

Arsenic Removal Equipment
Request for Sealed Bids
Goodrich Area Schools

Goodrich Area Schools is seeking sealed bids for the purchase and installation of Arsenic Removal Equipment. Bids should be addressed to Brian Walton, Arsenic Removal Bid, Goodrich Area Schools, 8029 S. Gale Road, Goodrich, MI 48438 and must be received by 12:01 pm, September 8, 2005. Bids received after this time will not be accepted. The bid shall be accompanied by a sworn and notarized statement that complies with MCL 380.1267 disclosing any familial relationship that exists between the Owner or the employee of the bidder and any member of the Board of Education or the Superintendent of the school district. The District shall not accept a bid that does not include this sworn and notarized disclosure statement. There will be a public opening of bids at 1:00 pm on September 8, 2005 at Goodrich Area Schools Central Office. After review a recommendation for award will be made to the Goodrich Area School Board on September 12, 2005. Goodrich Area Schools reserves the right to reject any or all proposals, to accept other than a low bid, and to waive informalities, irregularities and/or errors in proposals, which they believe to be in the best interest of the district. All questions should be directed to Brian Walton (810) 591-5222.

GOODRICH AREA SCHOOLS IS AN EQUAL OPPORTUNITY EMPLOYER

Arsenic Removal Equipment

Part 1 – General

1.01 Section Includes:

- A. Water Treatment System (Arsenic)

1.02 Quality Assurance:

- A. Ensure products and installations of specified products are in compliance with recommendations and requirements of the following organizations:
 - 1. Environmental Protection Agency (EPA).
 - 2. National Sanitation Foundation (NSF) (ANSI/NSF 61).
 - 3. Food and Drug Administration (FDA).

1.03 Submittals:

- A. Submit in accordance with General Requirements.
- B. Product Data: Indicate utility rough-in locations, sizes and connections, equipment dimensions and weights; required clear floor area clearances; include manufacturer's installation instructions.
- C. Operation and Maintenance Data: Provide manufacturer's literature on equipment operation and settings.

1.04 Warranty

- A. Provide manufacturer's five (5) year limited warranty in accordance with General Requirements.

Part 2 - Products:

2.01 Water Treatment System (Arsenic):

- A. Description: Vertical pressure filter system that meets the requirements of this specification. The system shall include all equipment necessary for a complete operational system.
- B. The Contractor shall be responsible for supplying, installing and placing the filter system into operation. The Contractor/Manufacturer shall guarantee the system will perform within the ranges specified within this Specification.
- C. This Specification has been prepared on the basis of specific performance requirements for this site application. Equipment shall meet or exceed the requirements of this Specification.
- D. Layout: The system consists of vertical pressure vessels operating in a parallel layout with associated piping and controls. The system shall be capable of fully automatic backwash operation.
- E. Media: The media shall be a granular media that will effectively remove Arsenic to the required limits of the system.
- F. Filter Rate: The proposed system shall be designed to filter water at a rate of 3-3.5 gpm sq/ft.
- G. Filter Vessels: System shall consist of three (3) filter vessels, thirty-six (36) inches in diameter, seventy-two (72) inches tall, not including the base, fabricated from composite fiberglass, rated for 150 PSI operating pressure. Internal under drain system shall be manufactured of 1-1/2 inch Schedule 80 PVC high flow hub and lateral system for a top-mount valve. Alternate tank design is acceptable if it meets the filter rate specification.
- H. Automation: Automatic controls with manual override for complete control of normal filtration, backwash and rinse shall be provided. Programming is to be provided by the system manufacturer and pre-tested prior to delivery to the site.
- I. Electronics: Electronic control fully programmable and is adaptable over a wide range of filter applications and shall include the following:
 1. Media Lifespan indicator
 - An audible and visual indicator informs the user to check the media.
 - The lifespan value can be programmed to accommodate a range of system sizes.
 2. Programmable Output Signal
 - Provides an optional flow-based dry contact closure for chemical feed.
 3. Low Chemical Feed Indicator
 - A visual indicator informs the user of low chemical level
 4. No Flow Indicator
 - Informs the user that flow meter requires maintenance.

- J. High Performance Valve: The valve and diaphragm are to be designed to provide reliable and trouble-free operation. The valve body is molded in lightweight thermoplastic material, allowing for easy servicing. Two (2) inch inlet/outlet connections along with an easy access meter assembly allow for quick installation and setup. Excellent backwash flow capabilities allow for use on a large range of system sizes. All valve components are easily accessible for quick and trouble-free servicing.
- K. Media: All media shall be NSF standard 61 with no limitations, certified for potable water usage. Media can be regenerated for extended life will be used. One (1) complete load of media material and support gravel shall be provided. The placement of the media and support concrete (where required) shall be in accordance with and under the supervision of the system vendor or authorized representatives.
- L. Performance Guarantee: Supplier shall warrant that treated water will contain less than 10mg/l of arsenic (over the life of the system). The system shall also remove iron to less than 0.1 mg/l. Provided that a water source is available upon completion of the installation; the manufacturer shall demonstrate satisfactory performance and treatment capability as specified herein. The system shall not generate with more than 5 gpm of backwash water per square foot of filter area during normal backwash operations. The characteristics of the backwash water discharged to the sanitary sewer shall not exceed 10 mg/l arsenic and shall not consist of above normal amounts of sediment. Replacement of the media shall not require disposal at a hazardous waste facility. Expired media shall be capable of being disposed of at a non-hazardous waste facility.
- M. Water Characteristics: A laboratory analysis of the representative raw water quality is provided in the appendix. The raw water has arsenic concentration of approximately twenty-eight parts per billion (PPB), .04 mg/L Iron, PH 7.3 at Oaktree Elementary and forty-seven (PPB), .05 mg/L Iron, PH not available, at Goodrich High School.

2.02 Equipment Characteristics:

- A. All components of the system described herein shall be fabricated and manufactured from new, unused materials, free from defects and of the highest quality possible.
- B. The materials shall be of the configuration, quantity and design features as described on the Equipment Schedule found in this Specification.
- C. Furnish all equipment shown on the plans, drawings and contained herein:

Materials and Equipment

Design Flow Rate	50gpm
Filter Surface Loading Rate	3 gpm/sf

Vessel Construction

Number of Vessels	Three (3) or alternate
Vessel Diameter	Thirty-Six (36") Inches
Design working Pressure	150 psi
Surface Area per Vessel	4.91 sf

Media Loss Guarantee

One (1) inch per year or less

Vessel Miscellaneous Components

Distributor Assembly Sizing

Multiple ¾ inch
S/80 PVC Slotted

Valves

Function

Inlet
Effluent
Backwash Waste
Backwash Fixed Rate
Filter Bypass
Filter to Waste

Size

2”
2”
1-1/2”
35 gipm @ 5 gpm per sq/ft
2”
1-1/2”

Effluent Performance Warranty

Iron

<0.1 mg/l

Arsenic

<10 PPB

Part 3 – Execution

3.01 Water Treatment System Installation

- A. Install water treatment system in accordance with manufacturer’s instructions and to AGA, NSF, and UL requirements.
- B. Coordinate with plumbing piping and related work to achieve operating system.

3.02 Tank Installation

- A. Install tanks in accordance with manufacturer’s instructions.
- B. Seal until pipe connections are made. Clean and flush tank after installation.