Lafourche Parish Water Dist. No. 1

Date: November 17, 2017

Re: **ADDENDUM NO. 1 for SEALED BID – PROPOSAL FOR CHEMICALS FOR WATER TREATMENT**

To: All Holders of Bid Documents for One (1) Year Supply of Chemicals for Water Treatment

From: Lafourche Parish Water District No. 1

Via: Email

Paragraph 2 (Content), on page 19 of the Detailed Specifications Section is incorrect. This paragraph should be replaced and read as follows:

> The Zinc Orthophosphate shall contain no soluble material or organic substances in quantities capable of producing deleterious or injurious effects on the health of those consuming water that has been properly treated with this product. The active ingredients of the Liquid Zinc Orthophosphate shall consist of Zinc Chloride at a concentration necessary to yield 9% Zinc (as Zn) and Orthophosphoric Acid at a concentration necessary to deliver 45% Phosphate (as O-PO4), i.e. 5:1 phosphate/zinc ratio. Failure to comply with these requirements will result in the rejection or termination of the contract. In addition, an Affidavit and Typical Analysis from the manufacturer shall accompany all proposals stating that the product furnished will comply with the standards established in this specification.

Please be aware that **All Bidders** must acknowledge the receipt of this Addendum on the Bid Form where indicated. This applies to **All Bidders regardless of the product being bid**. Please refer to the statement on page 1 of the Bid Form.

Yours truly,

Jared Allemand
Chemist
Lafourche Parish Water District No. 1

One (1) Year Supply of

Chemicals for Water Treatment

(from February 1, 2018 through January 31, 2019)

Lafourche Parish Water District No. 1
P. O. Box 399
Lockport, LA 70374

October 30, 2017

NOTICE TO BIDDERS

Sealed bids will be received by the Board of Waterworks Commissioners of Water District No. 1, Parish of Lafourche, State of Louisiana, until the **hour of two-thirty o'clock (2:30) pm,** Wednesday, December 6, 2017, at its regular meeting place, the Water Treatment Plant Office, Lockport, Louisiana, and publicly opened immediately thereafter, for furnishing the following chemicals for water treatment.

1. LIQUID ALUMINUM SULFATE
2. POWDERED ACTIVATED CARBON
3. LIQUID CHLORINE (one-ton cylinder container)
4. CATIONIC POLYELECTROLYTE
5. FLUOROSILICIC ACID
6. ANHYDROUS AMMONIA
7. 20% LIQUID SODIUM PERMANGANATE
8. SODIUM HYPOCHLORITE
9. LIQUID ZINC ORTHOPHOSPHATE

Copies of Bid documents such as Instructions to Bidders, Bid Form, and Detailed Specifications may be obtained from the District's office at:

LAFOURCHE PARISH WATER DISTRICT NO. 1
5753 HIGHWAY 308
LOCKPORT, LA 70374

Electronic bids must be submitted through http://www.centralbidding.com prior to the electronic bidding deadline. All other bids must be sealed and marked **"SEALED BID - PROPOSAL FOR CHEMICALS FOR WATER TREATMENT"**. Any bid received after the announced closing time will be returned unopened.

The contract period is **February 1, 2018 through January 31, 2019.**

BOARD OF WATERWORKS COMMISSIONERS

Sidney Triche, President

Robert Pontif, Jr., Secretary Treasurer

Publications: **November 6, 15, 30, 2017**

INSTRUCTIONS TO BIDDERS

This proposal is for furnishing chemicals as required for a period of twelve (12) months from the award of contract. **All quantities specified within these documents are estimates based on previous use and/or future projections. The District reserves the right to either increase or decrease the quantities to fulfill its needs.** Any order that cannot be supplied in quantity, or quality, as specified by the contract documents may result in the cancellation of the contract.

At the end of one year from effective date of executed agreement, and upon mutual consent of both parties, said Contract may be extended for an additional one-year period providing all terms and conditions set forth in original agreement remains the same.

Each bidder shall carefully check all requirements herein set forth in the specifications and shall offer proposals, which fully comply with these contract documents and specifications, etc. Wherein this proposal offered does not meet these specifications, such exceptions, if made, shall be listed by page number in the following blanks and shall be marked in ink on the pages of these specifications and shall be explained in detail in a letter accompanying this bid. Failure to outline such exceptions will require the said bidder to comply with these specifications.

EXCEPTIONS TO SPECIFICATIONS: None

The Lafourche Parish Water District No. 1, as a public water utility, is exempted under Act No. 1029 of House Bill No. 1139, from paying any state sales and use tax and sales and use tax levied by any political subdivision. **The unit price bid on each item shall be the amount required to furnish the units FOB to the Lafourche Parish Water District No. 1 Water Treatment Plants, at 5753 Highway 308, Lockport, Louisiana, and/or 1052 Highway 1, Thibodaux, Louisiana, with the exception that Sodium Hypochlorite will be FOB to remote facilities throughout the District's service area.** Destination will be given at the time of the order and may be routed to either, both, or divided between facilities.

All proposals shall be submitted on the Bid Form hereto attached.

Each bidder shall indicate in his proposal, in the space provided for that purpose, delivery time from date of order.

Bidders may submit bids on all or on individual items. Contracts will be awarded for each individual chemical. Subsequent invoices from the successful bidder will reflect the contract price at the time the order was placed.

In the event two or more proposals equal in amount are lowest, the Board of Commissioners of Lafourche Parish Water District No. 1, Lockport, Louisiana, reserves the right to decide whom the contract is to be awarded.

At anytime prior to the scheduled closing time for receipt of proposals, any bidder may withdraw his proposal. After scheduled closing time for the receipt of proposals or before award of the contract, no bidder will be permitted to withdraw his proposal, unless said award is delayed for a period exceeding thirty (30) days or the date of the next regular meeting of the Board, whichever is longer. Negligence on the part of the bidder in preparing the bid confers no rights for the withdrawal of the proposal after it has been opened.

BID FORM

TO: Lafourche Parish Water District No. 1
P. O. Box 399
Lockport, LA 70374

BID FOR: Proposal for Chemicals for Water Treatment

The undersigned bidder hereby declares and represents that she/he; a) has carefully examined and understands the Bidding Documents, which include Notice to Bidders, Instructions to Bidders, Bid Form, and Detailed Specifications, b) has not received, relied on, or based his bid on any verbal instructions contrary to the Bidding Documents or any addenda, c) hereby proposes to provide chemicals in strict accordance with the Bidding Documents prepared by: **Lafourche Parish Water District No. 1** and dated: October 30, 2017

Bidders must acknowledge all addenda. The Bidder acknowledges receipt of the following **ADDENDA:** (Enter the number the Designer has assigned to each of the addenda that the Bidder is acknowledging) #1

NAME OF BIDDER: Shannon Chemical Corporation

ADDRESS OF BIDDER: P.O. Box 376
Malvern, PA 19355

NAME OF AUTHORIZED SIGNATORY OF BIDDER: Daniel C. Flynn

TITLE OF AUTHORIZED SIGNATORY OF BIDDER: V.P.-Operations

SIGNATURE OF AUTHORIZED SIGNATORY OF BIDDER: DCF

EMAIL ADDRESS: dcflynn@shannonchem.com

PHONE NUMBER: 610-363-9090

DATE: 11/30/17

NOTE: The accompanying Unit Price Form shall be used for all proposals and shall include delivered unit prices as explained in the Instructions to Bidders section of these contract documents.

The District's Purification Department's management team shall be the sole judge of any product's effectiveness. This team will have full discretion in terminating any contract where water treatment limitations or shortfalls are discovered.

All water treatment chemicals proposed must be ANSI/NSF 60 or ANSI/NSF 61 certified. This certification shall be issued by an ANSI accredited third-party certification agency such as the National Sanitation Foundation (NSF), the International Underwriters Laboratory (UL), or other acceptable ANSI accredited third-parties for; a) treatment equipment and b) materials that will be in contact with the water.

Before any contracts are awarded, the successful bidder will be required to provide a product data sheet, a copy of the certification agency's product listing page, and a signed letter from a company official stating that each product furnished will comply with the appropriate ANSI/NSF standard as well as the specifications outlined in this packet. This information must be provided upon request and shall be submitted within a timely manner. It is advisable to include these documents with your proposal to eliminate delays.

Also, the successful bidder will be required to furnish Lafourche Parish Water District No. 1 with a certificate of insurance. This certificate must also be provided upon request and shall be submitted within a timely manner. It must be issued in the Lafourche Parish Water District No. 1's name and provide the following coverage:

1.) General Liability - $1,000,000.00 per occurrence, $1,000,000.00 aggregate, $1,000,000.00 products/completed operations, along with naming the Lafourche Parish Water District No. 1 as additional insured and waiver of subrogation.

2.) Automobile Liability - $1,000,000.00 per occurrence, along with naming the Lafourche Parish Water District No. 1 as additional insured and waiver of subrogation.

3.) Workers Compensation – with $1,000,000.00 on the employer liability limit and waiver of subrogation. (Owner must be included if owner performs delivery or service work on District premises.)

Note: A sample certificate of insurance is attached providing the minimum required language regarding additional insured and waiver of subrogation. **Please use the sample certificate of insurance provided as a guide for the minimum required language and coverage.**

Certificates of insurance acceptable to the District shall be filed with the District. These certificates shall contain a provision that coverages afforded under the policies will not be cancelled unless at least thirty (30) days prior written notice has been given to the District. In addition, it is the responsibility of the supplier to notify District staff of any changes in product carriers.

Proposals may be delivered in person, or may be mailed to reach the Purchaser prior to the opening of bids to:

Lafourche Parish Water District No. 1
5753 Hwy 308
P.O. Box 399
Lockport, LA 70374

All bids shall be enclosed in sealed envelopes addressed to the Purchaser and marked: **"SEALED BID - PROPOSAL FOR CHEMICALS FOR WATER TREATMENT".**

Any bid received after the announced closing time will be returned unopened.

BID FORM
UNIT PRICE FORM

TO: Lafourche Parish Water District No. 1
P. O. Box 399
Lockport, LA 70374

BID FOR: Proposal for Chemicals for Water Treatment

UNIT PRICES: This form shall be used for bidding on Water Treatment Chemicals as required by the Bidding Documents.
Amounts shall be stated in figures and only in figures, and shall provide delivered unit prices.

DESCRIPTION:	**Liquid Aluminum Sulfate for water treatment (NOTE: Bid price based on available Al_2O_3)**			
REF. NO.	Estimated Annual QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	Delivery: Days required from receipt of Purchase Order to complete shipment
1	650	Dry Tons	no bid /Dry Ton	

DESCRIPTION:	**Bagged Powdered Activated Carbon for water treatment**			
REF. NO.	Estimated Annual QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	Delivery: Days required from receipt of Purchase Order to complete shipment
2	30,000	Pounds	no bid /Pound	

DESCRIPTION:	**Liquid Chlorine for water treatment (one ton cylinder containers)**			
REF. NO.	Estimated Annual QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	Delivery: Days required from receipt of Purchase Order to complete shipment
3	200,000	Pounds	no bid /Pound	

DESCRIPTION:	**Liquid Cationic Polyelectrolyte for water treatment**			
REF. NO.	Estimated Annual QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	Delivery: Days required from receipt of Purchase Order to complete shipment
4	250,000	Pounds	no bid /Pound	

DESCRIPTION:	**Bulk Fluorosilicic Acid for water treatment (NOTE: Bid price on "AS IS" basis – See Detailed Specifications)**			
REF. NO.	Estimated Annual QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	Delivery: Days required from receipt of Purchase Order to complete shipment
5	120,000	Pounds	no bid /Pound	

DESCRIPTION:	**Anhydrous Ammonia for water treatment**			
REF. NO.	Estimated Annual QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	Delivery: Days required from receipt of Purchase Order to complete shipment
6	50,000	Pounds	no bid /Pound	

DESCRIPTION:	20% Liquid Sodium Permanganate for water treatment			
REF. NO.	Estimated Annual QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	Delivery: Days required from receipt of Purchase Order to complete shipment
7	35,000	Pounds	$0.727 /Pound	3-5 Days ARO

DESCRIPTION:	Sodium Hypochlorite for water treatment			
REF. NO.	Estimated Annual QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	Delivery: Days required from receipt of Purchase Order to complete shipment
8	4,500	Gallons	no bid /Gallon	

DESCRIPTION:	Liquid Zinc Orthophosphate for water treatment			
REF. NO.	Estimated Annual QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	Delivery: Days required from receipt of Purchase Order to complete shipment
9	100,000	Pounds	$1.337 /Pound	3-5 Days ARO

Wording for "DESCRIPTION" is to be provided by the Owner.
All quantities are estimated. The contractor will be paid based upon actual quantities as verified by the Owner.

DETAILED SPECIFICATIONS FOR LIQUID ALUMINUM SULFATE

Reference No. 1

This proposal is for furnishing Liquid Aluminum Sulfate for water treatment, as required.

The Aluminum Sulfate shall be furnished in accordance with AWWA B403-03 specifications or the latest version. The chemical analysis for the Aluminum Sulfate shall be the same as the following typical analysis:

TYPICAL ANALYSIS FOR LIQUID ALUMINUM SULFATE

ALUMINUM SULFATE - LIQUID GRADE – (BASIS 17% Al_2O_3)

Total	Al_2O_3	8.00 %
Free	Al_2O_3	.10 %
Total	Fe_2O_3	.35 %
Water Insoluble matter		.20 %

The Liquid Aluminum Sulfate shall have a minimum soluble Al_2O_3 of 8.0% suitable for human water supply. The Aluminum Sulfate shall have an approximated Baume' of 36 and a specific gravity of 1.33 at 60° F. The Aluminum Sulfate shall be paid for by the dry ton basis.

The Liquid Aluminum Sulfate shall be reasonably clear. It shall be of such clarity as to permit the reading of low measuring devices without difficulty.

The suspended matter in the Liquid Aluminum Sulfate shall not exceed 0.2 percent. It shall comply with the regulations for marketing.

Quantity

This proposal is for furnishing Liquid Aluminum Sulfate, approximately 4,500 gallons per delivery as required. This estimate is based on past use and/or future projections. The District reserves the right to either increase or decrease the quantities to fulfill its needs.

Delivery

Deliveries shall be made to Lafourche Parish Water District No. 1, South Treatment Plant, 5753 Highway 308, Lockport, La. or Lafourche Parish Water District No. 1, North Treatment Plant, 1052 Highway 1, Thibodaux, La. Approximately one-third (1/3) of total chemicals would be used at the North Treatment Plant. Destination would be given when order is placed and may be routed to either, both, or divided between the two facilities.

Delivery on all items will be handled during the normal working hours of 7:00 a.m. to 11:30 a.m. and 12:30 p.m. to 3:30 p.m., Monday through Friday only, excluding holidays. No chemicals will be accepted that cannot be unloaded within these hours. Truck driver delivering chemicals must contact proper plant authority upon arrival at plant and prior to unloading.

A Material Safety Data Sheet (MSDS), a Weight Ticket, and a Certified Analysis of the product must be

provided to the District with each delivery. Weight measurements shall be furnished with all deliveries, shall be issued by certified scales, and shall be printed on tickets. The weight calculation from the ticket will be the basis for billing. The cost of weighing shall be at the expense of the contractor.

The Liquid Aluminum Sulfate transportation tank shall be equipped with a tamper proof numbered seal that coincides with the shipping documentation. Once this is verified and all other requirements are met, the alum shall be unloaded into the storage tank. The tank truck shall furnish all power and equipment to unload into storage tank. The Bidders should familiarize themselves with the conditions that exist. The storage tank has a two-inch (2") connection (2" female at South Plant and 2" male at North Plant). Deliverer shall notify proper plant authority prior to unloading.

The tank truck shall have been used for Liquid Aluminum Sulfate transport only. It shall be the responsibility of the supplier to check each transport and determine if any traces of toxic material or any bacteriologically impure material is present in the transport. Failure to do this shall be ground for rejection by the purchaser.

Shipments of Liquid Aluminum Sulfate shall comply with the Interstate Commerce Commission regulations for marketing.

General

If the supplier is called in an emergency regarding the application or the storage of the product, a qualified representative with troubleshooting experience shall report to the location in question. This person shall arrive within twenty-four (24) hours after notification from Lafourche Parish Water District No. 1.

Indemnification

The Contractor will indemnify and hold harmless the District and their agents and employees from and against all claims, damages, losses and expenses including attorneys' fees arising out of or resulting from the performance of the Work, provided that any such claims, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property, including the loss of use resulting therefrom; and is caused in whole or in part, directly or indirectly, by any negligent or willful act or omission of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable.

DETAILED SPECIFICATIONS FOR POWDERED ACTIVATED CARBON

Reference No. 2

The Powdered Activated Carbon (PAC) shall be furnished in accordance with ANSI/AWWA B600-16 specifications or the latest revision.

The PAC to be supplied shall be virgin, powdered, and manufactured from wood, coconut shell, lignite, reagglomerated sub-bituminous, or reagglomerated bituminous coal (combined with suitable binders). The PAC shall be visually free of clay, dirt and deleterious material.

The PAC shall be suitable for use in a potable water treatment plant and be effective in the removal of tastes and odors, specifically 2-MIB, and/or other target compounds, to the prescribed acceptable levels as described herein.

All PAC products must be pre-approved for use by the District. Any supplier wishing to obtain this approval must satisfy the requirements and conditions of performance testing and prove satisfactory in removing 75% 2-MIB with a 50 mg/l dose, as outlined in the Performance Testing section below. All PAC pre-approvals must be granted by September 15 of a given year to be eligible to participate in the approaching bid the same year. The District will be under no obligation to grant pre-approval for the upcoming bid cycle if unforeseen or unavoidable delays occur during the approval process. If a PAC is granted pre-approval after the September 15 deadline, it will only be eligible to participate in bid cycles in subsequent years.

The following products have been satisfactorily tested and approved for use by the District.

Calgon Carbon – WPH-1000

Ingevity – Aqua Nuchar

Carbon Activated – W-PL 900

Jacobi Carbons – AquaSorb CB1-MW

Equivalent products will be acceptable as long as the product meets the following specifications and has been pre-approved, as described in the Performance Testing section below:

Iodine Number, mg/g	900 minimum
Moisture as packed, wt. %	8 maximum
Mesh size	
Passing 325 mesh (45 μm), %	99 minimum

Contents

All document requests for product information shall contain, at minimum, the following:

- Minimum iodine number
- Maximum moisture as packed (percent)

- Mesh size
- Bulk density

Performance Testing

Any supplier wishing to submit a PAC bid for the upcoming bid cycle must obtain pre-approval by the District no later than September 15. Pre-approval will only be granted to those PACs that have completed a performance test (using the District's water) and that have proven satisfactory in meeting the performance criteria of achieving a minimum 75% 2-MIB removal at a dose of 50 mg/L. Any PAC that has not obtained pre-approval by September 15 will not be allowed to submit a bid for the approaching bid cycle. In addition, the District will be under no obligation to grant pre-approval for the upcoming bid cycle if unforeseen or unavoidable delays occur during the approval process. If a PAC is granted pre-approval after the September 15 deadline, it will only be eligible to participate in bid cycles in subsequent years.

Performance testing will be offered only once each year for all PAC products seeking pre-approval. And, all eligible PACs will be tested and evaluated at the same time. Consequently, all suppliers interested in participating in the performance test must submit a letter of interest to the District by July 1. If this date falls on a weekend or holiday, the next business day will be considered the deadline. Any letter of interest from a supplier regarding a PAC product received after July 1 will not be allowed to participate in the performance test until the following year. Accompanying this letter shall be a technical data sheet and a Material Safety Data Sheet (MSDS) of the product. The technical data sheet must include the minimum iodine number, maximum moisture content, bulk density, and mesh size details of the proposed PAC product, at a minimum. Based upon review of properties and specifications of the PAC, the District will notify the supplier by July 15, if their product has been accepted for performance testing. For those PACs that are granted a performance test, a supplemental packet outlining the specific details of the test will be provided. This packet includes additional details such as deadlines, test protocol, evaluation of results, and associated costs for the PAC performance testing.

Quantity

This proposal is for furnishing bagged PAC. The bagged PAC shall be in forty or fifty-pound multi-walled sealed bags, approximately 300 bags per delivery as required. This estimate is based on past use and/or future projections. The District reserves the right to either increase or decrease the quantities to fulfill its needs.

Delivery

Deliveries shall be made to Lafourche Parish Water District No. 1, South Treatment Plant, 5753 Highway 308, Lockport, La. or Lafourche Parish Water District No. 1, North Treatment Plant, 1052 Highway 1, Thibodaux, La. Destination for delivery would be provided when order is placed and may be routed to either, both, or divided between the two facilities. Deliverer shall notify proper plant authority prior to unloading.

Delivery on all items will be handled during the normal working hours of 7:00 a.m. to 11:30 a.m. and 12:30 p.m. to 3:30 p.m., Monday through Friday only, excluding holidays. No chemicals will be accepted that cannot be unloaded within these hours. Truck driver delivering chemicals must contact proper plant authority upon arrival and prior to unloading.

A Material Safety Data Sheet (MSDS) and a Certificate of Analysis of the product must be provided to the District with each delivery. The District also reserves the right to sample each lot and independently validate the quality of the supplied product.

PAC shall be dry and in good condition and protected from weather in transit. PAC shall not be unloaded when it is raining. PAC shall be unloaded by Lafourche Parish Water District No. 1 personnel. PAC bags with leaks or broken seals may not be accepted. The PAC supplier and/or the Contractor will be responsible for cleanup of all PAC spills that may occur during the transfer operation.

Pallets shall be placed on truck with opening to outside for easy access with forklift. Bags on pallets shall not be stacked more than ten (10) rows high.

General

If the supplier is called in an emergency regarding the application or the storage of the product, a qualified representative with troubleshooting experience shall report to the location in question. This person shall arrive within twenty-four (24) hours after notification from Lafourche Parish Water District No. 1.

Indemnification

The Contractor will indemnify and hold harmless the District and their agents and employees from and against all claims, damages, losses and expenses including attorneys' fees arising out of or resulting from the performance of the Work, provided that any such claims, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property, including the loss of use resulting therefrom; and is caused in whole or in part, directly or indirectly, by any negligent or willful act or omission of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable.

DETAILED SPECIFICATIONS FOR LIQUID CHLORINE (One-ton containers)

Reference No. 3

The Liquid Chlorine (in one-ton containers) shall be furnished in accordance with AWWA B301-04 specifications. Liquid Chlorine shall be 99.5% pure by volume as obtained from vaporized liquid chlorine and suitable for the treatment of water.

Quantity

This proposal is for furnishing Liquid Chlorine, packed in one-ton capacity steel containers. A typical order consists of delivering three (3) cylinders to the South Plant and one (1) or two (2) cylinders to the North Plant. The District reserves the right to increase or decrease this amount as necessary.

Delivery

Deliveries shall be made to Lafourche Parish Water District No. 1, South Treatment Plant, 5753 Highway 308, Lockport, La. or Lafourche Parish Water District No. 1, North Treatment Plant, 1052 Highway 1, Thibodaux, La. Approximately one-third (1/3) of total chemicals would be used at the North Treatment Plant. Destination would be given when order is placed and may be routed to either, both, or divided between the two facilities. Deliverer shall notify proper plant authority prior to unloading.

Delivery on all items will be handled during the normal working hours of 7:00 a.m. to 11:30 a.m. and 12:30 p.m. to 3:30 p.m., Monday through Friday only, excluding holidays. No chemicals will be accepted that cannot be unloaded within these hours. Truck driver delivering chemicals must contact proper plant authority upon arrival at plant and prior to unloading.

A Material Safety Data Sheet (MSDS) and a Certified Analysis of the product must be provided to the District with each delivery. Weight measurements shall be furnished with all deliveries.

The delivery truck will be of the open flat bed type and must be equipped for unloading. Before unloading, the driver shall remove each valve cover and allow District personnel to visually inspect the valves for leaks. The District will reject containers that appear to be leaking or in poor condition. Once District personnel inspect and accept the delivery, the driver may then unload. Deliverer in exchange will pick up the empty containers.

General

Containers shall be reconditioned, maintained, and loaded in strict accordance with the latest edition of the Chlorine Institute Pamphlet 17. The District will reject containers that generally appear to be in poor condition. In addition, out of date hydrostatic test or missing serial numbers will be cause for rejection.

Supplier shall conduct a comprehensive chlorine training class to include general chlorine safety, hands-on chlorine repair kit training, etc. This will be conducted once per twelve-month period at the District's convenience.

If the supplier is called in an emergency regarding the application or the storage of the product, a qualified representative with troubleshooting experience shall report to the location in question. This person shall arrive within twenty-four (24) hours after notification from Lafourche Parish Water District No. 1.

Indemnification

The Contractor will indemnify and hold harmless the District and their agents and employees from and against all claims, damages, losses and expenses including attorneys' fees arising out of or resulting from the performance of the Work, provided that any such claims, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property, including the loss of use resulting therefrom; and is caused in whole or in part, directly or indirectly, by any negligent or willful act or omission of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable.

DETAILED SPECIFICATIONS FOR LIQUID CATIONIC POLYELECTROLYTE

Reference No. 4

Liquid Cationic Polyelectrolyte, referred to herein as Polyelectrolyte, must meet all specifications, standards and requirements of AWWA-B451-04, or latest version, the USHEW, the USEPA, the Louisiana State Office of Public Health and obtain a performance approval from the Lafourche Parish Water District No. 1. The product must be suitable in all respects for use in purification of water for drinking purposes. The Polyelectrolyte is to be used as a coagulant aid. Liquid Alum is used as the primary coagulant.

The product must be soluble in water in all proportions, and have a viscosity that will not affect the pumping action of the material at ambient temperatures. The material must remain stable if stored at ambient temperatures up to six (6) months. The Polyelectrolyte must be compatible and stable with other Polyelectrolytes, Chlorine, Ammonia, and other chemicals used for water treatment. It must be approved by USEPA and Louisiana OPH for use at levels up to 20 parts per million.

Contents

Each shipment furnished to the Lafourche Parish Water District No. 1 shall provide a product that contains not less than 20 percent (%) active polymer. A Certified Analysis of the product must be provided to the District with each delivery. Also, the Lafourche Parish Water District No. 1 shall be notified, in writing, of acrylamide and epichlorohydrin levels contained in the product. This shall be submitted upon the initial shipment and any time requested otherwise.

Performance Trial

Any supplier wishing to gain approval for bidding on Polyelectrolytes, must be pre-approved by September 15 to be included in the approaching bid cycle. The supplier shall begin the process by submitting a letter regarding their intention to conduct a performance trial. Included in this letter shall be a price per pound quotation (delivered). Accompanying this letter should be a typical product analysis and an MSDS of the product. After reviewing these documents, the District will notify the supplier, in writing, whether the trial has been granted. If it has, two (2) fifty-five gallon drums of product must be delivered to the Lafourche Parish Water District No. 1, 5753 Highway 308, Lockport, LA 70374, free of all cost. For a period of at least four (4) weeks during cool weather months, a trial will be conducted at the convenience of the purification department and will use regular plant personnel and equipment. If the preliminary evaluation is inconclusive, the Lafourche Parish Water District No. 1 may purchase additional product, at the quoted price, to continue the trial. The product must prove to be equal in performance and in dosage requirements to gain approval. The Purification Division Manager shall be the sole judge of performance and his approval or disapproval shall be final. He also has the authority to interrupt or discontinue the trial at any time without obligation of the Water District. If the test run is terminated, the remainder of the Polyelectrolyte shall be picked up by the supplier and a full refund shall be promptly issued to the Lafourche Parish Water District No. 1 for the unused amount.

The following products have been satisfactorily tested and approved.

Nalco Company	Cat Floc TL
Cytec Industries	Magna Floc 587C
CitiChem	Chemfloc 615
Thornton, Musso, & Bellemin, Inc.	TMB 1912
Specialty Polymers & Chemicals, Inc.	SPC-725
Polydyne, Inc.	Clarifloc (R) C-308 P
Industrial Chemicals, Inc.	IC-332

Should an approved product fail to provide continued satisfactory performance at a competitive dosage level, it shall be disapproved at the sole discretion of the Purification Division Manager.

Proposals received by contractors, whose products have not been satisfactorily tested and approved, will be rejected.

Quantity

Quantity shall be the amount required by the Treatment Plant when and as needed. The estimated quantity is about 250,000 pounds annually, but this amount should be used as a guide only. This estimate is based on past use and/or future projections. The District reserves the right to either increase or decrease the quantities to fulfill its needs.

Delivery

Delivery shall be prepaid in a bulk tank truck usually about 35,000 pounds per delivery, as released by the Purification Division Manager during the bid contract period. Delivery will be divided between Lafourche Parish Water District No. 1, South Treatment Plant, at 5753 Highway 308, Lockport, LA, and Lafourche Parish Water District No. 1, North Treatment Plant, at 1052 Highway 1, Thibodaux, LA. Destination would be given when order is placed and may be routed to either, both, or divided between the two facilities. Deliverer shall notify proper plant authority prior to unloading.

The Polymer transportation tank shall be equipped with a tamper proof numbered seal that coincides with the shipping documentation. Once this is verified and all other requirements are met, the polymer shall be unloaded into the storage tank. The delivery truck shall be equipped with the necessary equipment and connections to pump the shipment into the treatment plant's bulk system. Storage Tanks at the South Plant and North Plant have two-inch (2") male connections.

Delivery on all items will be handled during the normal working hours of 7:00 a.m. to 11:30 a.m. and 12:30 p.m. to 3:30 p.m., Monday through Friday only, excluding holidays. No chemicals will be accepted that cannot be unloaded within these hours. Truck driver delivering chemicals must contact proper plant authority upon arrival at plant and prior to unloading.

A Material Safety Data Sheet (MSDS), a Weight Ticket, and a Certified Analysis of the product must be provided to the District with each delivery. Weight measurements shall be furnished with all deliveries, shall be issued by certified scales, and shall be printed on tickets. The weight calculated from the ticket will be the basis for billing. The cost of weighing shall be at the expense of the contractor.

General

The bid price shall be the total bulk delivered price per pound of Liquid Cationic Polyelectrolyte. It shall include all cost including royalties, etc. due for the use of material purchased, the furnishing, and delivery, as released of Polyelectrolyte FOB the Lafourche Parish Water District No. 1 "NORTH TREATMENT PLANT", near Thibodaux La. and "SOUTH TREATMENT PLANT", near Lockport, La.

If the supplier is called in an emergency regarding the application or the storage of the product, a qualified representative with troubleshooting experience shall report to the location in question. This person shall arrive within twenty-four (24) hours after notification from Lafourche Parish Water District No. 1.

Indemnification

The Contractor will indemnify and hold harmless the District and their agents and employees from and against all claims, damages, losses and expenses including attorneys' fees arising out of or resulting from the performance of the Work, provided that any such claims, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property, including the loss of use resulting therefrom; and is caused in whole or in part, directly or indirectly, by any negligent or willful act or omission of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable.

DETAILED SPECIFICATIONS FOR FLUOROSILICIC ACID

Reference No. 5

Fluorosilicic acid shall be furnished with not less than 23% and with no more than 25% H_2SiF_6 by weight and in accordance with AWWA Standards for Fluorosilicic acid, ANSI/AWWA B703-06, or the latest version. A Certified Analysis of the product must be provided to the District with each delivery. If the analysis shows that the product is not within 23%-25% H_2SiF_6, it will automatically be rejected.

The bid price on the attached Bid Form must be provided on an "AS IS" basis where no adjustments for the product strength will be allowed for billing purposes. Weight measurements shall be furnished with all deliveries, shall be issued by certified scales, and shall be printed on tickets. The weight calculated from the ticket will be the basis for billing. The cost of weighing shall be at the expense of the contractor.

The Fluorosilicic acid supplied under this contract shall be clean and free of visible suspended matter.

Fluorosilicic acid supplied under this standard shall contain no mineral or organic substances in quantities capable of:

a) producing deleterious or injurious effects on the health of those consuming water that has been properly treated with the fluorosilicic acid or,
b) causing water treated to fail to meet the US EPA drinking water regulations.

Fluorosilicic acid supplied under this standard shall contain not more than 0.020 percent by weight of heavy metals, expressed as lead (Pb).

Delivery

Delivery shall be prepaid in a bulk truck usually about 4,000 gallons per delivery, as released by the Purification Division Manager during the bid contract period. The estimated quantity is about 7,500 gallons annually, but this amount should be used as a guide only. Delivery will be divided between Lafourche Parish Water District No. 1, South Treatment Plant, 5753 Highway 308, Lockport, LA and Lafourche Parish Water District No. 1, North Treatment Plant, 1052 Highway 1, Thibodaux, LA. Destination would be given when order is placed and may be routed to either, both, or divided between the two facilities. Deliverer shall notify proper plant authority prior to unloading.

The Fluorosilicic acid transportation tank shall be equipped with a tamper proof numbered seal that coincides with the shipping documentation. Once this is verified and all other requirements are met, the fluoride shall be unloaded into the storage tank. The delivery truck shall be equipped with the necessary equipment and connections to pump the shipment into the treatment plant's bulk system. South Plant has a two-inch (2") male connection and the North Plant has a two-inch (2") male connection.

Delivery on all items will be handled during the normal working hours of 7:00 a.m. to 11:30 a.m. and 12:30 p.m. to 3:30 p.m., Monday through Friday only, excluding holidays. No chemicals will be accepted that cannot be unloaded within these hours. Truck driver delivering chemicals must contact proper plant authority upon arrival at plant and prior to unloading.

A Material Safety Data Sheet (MSDS), a Weight Ticket, and a Certified Analysis of the product must be provided to the District with each delivery. Weight measurements shall be furnished with all deliveries, shall be issued by certified scales, and shall be printed on tickets. The weight calculated from the ticket will be the basis for billing. The cost of weighing shall be at the expense of the contractor.

Delivery shall be made as required upon issuance of a purchase order from proper District personnel.

Price per pound shall include all transportation charges to Thibodaux, La. and Lockport, La. plants. No delay or waiting time will be paid by Lafourche Parish Water District No. 1 unless it is determined that the District is at fault.

General

If the supplier is called in an emergency regarding the application or the storage of the product, a qualified representative with troubleshooting experience shall report to the location in question. This person shall arrive within twenty-four (24) hours after notification from Lafourche Parish Water District No. 1.

Indemnification

The Contractor will indemnify and hold harmless the District and their agents and employees from and against all claims, damages, losses and expenses including attorneys' fees arising out of or resulting from the performance of the Work, provided that any such claims, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property, including the loss of use resulting therefrom; and is caused in whole or in part, directly or indirectly, by any negligent or willful act or omission of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable.

DETAILED SPECIFICATIONS FOR ANHYDROUS AMMONIA

Reference No. 6

This proposal is for furnishing Anhydrous Ammonia for use in water treatment. It shall be premium refrigeration grade containing not less than 99.95 % ammonia. The Anhydrous Ammonia shall be furnished in accordance with ANSI/AWWA B305-06, or latest revision, except as modified or supplemented herein. Failure to comply with this requirement will result in the termination of the contract.

Additionally, this product must be suitable for treatment of drinking water and certified by an accredited certification organization in accordance with ANSI/NSF 60. It is the responsibility of the supplier to inform the Lafourche Parish Water District No. 1 that ANSI/NSF 60 certification has been revoked or lapsed within 24 hours of the time the supplier receives verbal or written notification. Loss of certification shall be grounds for immediate termination of the contract.

The Anhydrous Ammonia shall be free of foreign materials that may cause excessive clogging of feed equipment.

Quantity

This proposal is for furnishing Anhydrous Ammonia, approximately 3,000 pounds per delivery as required. This estimate is based on past use and/or future projections. The District reserves the right to either increase or decrease the quantities to fulfill its needs.

Delivery

Deliveries shall be made to Lafourche Parish Water District No. 1, South Treatment Plant, 5753 Highway 308, Lockport, La. or Lafourche Parish Water District No. 1, North Treatment Plant, 1052 Highway 1, Thibodaux, LA within two working days of order. Approximately one-third (1/3) of total chemicals would be used at the North Treatment Plant. Destination would be given when order is placed and may be routed to either, both, or divided between the two facilities. Deliverer shall notify proper plant authority prior to unloading.

Delivery truck must be equipped with necessary equipment, fittings, and hoses to unload the product into the treatment plants' holding tanks.

Delivery on all items will be handled during the normal working hours of 7:00 a.m. to 11:30 a.m. and 12:30 p.m. to 3:30 p.m., Monday through Friday only, excluding holidays. No chemicals will be accepted that cannot be unloaded within these hours. Truck driver delivering chemicals must contact proper plant authority upon arrival at plant and prior to unloading.

A Material Safety Data Sheet (MSDS) and a Certified Analysis of the product must be provided to the District with each delivery. Weight measurements shall be furnished with each delivery.

The supplier shall furnish all power and equipment to unload shipment into storage tank. The bidders should familiarize themselves with the conditions that exist. Deliverer shall notify proper plant authority prior to unloading.

General

Supplier shall provide the District with a copy of the product's NSF approval with every delivery.

If the supplier is called in an emergency regarding the application or the storage of the product, a qualified representative with troubleshooting experience shall report to the location in question within twenty-four (24) hours of notification. In addition, if a situation arises that requires the extraction of Anhydrous Ammonia from any of the District's storage tanks, the supplier shall be responsible for providing this service within twenty-four (24) hours of notification.

The supplier will be responsible for inspections of the District's pressure relief valves on all Anhydrous Ammonia storage tanks.

Indemnification

The Contractor will indemnify and hold harmless the District and their agents and employees from and against all claims, damages, losses and expenses including attorneys' fees arising out of or resulting from the performance of the Work, provided that any such claims, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property, including the loss of use resulting therefrom; and is caused in whole or in part, directly or indirectly, by any negligent or willful act or omission of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable.

DETAILED SPECIFICATIONS FOR 20% LIQUID SODIUM PERMANGANATE

Reference No. 7

The Liquid Sodium Permangante (20%) shall be furnished in accordance with AWWA B603-03 specifications. The Liquid Sodium Permanganate shall be certified by the National Sanitation Foundation (NSF) Standard 60 and suitable for the treatment of drinking water. In addition, each storage container shall have all the proper markings, labels, identifications, etc. needed to meet all Federal and State transportation and storage requirements.

Quantity

This proposal is for furnishing 20% Liquid Sodium Permanganate delivered in approximately 270 gallon chemical tote bins. A typical order consists of a four (4) tote delivery to the South Plant and a two (2) tote delivery to the North Plant. The District reserves the right to increase or decrease this amount as necessary.

Delivery

Deliveries shall be made to Lafourche Parish Water District No. 1, South Treatment Plant, 5753 Highway 308, Lockport, La. or Lafourche Parish Water District No. 1, North Treatment Plant, 1052 Highway 1, Thibodaux, La. Destination would be given when the order is placed and may be placed for either plant or both plants at that time. Deliverer shall notify proper plant authority prior to unloading.

Delivery on all items will be handled during the normal working hours of 7:00 a.m. to 11:30 a.m. and 12:30 p.m. to 3:30 p.m., Monday through Friday only, excluding holidays. No chemicals will be accepted that cannot be unloaded within these hours. Truck driver delivering chemicals must contact proper plant authority upon arrival at plant and prior to unloading.

A Material Safety Data Sheet (MSDS) and a Certified Analysis of the product must be provided to the District with each delivery. Weight measurements shall be furnished with each delivery.

The District will reject containers that appear to be leaking or in poor condition. Once District personnel inspect and accept the delivery, the driver may then unload.

General

The supplier will be responsible for having all empty tote bins removed from the District's facilities. These tote bins must be removed from the District's premises within 14 days of the request.

If the supplier is called in an emergency regarding the application or the storage of the product, a qualified representative with troubleshooting experience shall report to the location in question. This person shall arrive within twenty-four (24) hours after notification from Lafourche Parish Water District No. 1.

Indemnification

The Contractor will indemnify and hold harmless the District and their agents and employees from and against all claims, damages, losses and expenses including attorneys' fees arising out of or resulting from the

performance of the Work, provided that any such claims, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property, including the loss of use resulting therefrom; and is caused in whole or in part, directly or indirectly, by any negligent or willful act or omission of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable.

DETAILED SPECIFICATIONS FOR SODIUM HYPOCHLORITE

Reference No. 8

The Sodium Hypochlorite shall be provided with a minimum available chlorine of 10% and furnished in accordance with AWWA's Standard B-300-04, or latest revision, except as modified or supplemented herein. This material shall be certified as suitable for contact with or treatment of drinking water by an accredited certification organization in accordance with NSF/ANSI Standard 60, Drinking Water Treatment Chemicals – Health Effects. It is the responsibility of the supplier to inform the Lafourche Parish Water District No. 1 that NSF/ANSI 60 certification has been revoked or lapsed within 24 hours of the time the supplier receives verbal or written notification. Loss of certification shall be grounds for immediate termination of the contract.

The Sodium Hypochlorite shall have a minimum available chlorine of 10%. A certification of analyses must accompany all deliveries to ensure the concentration complies with the minimum allowable concentration.

The Sodium Hypochlorite must be a clear light-yellow colored liquid with no visible cloudiness, impurities, or sediment. It shall contain no soluble materials or organic substances in quantities capable of producing deleterious or injurious effects on the health of those consuming water treated with the Sodium Hypochlorite.

Quantity

This proposal is for furnishing Sodium Hypochlorite with a minimum of 10% available chlorine, delivered in small bulk quantities to various locations throughout the District's service area. A typical order consists of approximately 400 gallons (divided amongst multiple locations as described in the next section); however, the District reserves the right to increase or decrease this amount as necessary. The minimum permissible order shall be no greater than 80 gallons which means that the supplier must deliver all quantities of 80 gallons and greater at the contracted price. Generally, most orders are placed between April and October, however, smaller and less frequent deliveries may be needed throughout the entire year.

Delivery

Typically, requests for deliveries are to 4878 Highway 182, Houma, LA, 70364, and to 23203 Highway 1, Golden Meadow, LA, 70347. However, some deliveries may be necessary at other locations within the District's service area on an as needed basis. The destination will be given when the order is placed and may be routed to a single location or distributed between multiple locations. All facilities where product will be offloaded are owned and operated by the Lafourche Parish Water District No. 1 and are typically unmanned. Therefore, all deliveries must be coordinated with the District in advance so delivery personnel can gain access to the facilities. The deliverer shall notify proper District authority at least 1 hour prior to arrival and must have a company cell phone to help facilitate the delivery. Delivery personnel shall never begin unloading product until a District representative is on site and has granted authorization.

The supplier shall make "normal" deliveries within 72 hours after receipt of order, excluding weekends, and must make "emergency" deliveries within 24 hours, including weekends. An emergency delivery is

defined as a delivery which is necessary in order to prevent the District from running out of Sodium Hypochlorite in less than 24 hours. The District will endeavor to minimize the number of "emergency" deliveries.

Delivery of Sodium Hypochlorite will be accepted during the normal working hours of 8:00 a.m. to 11:30 a.m. and 12:30 p.m. to 3:00 p.m., Monday through Friday only, excluding holidays. No chemicals will be accepted that cannot be unloaded within these hours.

Most delivery locations have limited access. Therefore, in order to maneuver tight turns and facilitate safe parking, the Sodium Hypochlorite must be delivered in a truck with a capacity no larger than 3,000 gallons. The supplier is responsible for pumping Sodium Hypochlorite into small bulk storage tanks at the designated delivery site and shall provide all necessary hoses, fittings, pumps, etc. required to safely and efficiently offload the product. Packaging and transportation of liquid Sodium Hypochlorite shall conform to all current regulations of the State of Louisiana, the US Department of Transportation, and all other applicable regulatory agencies.

The supplier shall be responsible for any spills resulting from the failure of its or its subcontractor's delivery equipment or from failure of delivery personnel in the performance of their duties. The supplier shall take immediate and appropriate action to clean up the spill, and the cost of such service will be the supplier's responsibility.

A Material Safety Data Sheet (MSDS) and a Certified Analysis of the product must be provided to the District with each delivery.

General

If the supplier is called in an emergency regarding the application or the storage of the product, a qualified representative with troubleshooting experience shall report to the location in question. This person shall arrive within twenty-four (24) hours after notification from Lafourche Parish Water District No. 1.

Indemnification

The Contractor will indemnify and hold harmless the District and their agents and employees from and against all claims, damages, losses and expenses including attorneys' fees arising out of or resulting from the performance of the Work, provided that any such claims, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property, including the loss of use resulting therefrom; and is caused in whole or in part, directly or indirectly, by any negligent or willful act or omission of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable.

DETAILED SPECIFICATIONS FOR LIQUID ZINC ORTHOPHOSPHATE

Reference No. 9

This proposal is for furnishing Liquid Zinc Orthophosphate for use as a corrosion inhibitor in a potable drinking water supply. The Zinc Orthophosphate solution shall be furnished in accordance with ANSI/AWWA B506-06, or latest revision, except as modified or supplemented herein. Additionally, this product must be suitable for treatment of drinking water and certified by an accredited certification organization in accordance with ANSI/NSF 60. It is the responsibility of the supplier to inform the Lafourche Parish Water District No. 1 that ANSI/NSF 60 certification has been revoked or lapsed within 24 hours of the time the supplier receives verbal or written notification. Loss of certification shall be grounds for immediate termination of the contract.

Content

The Zinc Orthophosphate shall contain no soluble material or organic substances in quantities capable of producing deleterious or injurious effects on the health of those consuming water that has been properly treated with this product. The active ingredients of the Liquid Zinc Orthophosphate shall consist of 9% Zinc Chloride and 46% Orthophosphoric Acid (5:1 phosphate/zinc ratio). Failure to comply with these requirements will result in the rejection or termination of the contract. In addition, an Affidavit and Typical Analysis from the manufacturer shall accompany all proposals stating that the product furnished will comply with the standards established in this specification.

Quantity

This proposal is for furnishing Zinc Orthophosphate in bulk as needed. The estimated annual amount is approximately 7,500 gallons. This estimate is based on past use and/or future projections. The District reserves the right to either increase or decrease quantities to fulfill its needs. In addition, the minimum permissible order shall be no greater than 500 gallons which means that the supplier must deliver all quantities of 500 gallons and greater at the contracted price.

Delivery

Deliveries shall be made to Lafourche Parish Water District No. 1, South Treatment Plant, 5753 Highway 308, Lockport, La. or Lafourche Parish Water District No. 1, North Treatment Plant, 1052 Highway 1, Thibodaux, LA. Approximately one-third (1/3) of total chemicals would be used at North Treatment Plant. Destination will be given when order is placed and may be routed to either, both, or divided between the two facilities. Deliverer shall notify proper plant authority prior to unloading.

Delivery truck shall be equipped with the necessary equipment and connections for unloading the product into each treatment plant's bulk storage system.

Delivery on all items will be handled during the normal working hours of 7:00 a.m. to 11:30 a.m. and 12:30 p.m. to 3:30 p.m., Monday through Friday only, excluding holidays. No chemicals will be accepted that cannot be unloaded within these hours. Truck driver delivering chemicals must contact proper plant authority upon arrival at plant and prior to unloading.

A Material Safety Data Sheet (MSDS) and a Certified Analysis of the product must be provided to the

District with each delivery. Weight measurements shall be furnished with each delivery.

Suppliers should familiarize themselves with the conditions that exist. Deliverer shall notify proper plant authority prior to unloading.

General

To facilitate the requirements listed below, the District is including a geographic preference for suppliers to be considered and subsequently awarded this contract. To comply with this geographical requirement, prospective suppliers shall provide proof of having a highly qualified technical representative staffed at a company owned and operated facility located within 300 miles of zip code 70374. This technical representative will be required to perform the following:

- Shall provide technical assistance for all matters relating to corrosion control for the District's water system.
- Shall report to the District's facilities in question within twenty-four hours (24) of notification if the supplier is called in an emergency regarding the application or the storage of the product. The technical representative shall be required to assist in troubleshooting, diagnosing, and resolving any issues that arise.
- Shall visit the plant not less than once every three months for a minimum of two hours each visit. The bid price shall also include any and all cost for this representative to deliver, install/replace, have analyzed by an independent laboratory, and report the results of five (5) sets of corrosion coupons (steel and copper) located throughout the District's distribution system. This visit will allow the supplier and the District to evaluate the performance of the product. Based on this evaluation, the supplier would be expected to provide recommendations for improved corrosion control.

The District's purification department's management team shall be the sole judge of the product's effectiveness regarding corrosion control. This team will have full discretion in terminating the contract if corrosion control limitations or shortfalls are discovered.

Supplier shall provide the District with a copy of the product's MSDS, a weight measurement, and a certified analysis with every delivery.

Indemnification:

The Contractor will indemnify and hold harmless the District and their agents and employees from and against all claims, damages, losses and expenses including attorneys' fees arising out of or resulting from the performance of the Work, provided that any such claims, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property, including the loss of use resulting therefrom; and is caused in whole or in part, directly or indirectly, by any negligent or willful act or omission of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable.

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

PRODUCER

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

INSURERS AFFORDING COVERAGE	NAIC #
INSURER A:	
INSURER B:	
INSURER C:	
INSURER D:	
INSURER E:	

INSURED

COVERAGES

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

INSR LTR	ADD'L INSRD	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
		GENERAL LIABILITY				EACH OCCURRENCE	$ 1,000,000
		[X] COMMERCIAL GENERAL LIABILITY				DAMAGE TO RENTED PREMISES (Ea occurence)	$
		[ ] CLAIMS MADE [X] OCCUR				MED EXP (Any one person)	$
						PERSONAL & ADV INJURY	$
						GENERAL AGGREGATE	$ 1,000,000
		GEN'L AGGREGATE LIMIT APPLIES PER:				PRODUCTS - COMP/OP AGG	$ 1,000,000
		[ ] POLICY [ ] PRO-JECT [ ] LOC					
		AUTOMOBILE LIABILITY				COMBINED SINGLE LIMIT (Ea accident)	$ 1,000,000
		[X] ANY AUTO	SAMPLE				
		[ ] ALL OWNED AUTOS				BODILY INJURY (Per person)	$
		[ ] SCHEDULED AUTOS					
		[X] HIRED AUTOS				BODILY INJURY (Per accident)	$
		[X] NON-OWNED AUTOS					
		[ ]				PROPERTY DAMAGE (Per accident)	$
		GARAGE LIABILITY				AUTO ONLY - EA ACCIDENT	$
		[ ] ANY AUTO				OTHER THAN AUTO ONLY: EA ACC	$
						AGG	$
		EXCESS/UMBRELLA LIABILITY				EACH OCCURRENCE	$
		[ ] OCCUR [ ] CLAIMS MADE				AGGREGATE	$
							$
		[ ] DEDUCTIBLE					$
		[ ] RETENTION $					$
		WORKERS COMPENSATION AND EMPLOYERS' LIABILITY				[X] WC STATU-TORY LIMITS [ ] OTH-ER	
		ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED?				E.L. EACH ACCIDENT	$ 1,000,000
		If yes, describe under SPECIAL PROVISIONS below				E.L. DISEASE - EA EMPLOYEE	$ 1,000,000
						E.L. DISEASE - POLICY LIMIT	$ 1,000,000
		OTHER					

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES / EXCLUSIONS ADDED BY ENDORSEMENT / SPECIAL PROVISIONS

CERTIFICATE HOLDER IS NAMED AS ADDITIONAL INSURED UNDER GENERAL LIABILITY AND AUTOMOBILE LIABILITY. WAIVER OF SUBROGATION APPLIES IN FAVOR OF CERTIFICATE HOLDER UNDER GENERAL LIABILITY, AUTOMOBILE LIABILITY AND WORKERS COMPENSATION.

CERTIFICATE HOLDER

Lafourche Parish Water
District No. 1
P O Box 399
Lockport LA 70374-0399

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO DO SO SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE

Sample Certificate of Insurance

Shannon Chemical Corporation

*Specializing in **LEAD** and **COPPER** Corrosion Control*

SLI-5219

Affidavit of Compliance

SHANNON CHEMICAL CORPORATION certifies that **SLI-5219** complies in all aspects to the bid specifications for the Lafourche Parish Water District No.1, LA.

SHANNON CHEMICAL CORPORATION certifies that **SLI-5219** is accepted by the EPA for use as a corrosion control additive in potable drinking water. **SLI-5219** is ANSI/NSF Standard 60 certified. All raw materials used in the formulation of **SLI-5219** meet or exceed the specifications for additives to potable drinking water as stated in the Water Chemical Codex and the Water Chemical Codex; Supplementary Recommendations for Direct Additives.

SLI-5219 has the following chemical and physical characteristics:

Color:	Clear
Odor:	None
Sediment:	None
Chlorine Demand:	None
Phosphate as PO_4:	45%
Zinc as Zn:	9%
pH 1% Solution:	Less than 2.0
Specific Gravity:	1.52
Density:	12.7

DCF

Daniel C. Flynn
Vice President-Operations
SHANNON CHEMICAL CORPORATION

Post Office Box 376 • Malvern, Pennsylvania 19355 • (610) 363-9090 • Fax: (610) 524-6050

Shannon Chemical Corp.
P.O. Box 376 Malvern, PA 19355 • Phone: (610) 363-9090 • Fax: (610) 524-6050

LETTER OF CERTIFICATION

SLI-5219

Corrosion Inhibitor

Water Treatment Compound

SLI-5219 is certified to ANSI/NSF Standard 60.

SLI-5219, our 1:5 ratio liquid zinc orthophosphate corrosion inhibitor, has the following chemical and physical properties:

Color:	Clear
Odor:	None
Sediment:	None
Chlorine Demand:	None
Phosphate as PO_4:	45%
Zinc as Zn:	9%
pH 1% Solution:	Less than 2.0
Specific Gravity:	1.52
Density:	12.7

SHANNON CHEMICAL CORPORATION certifies that the product, **SLI-5219** is formulated using raw materials that meet or exceed the specifications for additives for potable drinking water as stated in the Water Chemicals Codex and the Water Chemicals Codex: Supplementary Recommendations For Direct Additives.

Joseph Barksdale, PhD
SHANNON CHEMICAL CORPORATION

Shannon Chemical Corporation

*Specializing in **LEAD** and **COPPER** Corrosion Control*

LETTER OF CERTIFICATION

SE-2355-20
Sodium Permanganate

SE-2355-20 is a 20% liquid sodium permanganate solution with the following chemical and physical specifications:

Formula:	$NaMnO_4$
Color:	Deep Purple Solution
Mn:	142
Specific Gravity:	1.17 ± 0.01
Density:	9.7#/gallon ± 0.1
Concentration(Assay):	20.5% ± 1
Solubility:	Complete
pH:	5.0 - 8.0
Freezing Point:	-6°C (21°F)
NSF Max Use:	176 mg/L

General:

SHANNON CHEMICAL CORPORATION'S liquid permanganates are widely used in potable drinking water as an effective oxidant. Other uses include taste and odor control, reduction of common metals (Fe and Mn), radium reduction and color reduction. Some utilities use sodium permanganate for H_2S control as well as preoxidant for HAA and THM control and reduction.

SE-2355-20 is available in 30 and 55 gallon drums, 275 gallon returnable totes and 4000 gallon bulk deliveries.

DCF

Daniel C. Flynn
Vice President-Operations
SHANNON CHEMICAL CORPORATION

Post Office Box 376 • Malvern, Pennsylvania 19355 • (610) 363-9090 • Fax: (610) 524-6050

Shannon Chemical Corp.
P.O. Box 376 Malvern, PA 19355 • Phone: (610) 363-9090 • Fax: (610) 524-6050

Safety Data Sheet

SECTION 1: IDENTIFICATION OF THE PRODUCT AND COMPANY

1.1 Product Identifier

Product Name	• **SLI-5219**
Chemical Name	• Zinc Orthophosphoric Acid
Synonyms	• Zinc Orthophosphate
CAS Number	• Not Available
SDS Number/Grade	• 0138

1.2 Use of Substance/Mixture

Recommended use	• Water treatment; corrosion inhibitor

1.3 Company Identification

Name	• Shannon Chemical Corporation
Address	• P.O. Box 376 Malvern, PA 19355

1.4 Contact Information

Information #	• (610) 363-9090
Chem Tel #	• (800) 255-3924
Emergency #	• (484) 354-9773

SECTION 2: HAZARDS IDENTIFICATION

2.1 Hazards

• **Classification of the substance or mixture**

GHS-US Classification

Acute Tox. 4 (Oral)	H302
Skin Corr. 1B	H314
STOT SE 3	H335
Aquatic Acute 1	H400
Aquatic Chronic 1	H410

Hazard Statements:

H302 – Harmful if swallowed
H314 – Causes severe skin burns and eye damage
H335 – May cause respiratory irritation
H400 – Toxic to aquatic life

Precautionary Statements:

P260 – Do not breathe fume, mist, vapors, spray
P264 – Wash thoroughly after handling
P270 – Do not eat, drink or smoke when using this product
P273 – Avoid release to the environment
P280 – Wear eye protection, face protection, protective gloves, protective clothing
P301+P312 – IF SWALLOWED: call a POISON CENTER or doctor/physician if you feel unwell
P301+P330+P331 – IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
P303+P361+P353 – IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower
P304+P340 – IF INHALED: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338 – If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P363 – Wash contaminated clothing before reuse
P391 – Collect spillage
P403+P233 – Store in a well ventilated place. Keep container tightly closed
P501 – Dispose of contents/container according to local, regional, national, and international regulations.

• **Hazard Symbols**

•**Signal Word**
DANGER!

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Composition		
Chemical Name	**Identifiers**	**%**
Phosphoric acid	**CAS:** 7664-38-2	>60
Zinc Sulfate	**CAS:** 7733-02-0	<10
Zinc Phosphate	**CAS:** 7779-90-0	<20

SECTION 4: FIRST AID MEASURES

4.1 Summary of First Aid Measures

Eye Exposure

• Flush eyes with running water for 10-15 minutes. If individual is wearing contact lenses, remove them. Hold eyelids apart while flushing with water. Seek medical attention.

Skin Exposure

• Rinse with water for 5 minutes. Remove and wash any clothing exposed to the solution before reuse. If irritation and swelling persist, seek medical attention.

Inhalation	• Remove from further exposure. Expose individual to fresh air. If not breathing, give proper artificial respiration. If breathing is difficult, trained personnel should administer oxygen. Seek immediate medical attention.
Ingestion	• If victim is conscious and alert give 2-3 glasses of water. **Do Not** induce vomiting. Do not give anything to drink to an unconscious person. Do not leave victim unattended. To prevent aspiration, lay victim on side with head lower than waist. Vomiting may occur simultaneously. Seek immediate medical attention.

4.2 Summary of Acute Health Hazards

Ingestion	• Can produce burns on the mouth and lips, severe gastrointestinal irritation, nausea, bloody diarrhea, difficult swallowing, severe abdominal pains, thirst, acidemia, difficult breathing, convulsions, collapse, shock and death.
Inhalation	• Breathing of vapor or mist is possible. Breathing this material may be harmful or fatal. Symptoms may include severe irritation and burns to the nose, throat, and respiratory tract.
Skin	• May cause permanent skin burns. Phosphoric acid may not produce an immediate burning sensation upon contact, delaying the awareness of the worker that contact has occurred. Symptoms may include redness, burning, and swelling of skin, burns, and other skin damage.
Eyes	• Can cause permanent eye injury. Symptoms include stinging, tearing, redness, and swelling of eyes. Can injure the cornea and cause blindness. Vapor or spray may cause eye damage, impaired sight or blindness.
Note to Physicians	• Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material: skin, lung, (for example, asthma like conditions).

4.3 Summary of Chronic Health	• There is no evidence that phosphorous poisoning can result from contact with phosphoric acid. The risk of pulmonary edema resulting from the inhalation of mist or spray is remote. Prolonged inhalation may cause respiratory tract inflammation and lung damage.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing Media

Suitable Extinguishing Media	• Not combustible. Use extinguishing media suitable for surrounding fire.
Unsuitable Extinguishing Media	• None

5.2 Special Hazards

Unusual Fire and Explosion Hazards	• This product is non-flammable and non-combustible.
Special Fire Fighting Procedures	• **SLI-5219** does not support combustion. Remove any containers from fire area if they have not been exposed to heat and if it can be done without risk to personnel. Use water spray to keep containers cool and to flush away any spillage away from metals and fire. Incipient fire fighters should use positive pressure self-contained breathing apparatus (SCBA).

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions, Protective Equipment & Emergency Procedures

For non-emergency personnel

Protective Equipment	• Use recommended respiratory protection. Wear suitable protective clothing, gloves and eye/face protection.
Emergency Procedures	• Stop leak if safe to do so. Eliminate ignition sources. Evacuate unnecessary personnel. Ventilate area. Keep upwind.

For emergency responders

Protective Equipment	• Use recommended respiratory protection. Wear suitable protective clothing, gloves and eye/face protection.
Emergency Procedures	• Stop leak if safe to do so. Eliminate ignition sources. Evacuate unnecessary personnel. Ventilate area.

6.2 Methods and Material for Containment and Cleaning Up

Containment	• If possible, dike spill and/or contain. Do not allow into drains or water courses or dispose of where ground or surface waters may be affected.
Cleaning Up	• Ventilate area. Small quantities of liquid spill: take up in non-combustible inert absorbent material and shovel into container for disposal. Collect absorbed material and place into sealed, labelled container to be disposed at an appropriate disposal facility according to current applicable laws and regulations and product characteristics at the time of disposal. Liquid spill: neutralize with powdered limestone or sodium bicarbonate. Practice good housekeeping – spillage can be slippery on smooth surface either wet or dry.

6.3 Environmental Precautions

If spill could enter any waterway, including intermittent dry creeks, contact the U.S. COAST GUARD NATIONAL RESPONSE CENTER at 800-424-8802. In case of accident or road spill notify CHEMTREC at 800-424-9300.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for Safe Handling

Handling

• Avoid all eye and skin contact and do not breathe vapor and mist. Wear recommended personal protective equipment. Ensure there is adequate ventilation. Keep away from heat and sources of ignition. Employ good maintenance practices to prevent leaks. Use good process control measures to prevent releases. Do not add water to acid. When diluting, always add acid to water. Causes severe burns.

7.2 Conditions for Safe Storage, Including Any Incompatibilities

Storage

• Store drums in a cool, dry location away from direct sunlight and source of heat. Keep drums tightly sealed. Use caution handling empty drums which may contain residual product, liquid and/or vapors. Store away from incompatible materials.

7.3 Specific Use(s)

• Water treatment; corrosion inhibitor

SECTION 8: EXPOSURE CONTROL/PERSONAL PROTECTION

8.1 Control Parameters

Zinc Sulfate (7733-02-0)		
USA ACGIH	ACGIH TWA (mg/m^3)	1 mg/m^3
USA ACGIH	ACGIH STEL (mg/m^3)	2 mg/m^3
USA OSHA	OSHA PEL (TWA) (mg/m^3)	1 mg/m^3
Phosphoric acid (7664-38-2)		
USA ACGIH	ACGIH TWA (mg/m^3)	1 mg/m^3
USA ACGIH	ACGIH STEL (mg/m^3)	1 mg/m^3
USA OSHA	OSHA PEL (TWA) (mg/m^3)	3 mg/m^3
Zinc Phosphate (7779-90-0)		
USA ACGIH	ACGIH TWA (mg/m^3)	1 mg/m^3

USA ACGIH	ACGIH STEL (mg/m^3)	2 mg/m^3
USA OSHA	OSHA PEL (TWA) (mg/m^3)	1 mg/m^3

8.2 Personal Protections

Respiratory Protection	• Maintain airborne contaminant concentration below exposure limits listed in Section II. When respirators are required, select NIOSH/MSHA approved equipment in accordance with the latest OSHA standard (29 CFR 1910.134)
Skin Protection	• Where direct contact is likely, wear neoprene chemical resistant gloves and a protective apron or chemical suit if necessary.
Eye Protection	• Wear chemical splash goggles and/or a face shield when eye and face contact is possible due to splashing or material handling and transfer.
Body Protection	• A rubber apron or other impermeable body protection is suggested. Full body chemical protective clothing is recommended for emergency response procedures.
Ventilation Protection	• Use material in a well-ventilated, open area to ensure exposure limits are maintained below the levels provided in section II.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 General Information

Appearance	• Clear Liquid
Odor	• Odorless
Odor Threshold	• No data available

9.2 Important Health Safety and Environmental Information

pH:	• 1.0 – 2.0
Melting Point:	• No data
Freezing Point:	• < 0°C
Boiling Point:	• 105°C
Flash Point:	• No data
Evaporation Rate:	• No data (varies with atmospheric temperature and pressure)
Flammability:	• Non flammable
Explosive Limits:	• No data
Vapor Pressure:	• 1 – 4 mmHg @ 15°C
Vapor Density:	• 3.0 (Air = 1)
Relative Density:	• 1.52
Solubility (ies):	• Complete
Viscosity:	• 30 cp @ 25°C
Product Density:	• 12.7 #/gallon

SECTION 10: STABILITY AND REACTIVITY

10.1 Chemical Stability

• Stable under normal ambient conditions of temperature and pressure.

10.2 Chemical Reactivity

• Material is hygroscopic. Acidic liquids, such as this material, may react with metals and release hydrogen gas.

10.3 Conditions to Avoid

• Extreme heat and moisture.

10.4 Incompatible Materials

• Strong bases, strong oxidizing agents, metals, sulfur, fluorine.

10.5 Hazardous Decomposition Products

• Oxides of Phosphorous, Oxides of Phosphine

10.6 Hazardous Polymerization

• Will not occur

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects

Acute Toxicity • Harmful if swallowed.

	CAS	
Phosphoric Acid	7664-38-2	**Acute Toxicity:** Ingestion/Oral-Rat LD50 • 1530 mg/kg; Skin-Rabbit LD50 • 2730 mg/kg; Inhalation-Rat LC50 • >850 mg/m^3 (exposure time 1 hour)
Zinc Sulfate	7733-02-0	**Acute Toxicity:** Ingestion/Oral-Rat LD50 • 500 mg/kg

Skin Corrosion/Irritation • Causes severe skin burns and eye damage. (pH: 1 – 1.5)
Serious Eye Damage/Irritation • Causes serious eye damage. (pH: 1 – 1.5)
Respiratory or Skin Sensitization • Not classified
Germ Cell Mutagenicity • Not classified
Carcinogenicity • Not classified
Reproductive Toxicity • Not classified
Specific Target Organ Toxicity (single exposure) • May cause respiratory irritation
Specific Target Organ Toxicity (repeated exposure) • Not classified
Aspiration Hazard • Not classified

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity	**EPA Ecological Toxicity Rating**	• High
	Acute Toxicity to Fish	• (L. macrochirus (bluegill sunfish)) 96-hr static: LC_{50} = pH 3.0 – 3.5.
	Chronic Toxicity to Fish	• Mosquito fish: LC_{50}=138 mg/L; 96 hours
	Acute Toxicity to Aquatic Invertebrates	• (Daphnia magna) 12-hr static: EC_{50} = pH 4.6; (Gammarus pulex) 12-hr static: LC_{50} = pH 3.4
	Chronic Toxicity to Aquatic Invertebrates	• No data available
	Acute Toxicity to Aquatic Plants	• Dangerous to aquatic plants at high concentrations.
	Toxicity to Bacteria	• (Activated sludge): EC_{50} = pH 2.55
	Toxicity to Soil Dwelling Organisms	• No data available
	Toxicity to Terrestrial Plants	• (Peas, beans, beets, rapeseed and weeds) Sprayed with 15-20% solution of H_3PO_4: Foliage was destroyed on all plants.
Environmental Fate	**Stability in Water**	• Ionic dissociation in water.
	Stability in Soil	• Dissolved some soil material (carbonates).
	Transport and Distribution	• Under acidic soil conditions, sparsely soluble phosphates tend to solubilize and may migrate to water.
Toxicity	• Inorganic phosphates have the potential to increase the growth of freshwater algae, whose eventual death will reduce the available oxygen for aquatic life.	
Degradation Product	**Biodegradation**	• No data avilable

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods

Sewage Disposal Recommendations • This material is hazardous to the aquatic environment. Keep out of sewers and waterways.

Waste Disposal Recommendations • Place in an appropriate container and dispose of the contaminated material at a licensed site.

Additional Information • Dispose of waste material in accordance with all local, regional, national and international regulations.

SECTION 14: TRANSPORT INFORMATION

In accordance with DOT / TDG / ADR / RID / ADNR / IMDG / ICAO / IATA

U.N. Number
• 3264

Proper Shipping Name
• Corrosive Liquid, Acidic, Inorganic, n.o.s. (contains phosphoric acid and zinc sulfate)

Dept. of Transportation Hazard Classes
• 8 – Class 8 – Corrosive material 49 CFR 173.136

Hazard Labels
• 8 – Corrosive Substances

Packing Group
• III – Minor

DOT Special Provisions (49 CFR 172.102)
• IB3 – Authorized IBCs: Metal (31A, 31B and 31N); Rigid Plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50°C or 130 kPa at 55°C are authorized, except for UN2672.
T4 – 2.65 178.274(d)(2) Normal.....178.275(d)(3)
TP1 – The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = 97 / (1+a(tr -tf))
Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees Celsius of the liquid during filling.

DOT Packaging Exceptions (49 CFR 173.xxx)
• 154

DOT Packaging Non Bulk (49 CFR 173.xxx)
• 203

DOT Packaging Bulk (49 CFR 173.xxx)
• 241

SECTION 15: REGULATORY INFORMATION

15.1 Safety, Health and Environmental Regulations/Legislation Specific for the Substance or Mixture

SARA Hazard Classification
• Acute

SARA 311/312 Hazards				
Acute	**Chronic**	**Flammability**	**Pressure**	**Reactivity**
Yes	No	No	No	No

CERCLA Hazardous Substances	• This product contains the following CERCLA hazardous substance(s) subject to the National Response Center (NRC) reporting requirements if released to the environment in quantities greater than or equal to the substance's CERLA Reportable Quantity (RQ). Phosphoric Acid, CAS#7664-38-2 CERCLA RQ = 5,000 lbs. Zinc Sulfate, CAS#7733-02-0 CERCLA RQ = 1,000 lbs.
California Prop 65 Chemicals	• This product does not contain any chemicals known to the state of California to cause cancer and birth defects or other reproductive harm.
Hazard Label Warning	• This product requires the following hazard label warning: Corrosive, Class 8.
TSCA (Toxic Substances Control Act)	• All chemical substances in this product are listed on the U.S. TSCA Inventory List.

U.S. State Regulations

Zinc Sulfate (7733-02-0)
U.S. – Massachusetts – Right To Know List
U.S. – Minnesota – Hazardous Substance List
U.S. – New Jersey – Right To Know Hazardous Substance List
U.S. – Pennsylvania – Right To Know List

The following states have an OSH program approved by OSHA. If you are located in any of these states you may be under state jurisdiction rather than federal jurisdiction and your state may have more stringent requirements than OSHA. You should consult your state regulations to ensure compliance.

Phosphoric Acid (7664-38-2)

Alaska	Indiana	Minnesota	North Carolina	Utah
Arizona	Iowa	Nevada	Oregon	Vermont
California	Kentucky	New Mexico	Puerto Rico	*Virgin Islands
*Connecticut	Maryland	*New Jersey	South Carolina	Virginia
Hawaii	Michigan	*New York	Tennessee	Washington
*Illinois				Wyoming

*The state plans in these states apply only to public sector employers. In these states private sector employers are subject to USOL – OSHA jurisdiction. All other state plans apply to both public and private sector employers.

SECTION 16: OTHER INFORMATION

NFPA Health Hazard • 2 – Short exposure could cause serious temporary or residual injury even though prompt medical attention was given.

NFPA Fire Hazard • 0 – Materials that will not burn

NFPA Reactivity • 0 – Normally stable, even under fire exposure conditions, and are not reactive with water.

Acute Tox. 4 (Oral)	Acute Toxicity (oral) Category 4
Aquatic Acute 2	Hazardous to the aquatic environment – Acute Category 2
Eye. Dam 1	Serious eye damage/ eye irritation Category 1
Eye Irrit. 2B	Serious eye damage/ eye irritation Category 2B
Skin Corr. 1A	Skin corrosion/irritation Category 1A
STOT SE	Specific target organ toxicity (single exposure) Category 3
H290	May be corrosive to metals
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H335	May cause respiratory irritation

Preparation Date: 01/01/2014

Last Revision Date: 06/01/2015

Disclaimer/Statement of Liability • The information herein is given in good faith but no warranty, expressed or implied, is made.

Shannon Chemical Corp.
P.O. Box 376 Malvern, PA 19355 • Phone: (610) 363-9090 • Fax: (610) 524-6050

Safety Data Sheet

SECTION 1: IDENTIFICATION OF THE PRODUCT AND COMPANY

1.1 Product Identifier

Product Name:	**SE-2355-20**
Trade Name:	SE-2355-20
Synonyms :	Sodium Permanganate Solution
CAS Number	10101-50-5
SDS Number/Grade	0072

1.2 Use of Substance/Mixture

Recommended use:	Oxidizer

1.3 Company Identification

Name	Shannon Chemical Corporation
Address	P.O. Box 376 Malvern, PA 19355

1.4 Contact Information

Information #:	(610) 363-9090
Chem Tel #:	(800) 255-3924
Emergency #:	(800) 860-9090

SECTION 2: HAZARDS IDENTIFICATION

2.1 Emergency Overview

• **SE-2355-20** is an odorless, dark purple liquid.

• The primary routes of exposure for **SE-2355-20** are through inhalation, ingestion, skin absorption, and skin or eye contact.

HMIS Rating: Health- 2 Fire- 1 Reactivity- 2
0-Minimal; 1-Slight Hazard; 2-Moderate Hazard; 3-Serious Hazard; 4-Severe Hazard

DANGER! Extremely powerful oxidizer. Will react violently with oxidizable materials.

2.2 Potential Health Effects

Inhalation:	• Acute inhalation toxicity data are not available. However, airborne concentrations of sodium permanganate in the form of mist may cause irritation to the respiratory tract.
Contact with Eyes:	• **SE-2355-20** is damaging to eye tissue on contact. It may cause burns that result in damage to the eye.
Contact with Skin:	• Momentary contact of solution at room temperature may be irritating to the skin, leaving brown stains. Prolonged contact is damaging to the skin.
Ingestion	• **SE-2355-20** if swallowed, may cause burns to mucous membranes of the mouth, throat, esophagus, and stomach.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Sodium Permanganate Component

%	• 21 ± 1
CAS-No.	• 10101-50-5
Hazard Data	• PEL/C 5.0mg/m^3
	• TLV-TWA 0.20mg/m^3
UN#	• 3214
Hazard Symbols	

SECTION 4: FIRST AID MEASURES

4.1 Eye Exposure

• Flush eyes immediately with water while holding eyelids apart and open for 15 minutes. Seek prompt medical attention.

4.2 Skin Exposure

• Wash contaminated area with soap and water. Seek medical attention if a rash appears or irritation is severe. Note: clothing must be rinsed with water immediately. Sodium Permanganate solution may react and ignite certain fabrics and textiles. Thoroughly wash all contaminated clothing

.

4.3 Inhalation

• Use caution and do not breathe mist or vapors. If exposed move to open fresh air. If breathing is difficult or stopped, administer oxygen, resuscitate, and call 911.

4.4 Ingestion

• Seek prompt medical attention. If an individual swallows product give copious amounts of water. NEVER give anything by mouth to an unconscious person.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing Media

Suitable Extinguishing Media	• Use large quantities of water.
Unsuitable Extinguishing Media	• Do not use foam, day chemicals, carbon dioxide or halon.

5.2 Special Hazards

Unusual Fire and Explosion Hazards	• Extremely strong oxidizing agent. Keep away from heat. Do not allow contact with acids, peroxides, combustible materials, organics or any metals. May ignite wood and/or cloth
Special Fire Fighting Procedures	• Apply excess water to any fire. Wear self-contained breathing apparatus.
Flash Point	• None
NFPA Rating:	Health- 2 Fire- 1 Reactivity- 2

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions, Protective Equipment & Emergency Procedures

Personal Precaution	• Use proper personal protection equipment at all times when handling **SE-2355-20**. Remove all ignition sources in areas close to product.
Environmental Precaution	• Do not allow product to enter sewer system, drains, surface water, or well water. Notify proper state agencies immediately.

6.2 Methods and Material for Containment and Cleaning Up

Containment/Clean-up	• Immediately try to contain or dike effected area. Use diatomaceous earth or cover floor with dry absorbent product. DO NOT USE SAW DUST or other incompatible materials. Dilute solution to 5% with water. Reduce with a thiosulfate, bisulfite, or iron salt. Neutralize solution using soda ash. Filter and decant solution. Deposit sludge in approved landfill and according to all Federal State and local regulations.

Note: Do not use paper towels or any paper products to clean up spill. This may start a fire.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for Safe Handling

Handling	• Always wash hands with soap and water after handling. Provide proper ventilation. Do not eat, drink or smoke near **SE-2355-20**.

7.2 Conditions for Safe Storage, Including Any Incompatibilities

Storage	• Do not store near combustible products. All containers need to be properly sealed. Keep away from sunlight and heat. Store in accordance with NFPA 430 requirements for a Class II oxidizer.
Ventilation	• Allow sufficient ventilation (natural or mechanical) to maintain exposure below TLV/TWA.

SECTION 8: EXPOSURE CONTROL/PERSONAL PROTECTION

8.1 Personal Protections

Respiratory Protection	• If the potential to exposure of mists or vapor exists always use an approved N105H-MSHA mist respirator.
Hand Protection	• Wear protective rubber or plastic gloves.
Eye Protection	• Wear protective eye protection. i.e. face shield, goggles, safety glasses.
Other Protection	• Wear chemical protective apron if the potential for splashing exists. Remove clothing immediately if contaminated. Spontaneous ignition of clothing may occur.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 General Information

Appearance	• Dark, deep purple color
Odor	• None

9.2 Important Health Safety and Environmental Information

Density	• 9.75#/gallon ± 0.1
Specific Gravity	• 1.17 ± 0.03
Solubility	• Complete

Boiling Point	• 101°C (214°F)
Freezing Point	• -0.5°C
pH	• 7.0 ± 1.0
Vapor Pressure	• 760mm Hg at 105°C
Percent Volatile	•80%

SECTION 10: STABILITY AND REACTIVITY

10.1 Chemical Stability

• **SE-2355-20** is stable under normal ambient conditions of temperature and pressure.

10.2 Conditions to Avoid

• Heat, sunlight, acids, peroxides, metals, metal oxides, organics, any oxidizable materials

10.3 Incompatible Materials

• None

10.4 Hazardous Decomposition Products

• Avoid contact with HCL. Hydrochloric acid this may cause chlorine gas to be generated.

10.5 Hazardous Polymerization

• Will not occur

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Acute Toxicity

Irritating to skin and body tissues. There is no established acute toxicity for Sodium Permanganate. It is logical to assume acute toxicity will be very similar if not identical to that of potassium permanganate which is listed below.

Ingestion	• LD 50 oral rat: 780 mg/kg male (14 days); 525 mg/kg female (14 days). • Harmful if swallowed. ALD: 10g. Ingestion may cause nausea, vomiting, sore throat, stomach-ache and eventually lead to a perforation of the intestine. Liver and kidney injuries may occur.
Skin Contact	•LD 50 dermal: no data available Major effects of exposure: severe irritation, brown staining of skin.

Inhalation	•LC 50 inhal. No data available. The product may be absorbed into the body by inhalation. Major effects of exposure: respiratory disorder, cough.

11.2 Chronic Toxicity

No data or known cases of chronic poisoning due to over exposure to permanganates.

11.3 Carcinogenicity

SE-2355-20 has not been classified as a carcinogen by ACGIH, NIOSH, OSHA, NTP, or IARC.

SECTION 12: ECOLOGICAL INFORMATION

No aquatic toxicity is available for sodium permanganate. Toxicity is expected to be similar to that of potassium permanganate. The toxicity data for potassium permanganate is given below:

96Hr LC50	Rainbow trout	1.8mg/L
96Hr LC50	Bluegill sunfish	2.3mg/L
96Hr LC50	Mike fish (Chanos Chanos)	1.4mg/L
96Hr LC50	Carassius auratus	3.3 – 3,93mg/L (static)
96Hr LC50	Cyprinus carpio	2.97 – 3.11mg/L
96Hr LC50	Cyprinus carpio	3.16 – 3.77mg/L
96Hr LC50	Lepomis macrochirus	2.3mg/L (flow-through)
96Hr LC50	Lepomis macrochirus	1.8 – 5.6mg/L (static)
96Hr LC50	Lepomis macrochirus	2.7mg/L (static)
96Hr LC50	Oncorhynchus mykiss	1.08 – 1.38 mg/L

SECTION 13: DISPOSAL CONSIDERATIONS

• Sodium Permanganate is a D001 hazardous (ignitable) waste. Follow all Federal, State and Legal regulations for proper disposal.

SECTION 14: TRANSPORT INFORMATION

Proper Shipping Name	• Permanganates, Inorganic, Aqueous solution, n.o.s. (contains sodium permanganate)
DOT Hazard Class	• Oxidizer
U.N. Identification	• 3214
Packaging Group	• II
Division	• 5.1

SECTION 15: REGULATORY INFORMATION

OSHA Status	• This product is hazardous under the criteria of the Federal OSHA Hazard Communication Standard CFR 1910.1200.
TSCA Status:	• Listed in the TSCA inventory
SARA Extremely Hazardous Substances:	• This product does not contain any chemicals subject to reporting requirements.
SARA Hazard Categories	• Acute Y • Chronic Y • Fire Y • Pressure Y
CERCLA Reportable Quantity	•No DOT reportable quality.
RCRA Status:	•If discarded in this form (20% solution) the product is considered a D001 hazardous (ignitable) waste.

SECTION 16: OTHER INFORMATION

Preparation Date: 01/01/2014
Last Revision Date: 06/01/2015

NSF International

OFFICIAL LISTING

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

This is the Official Listing recorded on March 15, 2017.

Shannon Chemical Corp.
P.O. Box 376
Malvern, PA 19355
610-363-9090

Facility: Exton, PA

Chemical/ Trade Designation	Function	Max Use	
Blended Corrosion Inhibitor			
SHAN-NO-CORR Lead Free	Corrosion & Scale Control	14.8	mg/L
SNC-4442	Corrosion & Scale Control Sequestering	13	mg/L
SNC-Lead Free	Corrosion & Scale Control	14.8	mg/L
SNC-N2	Corrosion & Scale Control	10	mg/L
SNC-NO LEAD	Corrosion & Scale Control	14.8	mg/L
Blended Phosphates			
SLI-1226	Corrosion & Scale Control	27	mg/L
SLI-5215	Corrosion & Scale Control Sequestering	28	mg/L
SLI-5225	Corrosion & Scale Control Sequestering	26	mg/L
SLI-5230	Corrosion & Scale Control Sequestering	28	mg/L
SLI-5240	Corrosion & Scale Control Sequestering	28	mg/L
SLI-5250	Corrosion & Scale Control Sequestering	28	mg/L
SLI-5260	Corrosion & Scale Control Sequestering	28	mg/L
SLI-5270	Corrosion & Scale Control Sequestering	28	mg/L
SLI-5275	Corrosion & Scale Control Sequestering	30	mg/L
SLI-5285	Corrosion & Scale Control Sequestering	28	mg/L
SLI-5370	Corrosion & Scale Control Sequestering	28	mg/L
SLI-5385	Corrosion & Scale Control Sequestering	28	mg/L
SLI-7150	Corrosion & Scale Control	30	mg/L
SLI-7275	Corrosion & Scale Control Sequestering	30	mg/L

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

41630

789 N. Dixboro Road, Ann Arbor, Michigan 48105-9723 USA
1-800-NSF-MARK / 734-769-8010
www.nsf.org

SLI-7425	Corrosion & Scale Control Sequestering	28	mg/L
SLI-7450	Corrosion & Scale Control Sequestering	28	mg/L
SLI-7575	Corrosion & Scale Control Sequestering	36	mg/L
SLI-B	Corrosion & Scale Control	27	mg/L
SLI-DP	Corrosion & Scale Control	30	mg/L
SLI-HP	Corrosion & Scale Control Sequestering	30	mg/L
SLI-K200	Corrosion & Scale Control Sequestering	36	mg/L
SNC-1226	Corrosion & Scale Control	14	mg/L
SNC-5210	Corrosion & Scale Control Sequestering	10	mg/L
SNC-5220	Corrosion & Scale Control Sequestering	10	mg/L
SNC-5225	Corrosion & Scale Control Sequestering	10	mg/L
SNC-5230	Corrosion & Scale Control Sequestering	10	mg/L
SNC-5240	Corrosion & Scale Control Sequestering	10	mg/L
SNC-5250	Corrosion & Scale Control Sequestering	10	mg/L
SNC-5270	Corrosion & Scale Control Sequestering	10	mg/L
SNC-5275	Corrosion & Scale Control Sequestering	10	mg/L
SNC-5295	Corrosion & Scale Control Sequestering	10	mg/L
SNC-5420	Corrosion & Scale Control Sequestering	10	mg/L
SNC-5520	Corrosion & Scale Control Sequestering	10	mg/L
SNC-7220	Corrosion & Scale Control Sequestering	12	mg/L
SNC-7435	Corrosion & Scale Control Sequestering	10	mg/L
SNC-HW	Corrosion & Scale Control	10	mg/L
SNC-RS2	Corrosion & Scale Control	10	mg/L
SNC-TYPE B	Corrosion & Scale Control	10	mg/L
Citric Acid [2] [3]			
SE-CA-50	Membrane Cleaner Well Cleaning Aid	N/A	
Hydrofluosilicic Acid			
SE-1900 L-25	Fluoridation	6	mg/L
Miscellaneous Corrosion Chemicals			
SHAN-NO-CORR [ZN]	Corrosion & Scale Control	10	mg/L
SHAN-NO-CORR Plus, SNC + [ZN]	Corrosion & Scale Control	10	mg/L

789 N. Dixboro Road, Ann Arbor, Michigan 48105-9723 USA
1-800-NSF-MARK / 734-769-8010
www.nsf.org

SHAN-NO-CORR TYPE L [ZN]	Corrosion & Scale Control	20	mg/L
SHAN-NO-CORR TYPE N [ZN]	Corrosion & Scale Control	10	mg/L
SHAN-NO-CORR-ZOP [ZN]	Corrosion & Scale Control	10	mg/L
SLI-333 [ZN]	Corrosion Control	25	mg/L
SLI-444 S	Corrosion & Scale Control	25	mg/L
SNC-444	Corrosion & Scale Control	10	mg/L
SNC-444 S	Corrosion & Scale Control	18.6	mg/L
SNC-ZOP 123 [ZN]	Corrosion & Scale Control	11	mg/L
SNC-ZOP 321 [ZN]	Corrosion & Scale Control	11	mg/L
Miscellaneous Treatment Chemical			
RSC-100X [1]	Ion Exchange Supplement	750	mg/L
Monosodium Orthophosphate			
SLI-5179	Corrosion Control	25	mg/L
SLI-SE 100	Corrosion Control	25	mg/L
SNC-5179	Corrosion & Scale Control Sequestering	12.6	mg/L
SNC-MSP	Corrosion & Scale Control Sequestering	12.6	mg/L
Phosphoric Acid			
SLI-PHOS 36	Corrosion & Scale Control	25	mg/L
SLI-PHOS 50	Corrosion & Scale Control	20.5	mg/L
SLI-PHOS 75	Corrosion & Scale Control	12	mg/L
Potassium Permanganate [PO]			
SE-3955 C	Disinfection & Oxidation Oxidant	50	mg/L
SE-3955 F	Disinfection & Oxidation Oxidant	50	mg/L
SE-3955 N	Disinfection & Oxidation Oxidant	50	mg/L
Sodium Acid Pyrophosphate			
SNC-318	Corrosion & Scale Control	12	mg/L
SNC-5185	Corrosion & Scale Control	12	mg/L
Sodium Permanganate [PO]			
SE-2355-10	Disinfection & Oxidation Oxidant	352	mg/L
SE-2355-15	Disinfection & Oxidation Oxidant	234	mg/L
SE-2355-20	Disinfection & Oxidation Oxidant	176	mg/L
SE-2355-25	Disinfection & Oxidation Oxidant	140	mg/L
SE-2355-40	Disinfection & Oxidation Oxidant	88	mg/L
Sodium Polyphosphates, Glassy			
SHAN-O-PHOS	Corrosion & Scale Control Sequestering	10.7	mg/L
SLI-5125	Corrosion & Scale Control Sequestering	42.8	mg/L
SLI-5130	Corrosion & Scale Control Sequestering	35.6	mg/L

789 N. Dixboro Road, Ann Arbor, Michigan 48105-9723 USA
1-800-NSF-MARK / 734-769-8010
www.nsf.org

SLI-5135	Corrosion & Scale Control Sequestering	30.5	mg/L
SLI-5140	Corrosion & Scale Control Sequestering	26.7	mg/L
SLI-5145	Corrosion & Scale Control Sequestering	23.8	mg/L
SLI-5150	Corrosion & Scale Control Sequestering	21.4	mg/L
SLI-5155	Corrosion & Scale Control Sequestering	19.5	mg/L
SLI-5160	Corrosion & Scale Control Sequestering	17.8	mg/L
SLI-Quest 25	Corrosion & Scale Control Sequestering	42.8	mg/L
SLI-Quest 30	Corrosion & Scale Control Sequestering	35.6	mg/L
SLI-Quest 35	Corrosion & Scale Control Sequestering	30.5	mg/L
SLI-Quest 40	Corrosion & Scale Control Sequestering	26.7	mg/L
SLI-Quest 45	Corrosion & Scale Control Sequestering	23.8	mg/L
SLI-Quest 50	Corrosion & Scale Control Sequestering	21.4	mg/L
SLI-Quest 55	Corrosion & Scale Control Sequestering	19.5	mg/L
SLI-Quest 60	Corrosion & Scale Control Sequestering	17.8	mg/L
SNC-5190	Corrosion & Scale Control Sequestering	10.7	mg/L
Sodium Tripolyphosphate			
SHAN-O-POLY	Corrosion & Scale Control Sequestering	12	mg/L
SNC-5177	Corrosion & Scale Control Sequestering	12	mg/L
Tetrapotassium Pyrophosphate			
SLI-6120	Corrosion & Scale Control Sequestering	30	mg/L
SLI-6134	Corrosion & Scale Control Sequestering	22.5	mg/L
SLI-K100	Corrosion & Scale Control Sequestering	30	mg/L
SLI-KPHOS	Corrosion & Scale Control Sequestering	22.5	mg/L
SNC-6157	Corrosion & Scale Control Sequestering	14	mg/L
SNC-KPHOS	Corrosion & Scale Control Sequestering	14	mg/L
Zinc Chloride [ZN]			
SLI-2125	Corrosion & Scale Control	15	mg/L
SLI-2150	Corrosion & Scale Control	8	mg/L

789 N. Dixboro Road, Ann Arbor, Michigan 48105-9723 USA
1-800-NSF-MARK / 734-769-8010
www.nsf.org

SLI-2162	Corrosion & Scale Control	6	mg/L
Zinc Orthophosphate [ZN]			
SLI 3535	Corrosion & Scale Control	24	mg/L
SLI 4217	Corrosion & Scale Control	28	mg/L
SLI 5050	Corrosion & Scale Control	17	mg/L
SLI-1010	Corrosion & Scale Control	20	mg/L
SLI-1021	Corrosion & Scale Control	22	mg/L
SLI-1521-C	Corrosion & Scale Control	22	mg/L
SLI-2020	Corrosion & Scale Control	10	mg/L
SLI-321	Corrosion & Scale Control	10	mg/L
SLI-321L	Corrosion & Scale Control	10	mg/L
SLI-5024	Corrosion & Scale Control	16	mg/L
SLI-5210	Corrosion & Scale Control	20	mg/L
SLI-5215	Corrosion & Scale Control	40	mg/L
SLI-5216	Corrosion & Scale Control	29	mg/L
SLI-5217	Corrosion & Scale Control	28	mg/L
SLI-5218	Corrosion & Scale Control	25	mg/L
SLI-5219	Corrosion & Scale Control	22	mg/L
SLI-7215	Corrosion & Scale Control	28	mg/L
SLI-932	Corrosion & Scale Control	26	mg/L
SLI-939	Corrosion & Scale Control	25	mg/L

[1] This product is designed to be used in conjunction with ion exchange resins for the purpose of reducing radium from drinking water.

[2] 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.

[3] 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.

[PO] The finished drinking water shall be monitored to ensure that levels of manganese do not exceed 0.05 mg/L.

[ZN] Based on an evaluation of health effects data, the level of zinc in the finished drinking water shall not exceed 2.0 mg/L.

789 N. Dixboro Road, Ann Arbor, Michigan 48105-9723 USA
1-800-NSF-MARK / 734-769-8010
www.nsf.org