCK #	EACH
Clear	5/16"	3/16"	55	17165	\$ 7.29	17207	\$ 13.49	62412	\$ 20.19	62425	\$ 103.95
Clear	3/8"	1/4"	55	17198	8.59	17209	15.79	62401	23.79	62426	131.95
Clear	7/16"	5/8"	50	17197	13.19	17210	24.49	62423	36.89	62427	162.95
Clear	1/2"	3/4"	45	17198	11.29	17211	20.69	62403	31.19	62428	171.95
Clear	3/4"	1/2"	45	17199	27.99	17212	51.49	62405	77.99	62429	226.95/250'

17196

Polyethylene Discharge Tubing

COLOR	OD	ID	WORKING PSI @ 73°F	25 FOOT ROLL		50 FOOT ROLL		100 FOOT ROLL		FULL ROLL, 500 FEET	
				STOCK #	EACH	STOCK #	EACH	STOCK #	EACH	STOCK #	EACH
Translucent	1/4"	0.17"	205	17200	\$ 3.99	17213	\$ 7.39	62407	\$ 10.99	62434	\$ 57.95
Black	1/4"	0.17"	205	17107	3.99	17111	7.39	62439	10.99	63424	57.95
Translucent	3/8"	1/4"	214	17201	7.99	17214	14.99	62409	21.95	63425	115.95
Black	3/8"	1/4"	214	17202	7.99	17215	14.99	62411	21.95	63426	115.95
Translucent	1/2"	3/8"	153	17203	9.99	17216	18.49	62413	27.95	63427	144.85
Black	1/2"	3/8"	153	17204	9.99	17217	18.49	62415	27.95	63428	144.85
Black	5/8"	1/2"	119	17205	13.49	17218	24.95	62416	37.95	63429	186.00

17200;
79018

17206

LLDPE (Polyethylene Tubing—Meets NSF 61 Standards)

COLOR	OD	ID	WORKING PSI @ 73°F	25 FOOT ROLL		50 FOOT ROLL		100 FOOT ROLL	
				STOCK #	EACH	STOCK #	EACH	STOCK #	EACH
Translucent	1/4"	1/8"	358	79018	\$ 6.09	79017	\$ 9.29	79016	\$ 13.99
Translucent	3/8"	1/4"	214	79021	9.99	79020	18.49	79019	27.95
Translucent	1/2"	3/8"	153	79024	12.49	79023	22.95	79022	34.95
Translucent	3/4"	1/2"	119	78693	16.99	79026	31.95	79025	47.95

60556

Translucent High-Density Polyethylene Discharge Tubing

COLOR	OD	ID	WORKING PSI @ 73°F	25 FOOT ROLL		50 FOOT ROLL		100 FOOT ROLL	
				STOCK #	EACH	STOCK #	EACH	STOCK #	EACH
Translucent	1/4"	1/8"	456	79008	\$ 6.49	79005	\$ 10.99	79004	\$ 16.49
Translucent	3/8"	1/4"	272	79009	9.39	79008	16.99	79007	24.85
Translucent	1/2"	3/8"	194	79012	12.99	79011	22.95	79010	33.95
Translucent	5/8"	1/2"	151	79015	16.99	79014	28.95	79013	43.95

New types!

60557

Black High-Density Polyethylene Discharge Tubing

COLOR	OD	ID	WORKING PSI @ 73°F	25 FOOT ROLL		50 FOOT ROLL		100 FOOT ROLL		FULL ROLL, 500 FEET	
				STOCK #	EACH	STOCK #	EACH	STOCK #	EACH	STOCK #	EACH
Black	3/8"	1/4"	300	17206	\$ 39.95	17219	\$ 59.95	62417	\$ 114.95	63464	\$ 429.95
Black	1/2"	3/8"	225	—	—	—	—	62424	169.95	—	—

60558

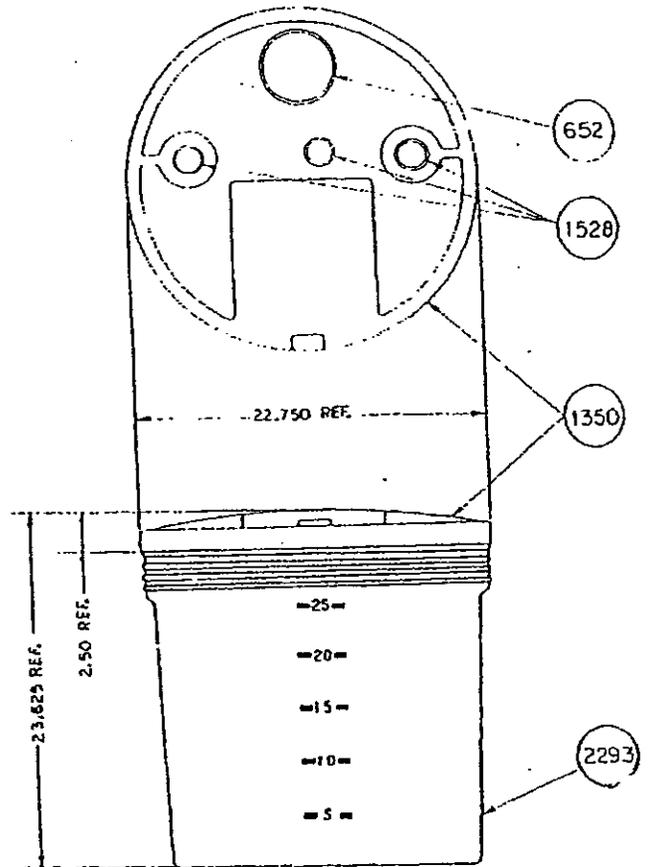
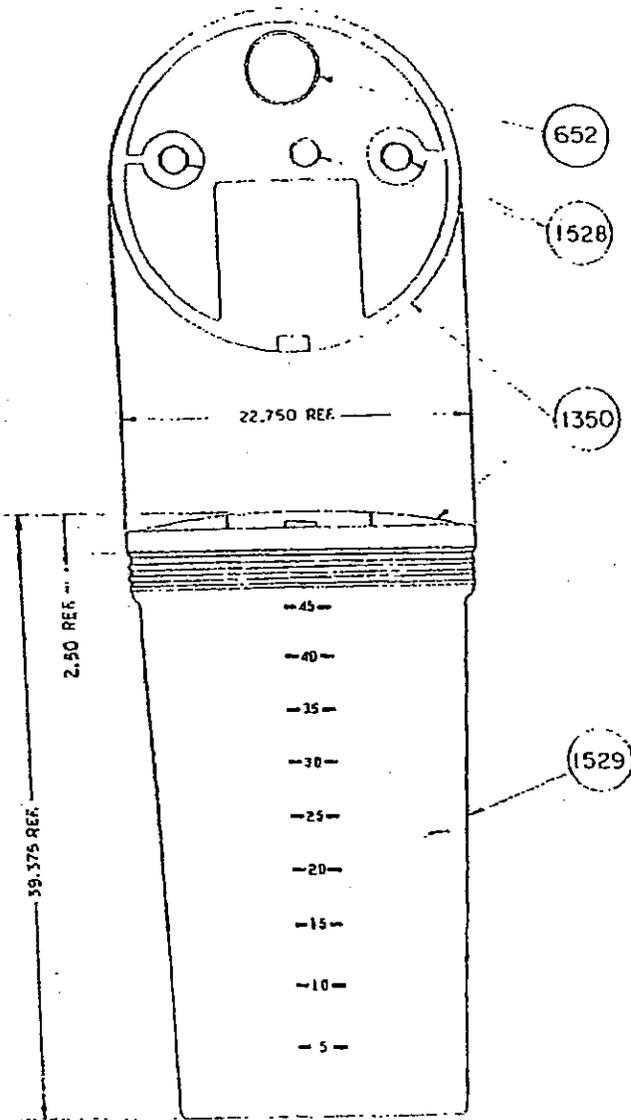
Clear Braided PVC Tubing (sold by foot)

COLOR	OD	ID	WORKING PSI @ 73°F	PER FOOT	
				STOCK #	EACH
Clear, Braided	1 1/2"	3/4"	125	60556	\$ 1.59
Clear, Braided	1 3/4"	1"	125	60557	2.89
Clear, Braided	1 3/4"	1 1/4"	125	60558	6.79
Clear, Not Braided	3/4"	1/2"	45	43129	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!

[Handwritten signature]



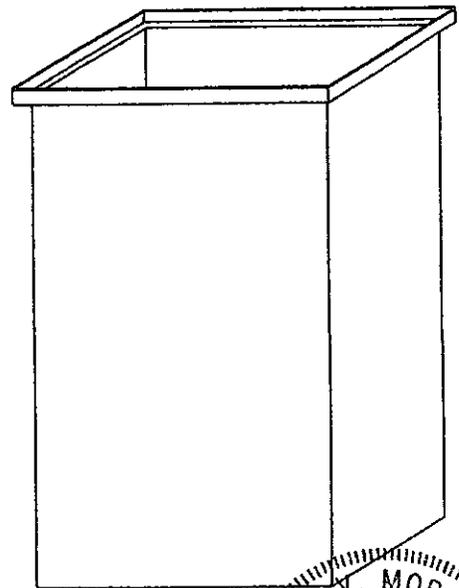
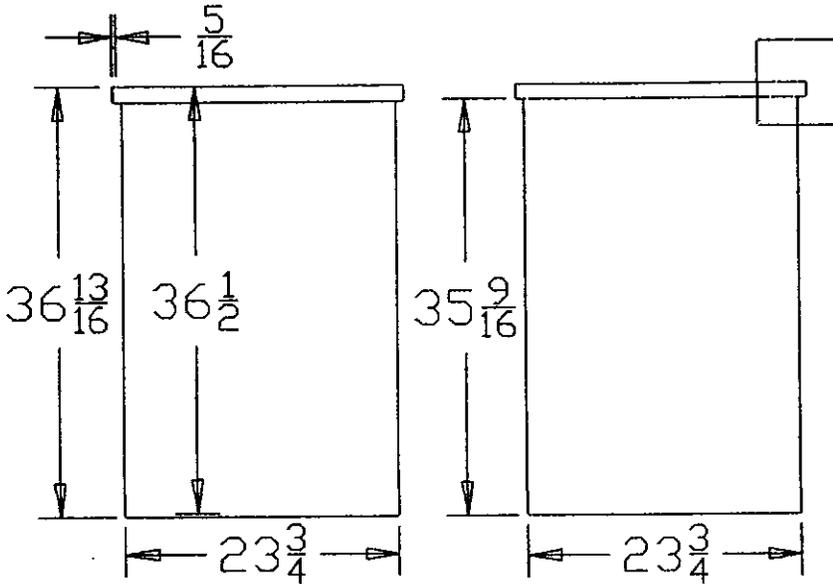
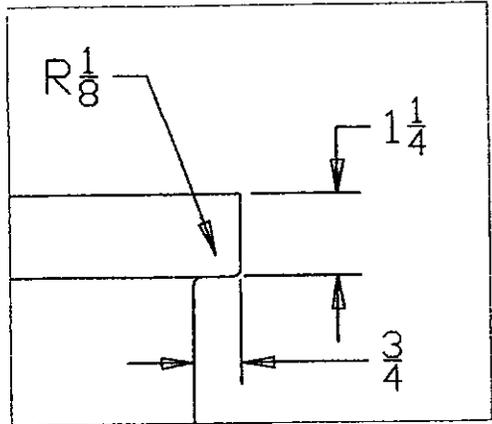
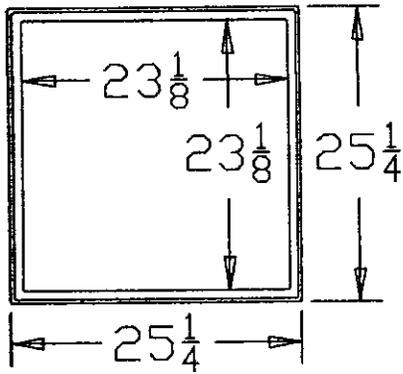


COMPONENT-50 GAL. TANK ASS'Y.			
PART N ^o	DESCRIPTION	MATERIAL	N ^o REQ'D
652	CAPLUG	POLYETHYLENE	1
1350	COVER, 50-GAL. TANK	FIBERGLAS	1
1528	CAPLUG	POLYETHYLENE	3
1529	TANK, 50 GAL.	POLYETHYLENE	1
1B1025	INSTRUCTION BOOK. N.S.		1

COMPONENT-30 GAL. TANK ASS'Y.			
PART N ^o	DESCRIPTION	MATERIAL	N ^o REQ'D
652	CAPLUG	POLYETHYLENE	1
1350	COVER, TANK	FIBERGLAS	1
1528	CAPLUG	POLYETHYLENE	3
2293	TANK, 30 GAL.	POLYETHYLENE	1
1B1025	INSTRUCTION BOOK. N.S.		1

N.S. = NOT SHOWN

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 TOLERANCES: FRACTIONAL ± 1/8 ANGULAR: MACH ± BEND ± TWO PLACE DECIMAL ± THREE PLACE DECIMAL ±	DRAWN	NAME	DATE
	CHECKED	MRS	03/08/05
	ENG APPR.		
	MFG APPR.		
	QA		

Heavy Duty Polyethylene Tank w/Internal Flange #6326

TAMCO

1390 Neubrecht Road
Lima, Ohio 45801

PROPRIETARY AND CONFIDENTIAL
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF TAMCO. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF TAMCO IS PROHIBITED.

MATERIAL: Molded MDPE
FINISH: --
DO NOT SCALE DRAWING

COMMENTS: Translucent UV stabilized

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



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 23, 2012.

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

Facility: Franklin, IN

Table with 3 columns: Chemical/Trade Designation, Function, and Max Use. Lists various products like Ammonium Sulfate, Blended Phosphates, and their respective uses and maximum concentrations.

Note: Additions shall not be made to this document without prior evaluation and acceptance by NSF International.



WSU 320	Corrosion & Scale Control Sequestering	12	mg/L
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.

Note: Additions shall not be made to this document without prior evaluation and acceptance by NSF International.



[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.

Note: Additions shall not be made to this document without prior evaluation and acceptance by NSF International.

3 of 3



PRODUCT DATA SHEET

Product Name: **WSU 110**

WSU 110 is a liquid poly/orthophosphate specially blended for use in potable water systems. The product is designed to minimize corrosion, scale and "red water" conditions.

WSU 110 has a negligible reversion rate even after being stored for long periods of time.

Color: clear liquid
Specific Gravity: 1.355
pH: 3.6 ± 0.5
Viscosity: 45 cps
Freeze Point: < 0 deg. C
Maximum Use Level: 32 mg/L

Treatment levels for **WSU 110** depend on the pH, calcium hardness and total solids of the water. The normal use rate of **WSU 110** is between 4 and 40 pounds per million pounds of water to be treated.

WSU 110 is supplied in bulk or in 15 and 30 gallon bung type non-returnable poly drums.

WSU 110 prices are FOB, Franklin, Indiana.

Water Solutions Unlimited, Inc.
Revised: 2/3/2011



MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: WSU 110

Chemical Family: Sodium Polyphosphate

Chemical Name: Blended Polyphosphate

Synonyms: None

MSDS Number: L10005

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

Appearance and Odor: Clear, slightly gray to slightly green in color, syrupy liquid, with no distinct odor

WARNING STATEMENTS

WARNING!

MAY CAUSE EYE AND SKIN IRRITATION

POTENTIAL HEALTH EFFECTS

Likely Routes of Exposure: skin contact and inhalation

EYE CONTACT: No more than slightly irritating based on toxicity studies. The material may cause foreign body irritation in some individuals.

SKIN CONTACT: No more than slightly toxic or slightly irritating based on toxicity studies. Prolonged contact with the material may cause drying or chapping of the skin.

INHALATION: Inhalation of the mist or vapor may cause coughing and sneezing.

INGESTION: No more than slightly toxic if swallowed based on toxicity studies. No significant adverse health effects are expected to develop if only small amounts (less than a mouthful) are swallowed.

Refer to Section 11 for toxicological information.

4. FIRST AID MEASURES

IF IN EYES OR 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, immediate first aid is not likely to be required. A physician or Poison Control Center can be contacted for advice. Wash heavily contaminated clothing before reuse.

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 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. Consult the glove/clothing manufacturer to determine the appropriate type glove/clothing for a given application. Wear chemical goggles, a face shield, and chemical resistant clothing when splashing is likely. Wash immediately if skin is contaminated. Remove contaminated clothing promptly and launder before reuse. Clean protective equipment before reuse. Provide a safety shower at any location where skin contact can occur. Wash thoroughly after handling.

RESPIRATORY PROTECTION: Avoid breathing vapor or mist. Use NIOSH/MSHA approved respiratory protection equipment (full facepiece recommended) when airborne exposure limits are exceeded (see below). If used, full facepiece replaces the need for face shield and/or chemical goggles. Consult the respirator manufacturer to determine the appropriate type of equipment for a

given application. Observe respirator use limitations specified by NIOSH/MSHA or the manufacturer. Respiratory protection programs must comply with 29 C.F.R. 1910.134.

VENTILATION: Provide natural or mechanical ventilation to minimize exposure. The use of local mechanical exhaust ventilation is preferred at sources of air contamination such as open process equipment. Consult NFPA Standard 91 for design of exhaust systems.

9. PHYSICAL AND CHEMICAL PROPERTIES

Chemical Formula: Proprietary
Appearance: Clear, slightly gray, syrupy liquid
Odor: no distinct odor
pH: 3.6 ± 0.5
Boiling Point: 100 C
Freezing Point: < 0 deg. C
Specific Gravity: 1.355
Lbs/Gallon: 11.30

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: none known

HAZARDOUS DECOMPOSITION PRODUCTS: none known

HAZARDOUS POLYMERIZATION: will not occur

11. TOXICOLOGICAL INFORMATION

The ingredients in this material may cause foreign body irritation in some individuals. Prolonged contact with the material may cause irritation of the skin. Excessive inhalation of mist or vapor may be annoying.

Data from vendor of single-dose (acute) animal studies of ingredients in this material are given below:

Oral - rat LD50 - 8290 mg/kg;
Dermal - no data found
Eye Irritation - rabbit -150mg; slightly irritating
Skin Irritation - no data found

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

TSCA Inventory (Ingredients): Listed

SARA Hazard Notification (Ingredients)

Hazard Categories Under Title III Rules (40 CFR 370): not applicable

Section 302 Extremely Hazardous Substances: not applicable

Section 313 Toxic Chemical(s): not listed

CERCLA Reportable Quantity: not applicable

Refer to Section 13 for RCRA classification.

16. OTHER INFORMATION

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

Revised MSDS supersedes MSDS dated 02/03/2011

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.

NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION REFERS.



PRODUCT DATA SHEET

Product Name: **WSU 118**

WSU 118 is a liquid poly/orthophosphate specially blended for use in potable water systems. The product is designed to minimize corrosion, scale and "red water" conditions.

WSU 118 has a negligible reversion rate even after being stored for long periods of time.

Color: clear liquid
Specific Gravity: 1.38
pH: 4.7 ± 0.5
Viscosity: 45 cps
Freeze Point: < 0 deg. C
Maximum Use Level: 29 mg/L

Treatment levels for **WSU 118** depend on the pH, calcium hardness and total solids of the water. The normal use rate of **WSU 118** is between 4 and 40 pounds per million pounds of water to be treated.

WSU 118 is supplied in bulk or in 15 and 30 gallon bung type non-returnable poly drums.

WSU 118 prices are FOB, Franklin, Indiana.

Water Solutions Unlimited, Inc.
Revised: 2/3/2011



MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: WSU 118

Chemical Family: Sodium Polyphosphate

Chemical Name: Blended Polyphosphate

Synonyms: None

MSDS Number: L18005

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

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3. HAZARDS IDENTIFICATION

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Appearance and Odor: Clear, slightly gray in color, syrupy liquid, with no distinct odor

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WARNING!
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POTENTIAL HEALTH EFFECTS

Likely Routes of Exposure: skin contact and inhalation

EYE CONTACT: No more than slightly irritating based on toxicity studies. The material may cause foreign body irritation in some individuals.

SKIN CONTACT: No more than slightly toxic or slightly irritating based on toxicity studies. Prolonged contact with the material may cause drying or chapping of the skin.

INHALATION: Inhalation of the mist or vapor may cause coughing and sneezing.

INGESTION: No more than slightly toxic if swallowed based on toxicity studies. No significant adverse health effects are

expected to develop if only small amounts (less than a mouthful) are swallowed.

Refer to Section 11 for toxicological information.

4. FIRST AID MEASURES

IF IN EYES OR 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, immediate first aid is not likely to be required. A physician or Poison Control Center can be contacted for advice. Wash heavily contaminated clothing before reuse.

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 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. Consult the glove/clothing manufacturer to determine the appropriate type glove/clothing for a given application. Wear chemical goggles, a face shield, and chemical resistant clothing when splashing is likely. Wash immediately if skin is contaminated. Remove contaminated clothing promptly and launder before reuse. Clean protective equipment before reuse. Provide a safety shower at any location where skin contact can occur. Wash thoroughly after handling.

RESPIRATORY PROTECTION: Avoid breathing vapor or mist. Use NIOSH/MSHA approved respiratory protection equipment (full facepiece recommended) when airborne exposure limits are exceeded (see below). If used, full facepiece replaces the need for face shield and/or chemical goggles. Consult the respirator manufacturer to determine the appropriate type of equipment for a given application. Observe respirator use limitations specified by NIOSH/MSHA or the manufacturer. Respiratory protection programs must comply with 29 C.F.R. 1910.134.

VENTILATION: Provide natural or mechanical ventilation to minimize exposure. The use of local mechanical exhaust ventilation is preferred at sources of air contamination such as open process equipment. Consult NFPA Standard 91 for design of exhaust systems.

9. PHYSICAL AND CHEMICAL PROPERTIES

Chemical Formula: Proprietary
Appearance: Clear, syrupy liquid
Odor: no distinct odor
pH: 5.5–6.5
Boiling Point: 100 C
Freezing Point: < 0 deg. C
Specific Gravity: 1.37 – 1.38
Lbs/Gallon: 11.51

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: none known

HAZARDOUS DECOMPOSITION PRODUCTS: none known

HAZARDOUS POLYMERIZATION: will not occur

11. TOXICOLOGICAL INFORMATION

The ingredients in this material may cause foreign body irritation in some individuals. Prolonged contact with the material may cause irritation of the skin. Excessive inhalation of mist or vapor may be annoying.

Data from vendor of single-dose (acute) animal studies of ingredients in this material are given below:

Oral - rat LD50 - 8290 mg/kg;
Dermal —no data found
Eye Irritation - rabbit —150mg; slightly irritating
Skin Irritation —no data found

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

TSCA Inventory (Ingredients): Listed

SARA Hazard Notification (Ingredients)

Hazard Categories Under Title III Rules (40 CFR 370): not applicable

Section 302 Extremely Hazardous Substances: not applicable

Section 313 Toxic Chemical(s): not listed

CERCLA Reportable Quantity: not applicable

Refer to Section 13 for RCRA classification.

16. OTHER INFORMATION

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

Revised MSDS supersedes MSDS dated 06/01/2011

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.

NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION REFERS.



PRODUCT DATA SHEET

Product Name: **WSU 137**

WSU 137 is a liquid poly/orthophosphate specially blended for use in potable water systems. The product is designed to minimize corrosion, scale and "red water" conditions.

WSU 137 has a negligible reversion rate even after being stored for long periods of time.

Color: clear liquid
Specific Gravity: 1.37 – 1.38
pH: 5.5 – 6.0
Viscosity: 45 cps
Freeze Point: < 0 deg. C
Maximum Use Level: 29 mg/L

Treatment levels for **WSU 137** depend on the pH, calcium hardness and total solids of the water. The normal use rate of **WSU 137** is between 4 and 40 pounds per million pounds of water to be treated.

WSU 137 is supplied in bulk or in 15 and 30 gallon bung type non-returnable poly drums.

WSU 137 prices are FOB, Franklin, Indiana.

Water Solutions Unlimited, Inc.
Revised: 03/23/2012



MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: WSU 137

Chemical Family: Sodium Polyphosphate

Chemical Name: Blended Polyphosphate

Synonyms: None

MSDS Number: L37005

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

Appearance and Odor: Clear, slightly gray in color, syrupy liquid, with no distinct odor

WARNING STATEMENTS

WARNING!
MAY CAUSE EYE AND SKIN IRRITATION

POTENTIAL HEALTH EFFECTS

Likely Routes of Exposure: skin contact and inhalation

EYE CONTACT: No more than slightly irritating based on toxicity studies. The material may cause foreign body irritation in some individuals.

SKIN CONTACT: No more than slightly toxic or slightly irritating based on toxicity studies. Prolonged contact with the material may cause drying or chapping of the skin.

INHALATION: Inhalation of the mist or vapor may cause coughing and sneezing.

INGESTION: No more than slightly toxic if swallowed based on toxicity studies. No significant adverse health effects are

expected to develop if only small amounts (less than a mouthful) are swallowed.

Refer to Section 11 for toxicological information.

4. FIRST AID MEASURES

IF IN EYES OR 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, immediate first aid is not likely to be required. A physician or Poison Control Center can be contacted for advice. Wash heavily contaminated clothing before reuse.

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 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. Consult the glove/clothing manufacturer to determine the appropriate type glove/clothing for a given application. Wear chemical goggles, a face shield, and chemical resistant clothing when splashing is likely. Wash immediately if skin is contaminated. Remove contaminated clothing promptly and launder before reuse. Clean protective equipment before reuse. Provide a safety shower at any location where skin contact can occur. Wash thoroughly after handling.

RESPIRATORY PROTECTION: Avoid breathing vapor or mist. Use NIOSH/MSHA approved respiratory protection equipment (full facepiece recommended) when airborne exposure limits are exceeded (see below). If used, full facepiece replaces the need for face shield and/or chemical goggles. Consult the respirator manufacturer to determine the appropriate type of equipment for a given application. Observe respirator use limitations specified by NIOSH/MSHA or the manufacturer. Respiratory protection programs must comply with 29 C.F.R. 1910.134.

VENTILATION: Provide natural or mechanical ventilation to minimize exposure. The use of local mechanical exhaust ventilation is preferred at sources of air contamination such as open process equipment. Consult NFPA Standard 91 for design of exhaust systems.

9. PHYSICAL AND CHEMICAL PROPERTIES

Chemical Formula: Proprietary
Appearance: Clear, syrupy liquid
Odor: no distinct odor
pH: 5.5 – 6.5
Boiling Point: 100 C
Freezing Point: < 0 deg. C
Specific Gravity: 1.37 – 1.38
Lbs/Gallon: 11.51

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: none known

HAZARDOUS DECOMPOSITION PRODUCTS: none known

HAZARDOUS POLYMERIZATION: will not occur

11. TOXICOLOGICAL INFORMATION

The ingredients in this material may cause foreign body irritation in some individuals. Prolonged contact with the material may cause irritation of the skin. Excessive inhalation of mist or vapor may be annoying.

Data from vendor of single-dose (acute) animal studies of ingredients in this material are given below:

Oral - rat LD50 - 8290 mg/kg;
Dermal - no data found
Eye Irritation - rabbit -150mg; slightly irritating
Skin Irritation - no data found

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

TSCA Inventory (Ingredients): Listed

SARA Hazard Notification (Ingredients)

Hazard Categories Under Title III Rules (40 CFR 370): not applicable

Section 302 Extremely Hazardous Substances: not applicable

Section 313 Toxic Chemical(s): not listed

CERCLA Reportable Quantity: not applicable

Refer to Section 13 for RCRA classification.

16. OTHER INFORMATION

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

MSDS dated 03/23/12

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.

NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION REFERS.



PRODUCT DATA SHEET

Product Name: **WSU 158**

WSU 158 is a liquid poly/orthophosphate specially blended for use in potable water systems. The product is designed to minimize corrosion, scale and "red water" conditions.

WSU 158 has a negligible reversion rate even after being stored for long periods of time.

Color: clear liquid
Specific Gravity: 1.39
pH: 4.7 ± 0.5
Viscosity: 45 cps
Freeze Point: < 0 deg. C
Maximum Use Level: 29 mg/L

Treatment levels for **WSU 158** depend on the pH, calcium hardness and total solids of the water. The normal use rate of **WSU 158** is between 4 and 40 pounds per million pounds of water to be treated.

WSU 158 is supplied in bulk or in 15 and 30 gallon bung type non-returnable poly drums.

WSU 158 prices are FOB, Franklin, Indiana.

Water Solutions Unlimited, Inc.
Revised: 2/3/2011



MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: WSU 158

Chemical Family: Sodium Polyphosphate

Chemical Name: Blended Polyphosphate

Synonyms: None

MSDS Number: L18005

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

Appearance and Odor: Clear, slightly gray in color, syrupy liquid, with no distinct odor

WARNING STATEMENTS

WARNING!
MAY CAUSE EYE AND SKIN IRRITATION

POTENTIAL HEALTH EFFECTS

Likely Routes of Exposure: skin contact and inhalation

EYE CONTACT: No more than slightly irritating based on toxicity studies. The material may cause foreign body irritation in some individuals.

SKIN CONTACT: No more than slightly toxic or slightly irritating based on toxicity studies. Prolonged contact with the material may cause drying or chapping of the skin.

INHALATION: Inhalation of the mist or vapor may cause coughing and sneezing.

INGESTION: No more than slightly toxic if swallowed based on toxicity studies. No significant adverse health effects are

expected to develop if only small amounts (less than a mouthful) are swallowed.

Refer to Section 11 for toxicological information.

4. FIRST AID MEASURES

IF IN EYES OR 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, immediate first aid is not likely to be required. A physician or Poison Control Center can be contacted for advice. Wash heavily contaminated clothing before reuse.

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 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. Consult the glove/clothing manufacturer to determine the appropriate type glove/clothing for a given application. Wear chemical goggles, a face shield, and chemical resistant clothing when splashing is likely. Wash immediately if skin is contaminated. Remove contaminated clothing promptly and launder before reuse. Clean protective equipment before reuse. Provide a safety shower at any location where skin contact can occur. Wash thoroughly after handling.

RESPIRATORY PROTECTION: Avoid breathing vapor or mist. Use NIOSH/MSHA approved respiratory protection equipment (full facepiece recommended) when airborne exposure limits are exceeded (see below). If used, full facepiece replaces the need for face shield and/or chemical goggles. Consult the respirator manufacturer to determine the appropriate type of equipment for a given application. Observe respirator use limitations specified by NIOSH/MSHA or the manufacturer. Respiratory protection programs must comply with 29 C.F.R. 1910.134.

VENTILATION: Provide natural or mechanical ventilation to minimize exposure. The use of local mechanical exhaust ventilation is preferred at sources of air contamination such as open process equipment. Consult NFPA Standard 91 for design of exhaust systems.

9. PHYSICAL AND CHEMICAL PROPERTIES

Chemical Formula: Proprietary
Appearance: Clear, syrupy liquid
Odor: no distinct odor
pH: 4.7 ± 0.5
Boiling Point: 100 C
Freezing Point: < 0 deg. C
Specific Gravity: 1.38
Lbs/Gallon: 11.51

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: none known

HAZARDOUS DECOMPOSITION PRODUCTS: none known

HAZARDOUS POLYMERIZATION: will not occur

11. TOXICOLOGICAL INFORMATION

The ingredients in this material may cause foreign body irritation in some individuals. Prolonged contact with the material may cause irritation of the skin. Excessive inhalation of mist or vapor may be annoying.

Data from vendor of single-dose (acute) animal studies of ingredients in this material are given below:

Oral - rat LD50 - 8290 mg/kg;
Dermal -- no data found
Eye Irritation - rabbit --150mg; slightly irritating
Skin Irritation -- no data found

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

TSCA Inventory (Ingredients): Listed

SARA Hazard Notification (Ingredients)

Hazard Categories Under Title III Rules (40 CFR 370): not applicable

Section 302 Extremely Hazardous Substances: not applicable

Section 313 Toxic Chemical(s): not listed

CERCLA Reportable Quantity: not applicable

Refer to Section 13 for RCRA classification.

16. OTHER INFORMATION

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

Revised MSDS supersedes MSDS dated 02/03/2011

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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PRODUCT DATA SHEET

Product Name: **WSU 178**

WSU 178 is a liquid poly/orthophosphate specially blended for use in potable water systems. The product is designed to minimize corrosion, scale and "red water" conditions.

WSU 178 has a negligible reversion rate even after being stored for long periods of time.

Color: clear liquid
Specific Gravity: 1.37
pH: 4.7 \pm 0.5
Viscosity: 45 cps
Freeze Point: < 0 deg. C
Maximum Use Level: 29 mg/L

Treatment levels for **WSU 178** depend on the pH, calcium hardness and total solids of the water. The normal use rate of **WSU 178** is between 4 and 40 pounds per million pounds of water to be treated.

WSU 178 is supplied in bulk or in 15 and 30 gallon bung type non-returnable poly drums.

WSU 178 prices are FOB, Franklin, Indiana.

Water Solutions Unlimited, Inc.
Revised: 2/3/2011



MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: WSU 178

Chemical Family: Sodium Polyphosphate

Chemical Name: Blended Polyphosphate

Synonyms: None

MSDS Number: L78007

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

Appearance and Odor: Clear, slightly gray in color, syrupy liquid, with no distinct odor

WARNING STATEMENTS

WARNING!
MAY CAUSE EYE AND SKIN IRRITATION

POTENTIAL HEALTH EFFECTS

Likely Routes of Exposure: skin contact and inhalation

EYE CONTACT: No more than slightly irritating based on toxicity studies. The material may cause foreign body irritation in some individuals.

SKIN CONTACT: No more than slightly toxic or slightly irritating based on toxicity studies. Prolonged contact with the material may cause drying or chapping of the skin.

INHALATION: Inhalation of the mist or vapor may cause coughing and sneezing.

INGESTION: No more than slightly toxic if swallowed based on toxicity studies. No significant adverse health effects are

expected to develop if only small amounts (less than a mouthful) are swallowed.

Refer to Section 11 for toxicological information.

4. FIRST AID MEASURES

IF IN EYES OR 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, immediate first aid is not likely to be required. A physician or Poison Control Center can be contacted for advice. Wash heavily contaminated clothing before reuse.

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 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. Consult the glove/clothing manufacturer to determine the appropriate type glove/clothing for a given application. Wear chemical goggles, a face shield, and chemical resistant clothing when splashing is likely. Wash immediately if skin is contaminated. Remove contaminated clothing promptly and launder before reuse. Clean protective equipment before reuse. Provide a safety shower at any location where skin contact can occur. Wash thoroughly after handling.

RESPIRATORY PROTECTION: Avoid breathing vapor or mist. Use NIOSH/MSHA approved respiratory protection equipment (full facepiece recommended) when airborne exposure limits are exceeded (see below). If used, full facepiece replaces the need for face shield and/or chemical goggles. Consult the respirator manufacturer to determine the appropriate type of equipment for a given application. Observe respirator use limitations specified by NIOSH/MSHA or the manufacturer. Respiratory protection programs must comply with 29 C.F.R. 1910.134.

VENTILATION: Provide natural or mechanical ventilation to minimize exposure. The use of local mechanical exhaust ventilation is preferred at sources of air contamination such as open process equipment. Consult NFPA Standard 91 for design of exhaust systems.

9. PHYSICAL AND CHEMICAL PROPERTIES

Chemical Formula: Proprietary
Appearance: Clear, syrupy liquid
Odor: no distinct odor
pH: 4.7 ± 0.5
Boiling Point: 100 C
Freezing Point: < 0 deg. C
Specific Gravity: 1.37
Lbs/Gallon: 11.4

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: none known

HAZARDOUS DECOMPOSITION PRODUCTS: none known

HAZARDOUS POLYMERIZATION: will not occur

11. TOXICOLOGICAL INFORMATION

The ingredients in this material may cause foreign body irritation in some individuals. Prolonged contact with the material may cause irritation of the skin. Excessive inhalation of mist or vapor may be annoying.

Data from vendor of single-dose (acute) animal studies of ingredients in this material are given below:

Oral - rat LD50 - 8290 mg/kg;
Dermal - no data found
Eye Irritation - rabbit -150mg; slightly irritating
Skin Irritation - no data found

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

TSCA Inventory (Ingredients): Listed

SARA Hazard Notification (Ingredients)
Hazard Categories Under Title III Rules (40 CFR 370): not applicable
Section 302 Extremely Hazardous Substances: not applicable
Section 313 Toxic Chemical(s): not listed

CERCLA Reportable Quantity: not applicable

Refer to Section 13 for RCRA classification.

16. OTHER INFORMATION

This material is certified to ANSI/NSF Standard 60 by NSF® International for use in potable water systems.
02/03/2011 Revised MSDS
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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Dan Held

From: Nick Stanley <nstanley@getwsu.com>
Sent: Thursday, January 03, 2013 11:07 AM
To: danh@currangardner.com
Cc: tmott@getwsu.com; Mike Ricks (WSU)
Subject: Phosphate Proposal for South Sangamon Water Commission Treatment Plant

Dear Dan:

It was very nice to meet you yesterday to discuss the corrosion problem in your finished water. You were dealing with several immediate issues, so our conversation was brief but informative. I told you I would confirm our agreement in an e-mail which I am now doing. You were to check on the current price per gallon of phosphate that you are currently getting from Carus Chemical. You were going to forward to me that price so we can confirm it as our price for this proposal.

Background

It is my understanding that shortly after you started the South Sangamon Water Commission Plant you decided to feed a corrosion inhibitor to minimize rusty water complaints. You started with a product from Carus Chemical. A portion of the corrosion issues have been minimized. There are still complaints of "spotting" on glassware and clear plasticware cleaned in many customer dishwashers.

It is our understanding that you contacted Carus for assistance with these issues and their answer was- "Please send us a water sample." They have not come to the plant to look at the problem first-hand. That is when Troy Mott got involved.

WSU Recommendations

At this point we have been provided recent MOR's, and water quality data. Troy ran tests of his own on finished water. We have at this point a good understanding of why you are still having issues and what we need to do to alleviate your problem.

Before we can feed our recommended blended phosphate product, we will need to accomplish two things:

1. Set up a corrosion coupon rack to monitor steel corrosion rates on finished water. Right now you are feeding chemical and only have customer complaints to judge your progress. A coupon rack program will provide data that can show corrosion rates that will confirm progress as you make changes to your program. We showed you how we used this approach with Wood River, IL in 1997. They have been happy with the program for over 15 years. **There is no additional cost for the Coupon Rack program. The cost is included in the price of chemical.**
2. We will need to provide the IL EPA with a Chemical Feed Permit. WSU will develop the permit which needs to be signed by Water Commission managers. **WSU will absorb and pay for the cost of the Chemical Feed Permit.**

We also recommend that you run TOC tests on your wells and finished water. This will tell us whether organics are part of the problem. WSU is one of the few companies that can work in this treatment area to maximize your finished water quality results. Troy Mott will assist you with how to get these tests run. This information is very important.

Service

You will find that WSU's service in the field is what distinguishes us from our competition. Please contact the following references:

Mike Patridge- Mt. Pulaski, IL- 217-306-0198

Or

Rick Goens- Carrolton, IL 217-491-0694

These gentlemen can confirm our promise to "get dirty" with you in solving this problem. They have worked with Troy for many years.

One of the comments we made that you liked was our desire to flush hydrants in your customer's distribution system with their operators. I believe you felt that would be very good towards helping customer relations and showing them you are working on their problem.

Treatment Chemicals

At this time we would recommend WSU 118, a liquid blended phosphate similar to what we used at Wood River. This product is 35% phosphate as PO₄, and weighs 11.5 #/gal. WE will use your existing chemical feed set up. WSU will only need to replace Carus' tote. We will then fill the tote from our Mini-Bulk truck. This will be a delivered price for WSU 118. We will know that price once you confirm it with us.

Troy Mott will get back with you to get the coupon rack started as soon as possible. We will also start working on the chemical feed permit as well.

I hope I haven't forgotten anything. If you have a question, please call me at 317-435-1870.

We look forward to working with you to alleviate these problems. We know we can make the improvements necessary to address the water quality complaints.

Best regards,

Nick Stanley
President, WSU



January 11, 2013

Mr. Tim Hasara
South Sangamon Water Commission
9199 Buckhart Rd
Rochester, IL 62563

Dear Tim,

Below is the quote to install airlines on the 10 wells at South Sangamon. To install the airlines, 1/2" flush joint PVC will be lowered into the wells through the vent hole in the top of the pitless adapter. Poly hose will be inserted into the PVC for the airline. The length of each airline will match the length of the existing transducer in each well. Each well will be equipped with a gauge and Schrader valve.

Materials

600' 1/2" Sched 40 flush joint PVC	
600' poly air line	
10 air line gauges	
10 each misc fittings and Schrader valve.	
Material Total	\$2,925

Labor Estimate

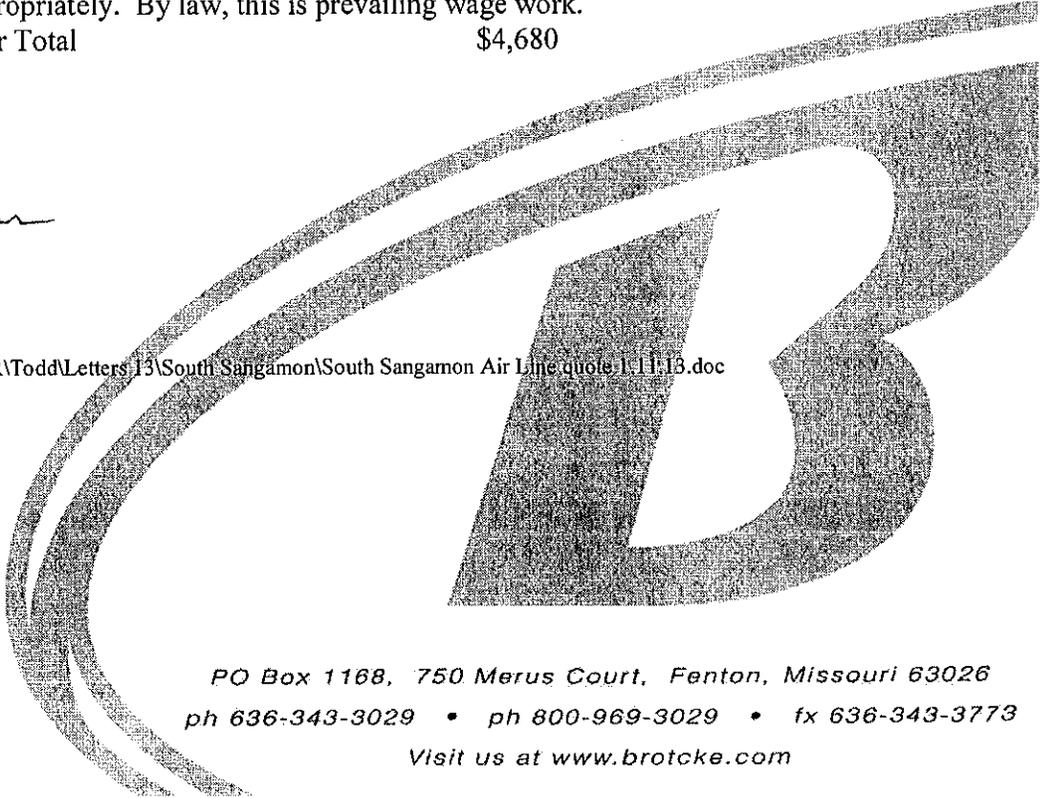
To install the PVC, air line, gauges and fittings in each well will require approx 2 hours per well. We will have 2 men and service truck. The labor cost given is an estimate of 3 - 8 hours days. If the job is done in less time the cost will be adjusted appropriately. By law, this is prevailing wage work.

Labor Total	\$4,680
-------------	---------

Sincerely,

Todd Thomas

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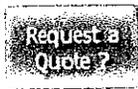
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fax: +31 15 261 62 89

e-mail: info@lenntech.com

Home > Calculators > Ryznar Stability Index

Ryznar Stability Index Calculator

This calculator helps you determine the scaling potential of the water by using the Ryznar Stability Index

Give the values of your water analysis. You have to fill all the boxes with *.

Table 1: Input table

pH	7,3	*	
Conductivity In TDS	400	*	mg/l
[Ca ²⁺]	40	*	mg/l
[HCO ₃ ⁻]	180	*	mg/l
Water temperature	53	*	degree F

Calculate the Ryznar Stability Index

Erase input values

If you do not have a water analysis you can use the values in table 2. Click on a button at the bottom of table 2

Table 2: Additional data

pH =	7.7	8	8.6	
TDS =	20	34483	273	mg/l
[Ca ²⁺] =	5	400	49	mg/l
[HCO ₃ ⁻] =	10	140	121	mg/l
T =	20	20	20	degree C
	Example	Seawater	Tap water	

Table 3: Results Ryznar Stability Index

pH _s	8,1
RI	8,8
Indication base on Ryznar (1942)	Water is very aggressive
Indication based on Improved Ryznar Index by Carrier 1965	Heavy corrosion

The criteria used to give an Indication are as shown in table 4 and 5

Table 4

RI	Indication (Ryznar 1942)
RI < 5,5	Heavy scale will form
5,5 < RI < 6,2	Scale will form
6,2 < RI < 6,8	No difficulties
6,8 < RI < 8,5	Water is aggressive
RI > 8,5	Water is very aggressive

Table 5

RI	Indication (Carrier 1965)
4,0 - 5,0	Heavy scale
5,0 - 6,0	Light scale
6,0 - 7,0	Little scale or corrosion
7,0 - 7,5	Corrosion significant
7,5 - 9,0	Heavy corrosion
>9,0	Corrosion intolerable

The Ryznar Stability Index formula is:

$$RI = 2 \cdot pH_s - pH$$

For an explanation of the formula click [here](#).

Ryznar gives only an Indication about the aggressiveness of the water but carrier gives an Indication about the scale and corrosion potential of the water.

References:

[1] : Kevin Rafferty, Scaling in geothermal heat pump systems, U.S. Department of Energy (July 1999)

[2] : Metcalf and Eddy, Wastewater Engineering Treatment and Reuse 2003

[Explanation of Ryznar Stability Index formula.](#)

Other calculators

Warning: Lenntech BV cannot be held responsible for errors in the calculation, the program itself or the explanation. For questions or remarks please [contact us](#).



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e-mail: info@lenntech.com

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Ryznar Stability Index Calculator

This calculator helps you determine the scaling potential of the water by using the Ryznar Stability Index

Give the values of your water analysis. You have to fill all the boxes with *.

Table 1: Input table

pH	6.7	*	
Conductivity in TDS	400	*	mg/l <input type="text"/>
[Ca ²⁺]	40	*	mg/L <input type="text"/>
[HCO ₃ ⁻]	180	*	mg/l <input type="text"/>
Water temperature	53	*	degree F <input type="text"/>

Calculate the Ryznar Stability Index

Erase input values

If you do not have a water analysis you can use the values in table 2. Click on a button at the bottom of table 2

Table 2: Additional data

pH =	7.7	8	8.6	
TDS =	20	34483	273	mg/l
[Ca ²⁺] =	5	400	49	mg/l
[HCO ₃ ⁻] =	10	140	121	mg/l
T =	20	20	20	degree C
	Example	Seawater	Tap water	

Table 3: Results Ryznar Stability Index

pH _s	8.1
RI	9.4
Indication base on Ryznar (1942)	Water is very aggressive
Indication based on improved Ryznar index by Carrier 1955	Corrosion intolerable

The criteria used to give an indication are as shown in table 4 and 5

Table 4

RI	Indication (Ryznar 1942)
RI < 5,5	Heavy scale will form
5,5 < RI < 6,2	Scale will form
6,2 < RI < 6,8	No difficulties
6,8 < RI < 8,5	Water is aggressive
RI > 8,5	Water is very aggressive

Ryznar gives only an Indication about the aggressiveness of the water but carrier gives an Indication about the scale and corrosion potential of the water.

References:

[1] : Kevin Rafferty, *Scaling in geothermal heat pump systems*, U.S. Department of Energy (July 1999)

[2] : Metcalf and Eddy, *Wastewater Engineering Treatment and Reuse* 2003

[Explanation](#) of Ryznar Stability Index formula.

Other calculators

Warning: Lenntech BV cannot be held responsible for errors in the calculation, the program itself or the explanation. For questions or remarks please [contact](#) us.

The Ryznar Stability Index formula is:

$$RI = 2 \cdot pH_s - pH$$

For an explanation of the formula click [here](#).

Table 5

RI	Indication (Carrier 1955)
4,0 - 5,0	Heavy scale
5,0 - 6,0	Light scale
6,0 - 7,0	Little scale or corrosion
7,0 - 7,5	Corrosion significant
7,5 - 9,0	Heavy corrosion
>9,0	Corrosion intolerable

LABORATORY RESULTS

Client: South Sangamon Water Commission
Project: Langelier Index
Client Sample ID: 48 Bonniebrook Chatham, IL
Collection Date: 12/13/12 11:00

Lab Order: 12L0251
Lab ID: 12L0251-01
Matrix: Water

Analyses	Result	Limit	Qual	Units	DF	Date Prepared	Date Analyzed	Method	Analyst
Metals by ICP									
Calcium Hardness (as CaCO3))	60.4	2.50		mg/L	10	12/14/12 9:00	12/14/12 14:20	EPA 200.7	JHN
*Calcium	24.2	1.00		mg/L	10	12/14/12 9:00	12/14/12 14:20	EPA 200.7	JHN
Conventional Chemistry Parameters									
*Total Alkalinity (as CaCO3)	254	20.0		mg/L	1	12/19/12 10:07	12/19/12 12:42	SM 2320B	RSR
Conductivity	532	10.0		µmhos/cm	1	12/18/12 15:59	12/18/12 16:03	SM 2510B	RSR
*pH	8.03	0.0100		pH Units	1	12/13/12 15:31	12/13/12 15:31	EPA 150.1	CEP
*Total Dissolved Solids	432	100		mg/L	1	12/14/12 11:07	12/17/12 9:45	EPA 160.1	CCD

LABORATORY RESULTS

Client: South Sangamon Water Commission
Project: Langelier Index
Client Sample ID: 112 E Mulberry Chatham, IL
Collection Date: 12/13/12 11:40

Lab Order: 12L0251
Lab ID: 12L0251-02
Matrix: Water

Analyses	Result	Limit	Qual	Units	DF	Date Prepared	Date Analyzed	Method	Analyst
Metals by ICP									
Calcium Hardness (as CaCO3))	61.5	2.50		mg/L	10	12/14/12 9:00	12/14/12 14:24	EPA 200.7	JHN
*Calcium	24.6	1.00		mg/L	10	12/14/12 9:00	12/14/12 14:24	EPA 200.7	JHN
Conventional Chemistry Parameters									
*Total Alkalinity (as CaCO3)	264	40.0		mg/L	1	12/19/12 10:07	12/19/12 12:42	SM 2320B	RSR
Conductivity	541	10.0		µmhos/cm	1	12/18/12 15:59	12/18/12 16:04	SM 2510B	RSR
*pH	7.95	0.0100		pH Units	1	12/13/12 15:31	12/13/12 15:34	EPA 150.1	CEP
*Total Dissolved Solids	424	100		mg/L	1	12/14/12 11:07	12/17/12 9:45	EPA 160.1	CCD

LABORATORY RESULTS

Client: South Sangamon Water Commission
Project: Langelier Index
Client Sample ID: 70 Cougar Court Chatham, IL
Collection Date: 12/13/12 11:40

Lab Order: 12L0251
Lab ID: 12L0251-03
Matrix: Water

Analyses	Result	Limit	Qual	Units	DF	Date Prepared	Date Analyzed	Method	Analyst
Metals by ICP									
Calcium Hardness (as CaCO3))	61.8	2.50		mg/L	10	12/14/12 9:00	12/14/12 14:28	EPA 200.7	JHN
*Calcium	24.8	1.00		mg/L	10	12/14/12 9:00	12/14/12 14:28	EPA 200.7	JHN
Conventional Chemistry Parameters									
*Total Alkalinity (as CaCO3)	256	40.0		mg/L	1	12/19/12 10:07	12/19/12 12:42	SM 2320B	RSR
Conductivity	598	10.0		µmhos/cm	1	12/18/12 15:59	12/18/12 16:15	SM 2510B	RSR
*pH	7.99	0.0100		pH Units	1	12/13/12 15:31	12/13/12 15:36	EPA 150.1	CEP
*Total Dissolved Solids	410	100		mg/L	1	12/14/12 11:07	12/17/12 9:45	EPA 160.1	CCD

LABORATORY RESULTS

Client: South Sangamon Water Commission
Project: Langelier Index
Client Sample ID: 218 Dover Drive Chatham, IL
Collection Date: 12/13/12 11:40

Lab Order: 12L0251
Lab ID: 12L0251-04
Matrix: Water

Analyses	Result	Limit	Qual	Units	DF	Date Prepared	Date Analyzed	Method	Analyst
Metals by ICP									
Calcium Hardness (as CaCO3))	60.7	2.50		mg/L	10	12/14/12 9:00	12/14/12 14:31	EPA 200.7	JHN
*Calcium	24.3	1.00		mg/L	10	12/14/12 9:00	12/14/12 14:31	EPA 200.7	JHN
Conventional Chemistry Parameters									
*Total Alkalinity (as CaCO3)	260	40.0		mg/L	1	12/19/12 10:07	12/19/12 12:42	SM 2320B	RSR
Conductivity	618	10.0		µmhos/cm	1	12/18/12 15:59	12/18/12 16:18	SM 2510B	CMH
*pH	7.99	0.0100		pH Units	1	12/13/12 15:31	12/13/12 15:38	EPA 150.1	CEP
*Total Dissolved Solids	430	100		mg/L	1	12/14/12 11:07	12/17/12 9:45	EPA 160.1	CCD

LABORATORY RESULTS

Client: South Sangamon Water Commission
Project: Langelier Index
Client Sample ID: 9199 Buckhart Rochester, IL
Collection Date: 12/13/12 11:40

Lab Order: 12L0251
Lab ID: 12L0251-05
Matrix: Water

Analyses	Result	Limit	Qual	Units	DF	Date Prepared	Date Analyzed	Method	Analyst
Metals by ICP									
Calcium Hardness (as CaCO3))	60.6	2.50		mg/L	10	12/14/12 9:00	12/14/12 14:35	EPA 200.7	JHN
*Calcium	24.3	1.00		mg/L	10	12/14/12 9:00	12/14/12 14:35	EPA 200.7	JHN
Conventional Chemistry Parameters									
*Total Alkalinity (as CaCO3)	264	40.0		mg/L	1	12/19/12 10:07	12/19/12 12:42	SM 2320B	RSR
Conductivity	628	10.0		µmbos/cm	1	12/18/12 15:59	12/18/12 16:21	SM 2510B	CMH
*pH	7.90	0.0100		pH Units	1	12/13/12 15:31	12/13/12 15:43	EPA 150.1	CEP
*Total Dissolved Solids	452	100		mg/L	1	12/14/12 11:07	12/17/12 9:45	EPA 160.1	CCD

LABORATORY RESULTS

Client: South Sangamon Water Commission
Project: Langelier Index

Lab Order: 12L0251

Notes and Definitions

- S Spike recovery outside acceptance limits.
- E Result above quantitation range.
- * NELAC certified compound.
- U Analyte not detected (i.e. less than RL or MDL).

Chain of Custody Record

Central IL - 1210 Capital Airport Drive • Springfield, IL 62707-9490 - Phone (217) 753-1149 - Facsimile (217) 753-1152
 Chicago IL Office - 9114 Virginia Rd. Ste 112 - Lake in the Hills, IL 60156 - Phone (847) 951-2694 - Facsimile (847) 453-9880
 Central/Southern IL Office - Phone (217) 414-7762 - Facsimile (217) 223-7922



www.prairieanalytical.com

Client	SOUTH SANGAMON WATER COMMISSION									
	P.O. 83 NEW BERTIN IL 62670-0083									
Address										
City/State/Zip Code										
Phone/Fax/Email										
Project Name/Number										
Project Location										
Sample ID	DKN HELV (217) 384-2206									
Sample Description	Sampling Date		Sampling Time		Medium Code	Preserv. Code	No. Containers	Sample Type	Sampling Location	
	Date	Time	Date	Time					Code	Code
48 BOWLEBROOK CHATHAM, IL	12/13/12	11:00 am					2	X		
112 E MULBERRY CHATHAM IL	12/13/12	11:40 am					2	X		
70 COUGAR CT CHATHAM, IL	12/13/12	11:20 am					2	X		
218 DOVE DR CHATHAM, IL	12/13/12	12:00 pm					2	X		
Matrix Code	A - Aqueous		B - None		DW - Drinking Water		GW - Ground Water		NA - Non-Aqueous Liquid	
Preserv. Code	1 - HCl		2 - H2SO4		3 - HNO3		4 - NaOH		5 - 50% KI	
Standard Time	12/13/12		12:05 pm		Date		12-13-12		Time	
QC Level	1		2		3		4		5	
On Method?	Yes		No		Date Required		Standard Time		Standard	
Temperature (°C)	14.9				Rush		Temperature (°C)		14.9	

TOTAL [M] ALKALINITY AS CaCO3 mg/L
 CALCIUM HARDNESS AS CaCO3 mg/L
 CONDUCTIVITY umhos/cm
 pH
 Temperature range

TEMPERATURE WHEN SAMPLE PULLED

Resid	Ind/Comm	A	B	C	D	E	F
<input type="checkbox"/>							
Resid	Indust						
<input type="checkbox"/>	<input type="checkbox"/>						



Friday, December 21, 2012

Dan Held
South Sangamon Water Commission
P.O. Box 83
New Berlin, IL 62670
TEL: (217) 298-2088
FAX: NA

RE: Langelier Index

PAS WO: 12L0251

Prairie Analytical Systems, Inc. received 5 sample(s) on 12/13/2012 for the analyses presented in the following report.

All applicable quality control procedures met method specific acceptance criteria unless otherwise noted.

This report shall not be reproduced, except in full, without the prior written consent of Prairie Analytical Systems, Inc.

If you have any questions, please feel free to contact me at (217) 753-1148.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Michael D. Brophy".

Michael D. Brophy
Project Manager

Certifications: NELAP/NELAC - IL #100323

1210 Capital Airport Drive	*	Springfield, IL 62707	*	1.217.753.1148	*	1.217.753.1152 Fax
9114 Virginia Road Suite #112	*	Lake in the Hills, IL 60156	*	1.847.651.2604	*	1.847.458.0538 Fax