202301030073
01/03/2023 02:23 PM Pages: 1 of 14 Fees: $216.50
Skagit County Auditor

Return to:

Lisser & Associates, PLLC
PO Box 1109
Mount Vernon WA 98273
Phone: (360) 419-7442
Fax: (360) 419-0581

Document Title(s) (*or transactions contained herein*):
Residential Well Arsenic Removal Plan, Design, Equipment Manual and As-built Verification

( ) Additional Reference Numbers on page ____ of document

Grantor(s) *(Last name, first name and initials):*
1. Dykstra, Henry
2. Dykstra, Charlotte
3.
4.

( ) Additional names on page _____ of document

Grantee(s) *(Last name, first name and initials):*
1. Skagit County
2.
3.
4.

( ) Additional names on page _____ of document

Legal Description *(Abbreviated: i.e. lot, block, plat or quarter, section, township and range):*
Portion SW 1/4 SE 1/4 Sec 32, Twp 35 N, Rge 3 E W.M.
(Lot 2, Short Plat No. PL-20-0484)

( ) Additional legal(s) on page _____ of document

Assessor's Parcel/Tax I.D. Number:
P-35287

( ) Tax Parcel Number(s) for additional legal(s) on page _____ of document

DAHLMAN Pump & Well Drilling, Inc.

SALES • PUMPS • SERVICE • WELL DRILLING

DAHLMPW123LC

Scott J. Fowler
President

Bruce M. Fowler
CEO

17313 Cook Road, Bow
P.O. Box 422
Burlington, WA 98233

(360) 757-6666
Fax (360) 757-7353
1-800-277-4898

December 15, 2022

Henry Dykstra
12542 Gwen Drive Unit 7
Burlington, WA 98233

RE: 11856 Ten Acres Lane
Burlington

On November 16, 2022, an arsenic system was installed at 11856 Ten Acres Lane. The equipment was installed per Carl Garrison's design and equipment manual requirements.

If you have any questions, please contact our office.

Sincerely,

Bruce M. Fowler, CWD/PI

GARRISON ENGINEERING

August 31st, 2022

Henry Dykstra
6218 NE 137th St,
Kirkland WA 98034

Re: Residential Arsenic Removal Design (GEC # 22039)

Henry:

Garrison Engineering has examined the existing equipment for the subject residence and is recommending it's use for arsenic treatment. This system will also treat other co-contaminates from the drinking water for the property listed below.

WELL AND PROJECT LOCATION:

Site:
11856 Ten Acres Lane
Mount Vernon, WA 98273

DOE Well ID ~~#BMG 653~~ BPA 751

DESIGN AND SPECIFICATIONS:

To comply within 10 parts per billion (ppb) of arsenic for domestic water used for drinking and cooking, Garrison Engineering recommends using a combination of a Nelson A-10 point of entry (POE) filter as well as a Adedge AD2710 point of use (POU) filter. The POU filter shall be installed under the kitchen sink. See the attached schematic, specifications, and manufacturer information for additional details.

We have also included the following equipment to pre-treat the co-contaminants present in the raw water:

- Fleck 2510 SXT 1054 Water Softener sold by Aqua Science

The Nelson A-10 oxidation/filtration iron filter will remove sulfur smell, iron, and some arsenic from the raw water. The water softener will remove hardness and manganese. If the pretreatment equipment malfunctions for an extended period of time, water quality will become noticeably poor.

DESIGN CRITERIA:

1. Expected Water Supply:

   From the Nelson A-10 Filter:
   - The Nelson A-10 water filter a service rate of 10 gpm, with a peak flow of 15 gpm.

   From the Fleck 2510 SXT 1054 Water Softener:
   - The Water Right Impression water conditioner has a continuous flow rate of 7 gpm, with a peak of 17 gpm.

From the Adedge POU filter:

- .5 gpm service rate.
- Over 100,000 gallons of treated water total are expected prior to filter element replacement.

2. Locations where treated water will be supplied:

From the Nelson A-10 and Fleck 2510 SXT 1054 Water Softener:

- Pretreated water will be supplied to the entire residence.

From the Adedge POU filter:

- Water treated for arsenic and other impurities will only be available at kitchen sink and refrigerator (if applicable).

3. Water quality parameters considered in the design of the treatment process:

- A sample of water was taken on 10/15/20 from the subject property that contained arsenic levels of 0.0170 mg/L as tested by Edge Analytical in Burlington, WA. Ref.# 20-35391 Lab# 046-67255.
- Edge Analytical also tested secondary contaminants. Of concern is hardness at 155 mg/L and a sulfur smell was reported by the owner.
- Garrison Engineering's arsenic removal design is based on the water analyses attached. If conditions change, or if there are other constituents in the water that are unknown at this time, treatment techniques may need to be modified.
- The designed system is considered by Garrison Engineering as a full-scale pilot test. The final treated water system must be tested for compliance with 10.0-ppb arsenic at a Washington State certified laboratory.

4. Minimum operation and maintenance requirements for the treatment process:

For the Nelson A-10 Filter:

- The media should last for 15+ years. If sulfur smell becomes noticeable in the future, the filter head should be taken off, cleaned, and inspected to make sure it is working properly.
- It is recommended that a qualified service technician check the equipment operation a minimum of once a year to help ensure the system is working properly. This includes verifying the backwash frequency and verifying that the backwash cycle performs as intended.
- The frequency of service by a qualified technician other than the owner is dependent upon how well the owner understands the treatment system and how well the owner monitors, adjusts, and maintains the system to meet the specified requirements. If the homeowner is ever unsure about the system, its operation, maintenance schedule, etc. Garrison Engineering recommends contacting a qualified technician for routine maintenance and service assistance.

For the Water Softener:

- To ensure the treatment system operates properly it is important to maintain a sufficient level of salt in the brine tanks. It is recommended to check the level of salt in each brine tank at least once a week and refill as necessary with water softener salt.
- If the treated water quality changes, check the operation of the water softener. Also, check to see that brine is being used during the regeneration

cycle of the softener. Sometimes, the brine injector can become plugged, preventing brine from being drawn into the control head during back washing. Clean the brine tube, as necessary. Review the manufacturer's troubleshooting guide for additional information.

- It is recommended that a qualified service technician check the equipment operation a minimum of once a year to help ensure the system is working properly. This includes verifying the backwash frequency and verifying that the backwash cycle performs as intended.
- The frequency of service by a qualified technician other than the owner is dependent upon how well the owner understands the treatment system and how well the owner monitors, adjusts, and maintains the system to meet the specified requirements. If the homeowner is ever unsure about the system, its operation, maintenance schedule, etc. Garrison Engineering recommends contacting a qualified technician for routine maintenance and service assistance.

For the Adedge POU Arsenic filter:

- The minimum maintenance of the proposed arsenic filter is periodic replacement of the two filter elements. The filters should be changed when the countdown meter stops water from flowing. Always reset the countdown meter to 1000 gallons after new filters are installed.

5. Method of treatment process and residuals management:

From the Nelson A-10 Filter and from the Water Softener:

- The regeneration water from the softener should be disposed of in a nearby grassy area, i.e., pasture or drainage swale, or its own drain field downstream and at least 100 feet away from any existing wells.
- It is not recommended to place the backwash water in a septic system without approval from a licensed septic designer.

From the Arsenic POU filter:

- The spent filters can be disposed of in the regular garbage.

6. Minimum ongoing testing requirements:

For the Nelson A-10 Filter:

- No additional testing will be necessary. If sulfur smell becomes present in the system, it may be due to this filter. If so, have it services as described above in element #4 of this report.

From the Fleck 2510 Water Softener:

- It is recommended to test annually for hardness in the treated water. If hardness is ever above 30 mg/L the softener should be taken apart, evaluated, and cleaned as necessary. At some point in the future (10-15 years) the media will need to be replaced.

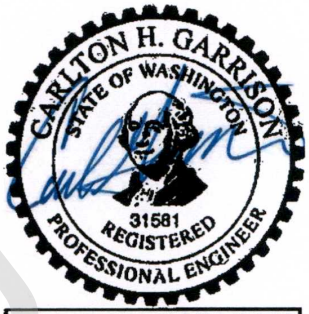
From the Adedge POU filter under the kitchen sink:

- No additional testing is required. However, the homeowner is encouraged to use a field test kit to test the water for arsenic using a Hach EZ Arsenic Test Kit, Cat. # 28228-00 or equal. Test before and after filter replacement. If arsenic is ever discovered in the treated water, either the filter element should be replaced more often, or it is defective.

After the project is completed, have the installing contractor take a sample of the treated water and have it analyzed by Edge Analytical in Burlington to ensure there is no arsenic present. Submit to the County if requested.

Sincerely,

Carl Garrison, PE
Attachments



Date Signed: 12/23/2022

Rev. 12/23/22
Corrected Well ID.

35-3E-32 Q

File Original and First Copy with Department of Ecology
Second Copy - Owner's Copy
Third Copy - Driller's copy

151979

WATER WELL REPORT

STATE OF WASHINGTON

Notice of Intent W166747
UNIQUE WELL I.D. # ~~AKG155~~
Water Right Permit No. Replaced & Tag - BPA 751

(1) OWNER: Name Henry Dykstra Address 16872 Peterson Rd, Burlington, WA 98232

(2) LOCATION OF WELL: County skagit - SW 1/4 SE 1/4 Sec 32 T. 35 N.,R 3E W.M.

(2a) STREET ADDRESS OF WELL (or nearest address) 13711 Bayview Rd MtVernon

TAX PARCEL NO.

(3) PROPOSED USE: [X] Domestic [ ] Industrial [ ] Municipal [ ] Irrigation [ ] Test Well [ ] Other [ ] DeWater

(4) TYPE OF WORK: Owner's number of well (if more than one)
[X] New Well Method: [ ] Dug [ ] Bored [ ] Deepened [ ] Cable [ ] Driven [ ] Reconditioned [ ] Rotary [ ] Jetted [ ] Decommission

(5) DIMENSIONS: Diameter of well 6 inches. Drilled 159 feet. Depth of completed well 157 ft.

(6) CONSTRUCTION DETAILS:
Casing Installed: [X] Welded [ ] Liner installed [ ] Threaded
6 " Diam. from +2 ft. to 153 ft.
" Diam. from ft. to ft.
" Diam. from ft. to ft.

Perforations: [ ] Yes [X] No
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: [X] Yes [ ] No [ ] K-Pac Location
Manufacturer's Name alloy
Type ss Model No.
Diam. 6 Slot size 12 from 152 ft. to 157 ft.
Diam. Slot size from ft. to ft.

Gravel/Filter packed: [ ] Yes [X] No [ ] Size of gravel/sand
Material placed from ft. to ft.

Surface seal: [X] Yes [ ] No To what depth? 18 ft.
Material used in seal bentonite
Did any strata contain unusable water? [ ] Yes [X] No
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type: H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level ft.
Static level 68 ft. below top of well Date 06/22/2004
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? [X] Yes [ ] No If yes, by whom? aquatech
Yield: 18 gal./min. with 12 ft. drawdown after 1 hrs.
Yield: gal./min. with ft. drawdown after hrs.
Yield: gal./min. with ft. drawdown after hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test 06/23/2004
Bailer test 10 gal./min. with 7 ft. drawdown after 1 hrs.
Airtest gal./min. with stem set at ft. for hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analyses made? [ ] Yes [X] No

(10) WELL LOG or DECOMMISSIONING PROCEDURE DESCRIPTION:
Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. Indicate all water encountered.

MATERIAL	FROM	TO
topsoil	0	1
brown clay	1	12
gray clay scattered gravel	12	32
tan gravel clay	32	75
gray clay gravel	75	114
gray silty sand clay layered with water	114	135
gray clay	135	145
gray sand water	145	
Located in compliance with sec12-48 based on information supplied by owner		
04112		

RECEIVED
JUL 0 2 2004
DEPT OF ECOLOGY

Work Started 06/21/2004 , 19. Completed 06/22/2004 , 19

WELL CONSTRUCTION CERTIFICATION:
I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Type or Print Name Brannon Hopke (Licensed Driller/Engineer) License No. 1825
Trainee Name License No.
Drilling Company Aquatech Well Drilling & Pumps inc
(Signed) (Licensed Driller/Engineer) License No. 1825
Address 2722 Butler Crk Rd SedroWoolley Wa 98284
Contractor's Registration No. AQUATWD040K4 Date 06/24/2004 , 19

(USE ADDITIONAL SHEETS IF NECESSARY)

Ecology is an Equal Opportunity and Affirmative Action employer. For special accommodation needs, contact the Water Resources Program at (360) 407-6600. The TDD number is (360) 407-6006.

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

EDGE ANALYTICAL

Burlington, WA *Corporate Laboratory (a)*
1620 S Walnut St - Burlington, WA 98233 - 800.755.9295 • 360.757.1400

Bellingham, WA *Microbiology (b)*
805 Orchard Dr Ste 4 - Bellingham, WA 98225 - 360.715.1212

Portland, OR *Microbiology/Chemistry (c)*
9150 SW Pioneer Ct Ste W - Wilsonville, OR 97070 - 503.682.7602

Corvallis, OR *Microbiology/Chemistry (d)*
1100 NE Circle Blvd, Ste 130 - Corvallis, OR 97330 - 541.753.4946

Bend, OR *Microbiology (e)*
20332 Empire Blvd Ste 4 - Bend, OR 97701 - 541.639.8425

Drinking Water Report

Client Name: Dahlman Pump
PO BOX 422
Burlington, WA 98233

Reference Number: 20-35391
Report Date: 10/15/20
Approved By: bj,bsp,ljh
Authorized by:

Lawrence J Henderson, PhD
Director of Laboratories, Vice President

Project: Henry Dykstra
Field ID: Replace 11856
Sample Description: BMG 653
Sample Date: 10/7/20 11:30

Lab Number: 046-67255
Date Received: 10/7/20
Sampled By: BB
Sampler Phone:

CAS Number	Analyte	Result	MCL	Pass^	Lab	QL	Units	Analyzed	
7440-38-2	ARSENIC	0.0170	0.05	Pass	a	0.001	mg/L	10/14/20	
7440-36-0	ANTIMONY	ND	0.006	Pass	a	0.001	mg/L	10/14/20	
7440-39-3	BARIUM	0.0331	2	Pass	a	0.001	mg/L	10/14/20	
7440-47-3	CHROMIUM	0.0014	0.1	Pass	a	0.001	mg/L	10/14/20	
16984-48-8	FLUORIDE	0.25	4	Pass	a	0.10	mg/L	10/8/20	
7439-97-6	MERCURY	ND	0.002	Pass	a	0.0001	mg/L	10/14/20	
14797-55-8	NITRATE-N	ND	10	Pass	a	0.1	mg/L	10/8/20	
7782-49-2	SELENIUM	ND	0.05	Pass	a	0.005	mg/L	10/14/20	
16887-00-6	CHLORIDE	9.9	250	Pass	a	0.1	mg/L	10/8/20	
E-10184	ELECTRICAL CONDUCTIVITY	401	700	Pass	a	10	uS/cm	10/7/20	
7439-89-6	IRON	0.18			a	0.05	mg/L	10/9/20	
7439-92-1	LEAD	ND			a	0.001	mg/L	10/14/20	
E-11778	HARDNESS as Calcium Carbonate	155.0			a	10	mg/L	10/9/20	
7439-96-5	MANGANESE	0.0374			a	0.001	mg/L	10/14/20	
E-10139	HYDROGEN ION (pH)	8.41			a		pH Units	10/7/20	Temp (C) : 25.7
7440-23-5	SODIUM	21.8			a	1	mg/L	10/9/20	
E-10173	TOTAL DISSOLVED SOLIDS (TDS)	221			a	10	mg/L	10/12/20	
E-10617	TURBIDITY	7.9			a	0.10	NTU	10/7/20	

Notation:
MCL = Maximum Contaminant Level, maximum permissible level of a contaminant in water established by EPA; Federal Action Levels are 0.015 mg/L for Lead and 1.3 mg/L for Copper. Sodium has a recommended limit of 20 mg/L. A blank MCL value indicates a level is not currently established.
QL = Quantitation Limit is the lower calibration concentration.
ND = Not detected above the listed specified reporting limit (QL).
CAS Number = Chemical Abstract Service Number is an unique identifier of the chemical tested.
^ = 'PASS', indicates that the parameter tested meets EPA, State, or local jurisdiction MCL.
An * in front of the parameter name indicates it is not NELAP accredited but it is accredited through OR DEQ or USEPA Region 10.

AIO™
AIR INJECTION OXIDIZING FILTER SYSTEM

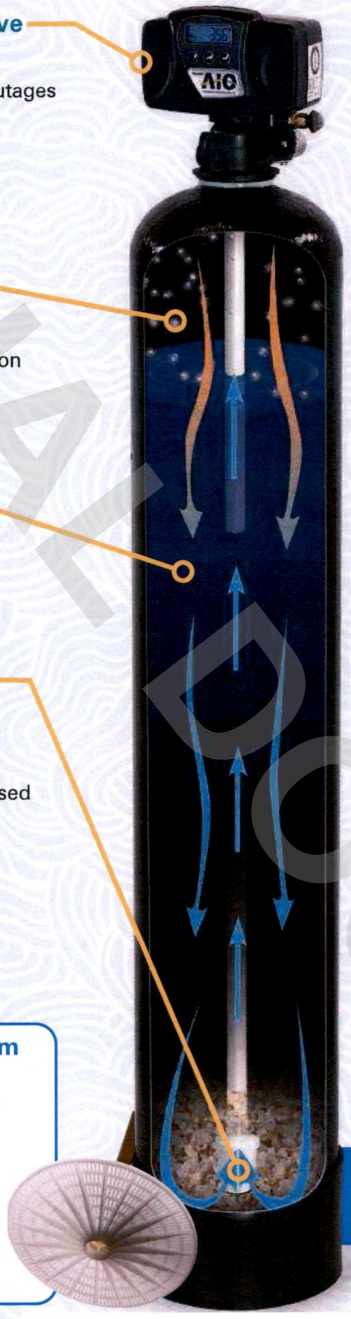
	5600AIO SXT	2510AIO SXT
Inlet/Outlet Fittings	3/4", 1"	3/4", 1"
Cycles	3	4
Valve Material	Fiber-reinforced polymer	Fiber-reinforced polymer
Service Flow Rates	2.5 - 6.3 GPM	2.5 - 10.0 GPM
Operating Pressures	20-75 PSI	20-75 PSI
Operating Temperatures	34-110 Degrees	34-110 Degrees
Electrical Specification	24V - 50/60 Hz	24V - 50/60 Hz

Professional Series AIO Control Valve
- Water use is monitored for peak efficiency
- Built in backup of settings during power outages
- Simple diagnostics and design provide for easy maintenance

Oxidation Air Pocket
- An air pocket is introduced into the top of the filter tank
- As water passes through this pocket the iron and sulfur in the water are oxidized

Exclusive Filter Media Bed
- Custom blends of media for efficient reduction of iron, sulfur and manganese

Basket Style Distribution System
- Delivers evenly distributed and high quality flows
- Optional Enpress® Vortech™ Plate Tank style distribution system, providing increased backwash efficiency using less water and saving money



Arrows indicate water flow through the system as it oxidizes and filters.

SYSTEM FEATURES & OPTIONS

5600AIO SXT Key Features
- Large LCD display with 48 hours of internal power backup capacitor
- LCD display alternates between time of day, volume remaining or days to regeneration
- Down-flow regeneration
- Backwash capacity handles tanks up to 13" for filter applications

2510AIO SXT Key Features
- Top mount control with adjustable cycles delivers controlled up-flow backwash, air draw, rapid rinse, and down-flow service
- Time-tested hydraulically balanced piston, seal and spacer concept to control service flow and regeneration
- Non-corrosive, high-tech material construction
- Excellent flow rates - 2.5 GPM continuous, 10.0 GPM peak
- Backwash capacity handles tanks up to 14" diameter

System Options
- Corrosion free fiber-reinforced polymer or stainless steel bypass valve
- Auxiliary switches
- Optional stylish tank jackets help reduce tank condensation

Ready to get rid of iron and sulfur from your water? Contact:

800-767-8731
www.aquascience.net

Fleck 5600 SXT Digital Water Softener System

Installation Manual

Parts List

Note: **Softening salt sold separately.** Available at most home good stores. We suggest [2 to 3], 40 lb bags. We do sell salt on our website www.aquascience.net if you are having trouble finding it locally.

Fleck 5600 Digital Control Valve

3/4" or 1" Stainless Steel Bypass

Fiberglass Mineral Tank

Riser Tube and Cap

Resin
(See Chart Below for amounts)

Brine Tank & Brine Tank Cover

Salt Grid Base w/ (4) Legs* *(*assembly required)*

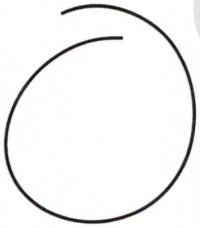
Float Tube

Float Tube Assembly

Brine Hose to Fleck Valve Connection Assembly

Upper Basket
(12" + Tanks Only)

Funnel



Brine Hose
(Colored Tube 3/8")

Backwash Line
(Clear 1/2")

Gravel Sleeve
(for 12x52 Tanks/Systems)

Grain Capacity	Tank Size	Filtration Media
32,000	9x48	1 cubic foot of Resin [1 Bag]
48,000	10x54	1.5 cubic feet of Resin [1 & 1/2 Bags]
64,000	12x52	2 cubic feet of Resin [2 Bags] & 1 sleeve of gravel (as base)

AdVantEdge DWS-2S-2710-02
DATA SHEET

UNDER-COUNTER POU SYSTEM FOR ARSENIC REDUCTION

The DWS-2S-2710-02 is a dual stage water treatment approach with an integrated system design, ideal for under-counter household use. The system includes two selected 2.75 x 9.75 inch arsenic removal cartridges, housing components, i.e., sumps, caps, mounting bracket, faucet (lead-free), shut-off device, and tubing for a complete unit. AdEdge Water Technologies, LLC supplies both the system components and replacement cartridges. The system is available to qualified water treatment distributors and dealers for subsequent re-sale to end users. Replacement cartridges are available through AdVantEdge authorized distributors.

SPECIFICATIONS - ~~MODEL DWS-4510-02~~

Filtration Cartridge	Two 10 inch standard (2.75 x 9.75 inch); AdVantEdge Model AD2710S
Materials Housing	~~Injection molded polypropylene~~
Mounting	Painted metal mounting bracket
Faucet	Lead-free faucet with 1/4 inch tubing
Shut Off Device	Mechanical countdown shut-off device mounted on bracket
Arsenic Media	Bayoxide® E33
Water Source	Potable water of known microbiological quality (microbiologically safe)
NSF Testing	Components tested in accordance with NSF protocols, no specific listings
Box/Packaging	Plain white box, with or without label

Performance

Rated Cartridge Life	1000 gallons
Arsenic concentration	Up to 50 ppb influent arsenic
Replacement	Every 12 months or 1000 gallons, whichever comes first
Rated Flow Rate	0.5 gpm
Parameters	AD2710S - Arsenic

Note:
Bayoxide® E33 is a registered trademark of LANXESS Deutschland GmbH.

POU CARTRIDGE FOR ARSENIC REDUCTION

High Performance Point-of-Use Solutions

Model: AD2710S
Model: AD4510S

AdVantEdge has two POU cartridges for arsenic reduction. These products are the most cost-effective technology to date to meet the challenges of the 10 micrograms per liter (µg/l) drinking water standard for arsenic established by EPA. Products incorporate a proprietary iron oxide media for long life and high performance. Cartridges effectively reduce both Arsenic (V) and Arsenic (III) without pre-oxidation. Ideal applications include under-counter and countertop POU systems. The standard Model AD2710S has been optimized for extended life and fits most standard and slimline 10 inch housings. The AD2710S is designed to treat 50 µg/l of total arsenic to less than 10 µg/l(based on pH 8.5, Arsenic (V) challenges using NSF 53 protocols). The AD4510S version is a 4.5 x 10 inch BB size cartridge designed for tackling higher arsenic concentrations above 50 µg/l. Both are filled with 100% Adedge Technologies AD33 arsenic reduction media for maximum performance.

CARTRIDGE PERFORMANCE

Applications	Ideal for Under-counter or countertop POU systems **Model AD2710S:** 50 µg/l of arsenic, 0.5 gpm flow, pH 6.5-8.5 **Model AD4510S:** 100 µg/l of arsenic, 1,000 gallon capacity, 0.5 gpm flow, pH 6.5-8.5 **Model AD4150S:** 50 µg/l of arsenic, 3,000 gallon capacity, 0.5 gpm flow, pH 6.5-8.5
Arsenic Reduction Capacity	Reduction of up to 99% of total arsenic. Effective for both As (III) & As (V). 1000 – 3,000 gallons; 4-6 times longer life than other commercial adsorption options (conservative rating at pH 8.5)
Certifications	NSF 61 product listing on Media (see Adedge for details).
Components	FDA listed components
Extractables	Imparts no harmful chemicals into the treated product water

TECHNICAL SPECIFICATIONS

General Specifications	Model AD2710S	Model AD4510S
Dimensions	2.75 x 9.75 inch	4.5 x 9.75 inch
Media type(s)	Bayoxide® E33	Bayoxide® E33
Contaminant Reduction	Arsenic (V) and (III)	Arsenic (V) and (III)
Cartridge Life	1,000 gallons	1,000 gallons up to 100 µg/l arsenic 3,000 gallons up to 50 µg/l arsenic
Cartridge shell	FDA grade Polyethylene	FDA grade Polyethylene
Micron rating	25 Micron Nominal	25 Micron Nominal
Pressure drop	< 8 psi at 0.5 gpm	< 8 psi @ 0.5 gpm
Housings	Fits most conventional housings – consult your AdVantEdge Distributor for details	Fits most conventional housings - consult your AdVantEdge Distributor for details

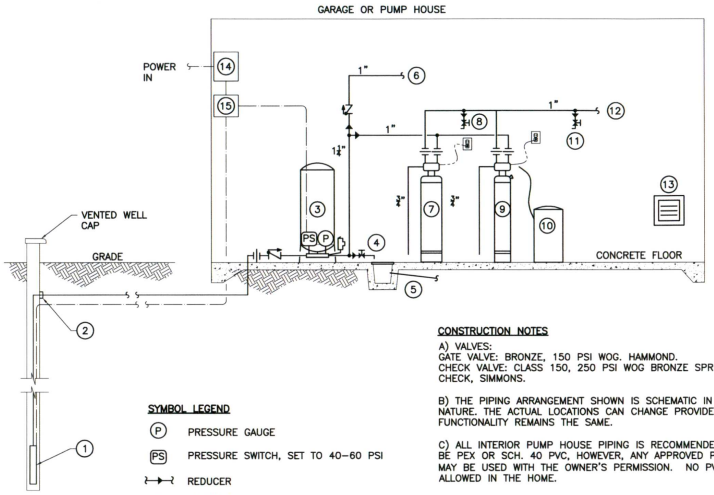
Recommended Water Quality for Best Performance

pH	6.5 – 8.5	Arsenic	50 or 100 µg/l *(see above)*	Phosphate	< 0.5 mg/l
Iron	< 0.5 mg/l	Silica	< 30 mg/l	Sulfides	< 0.1 mg/l
Manganese	< 0.05 mg/l	Sulfate	< 100 mg/l	Fluoride	< 1 mg/l

Note:
Bayoxide® E33 is a registered trademark of LANXESS Deutschland GmbH.

EQUIPMENT LIST

1. EXISTING WELL, DOE ID# BPA–119. ASSUMED TO PROVIDE 10+ GPM AT 40–60 PSI.
2. EXISTING PITLESS ADAPTER.
3. CONTRACTOR TO CHECK EXISTING PRESSURE TANK, REPLACE ONLY IF NECESSARY. IF REPLACING TANK, USE 82 GAL. FLEXCON FLEX–LITE MODEL FL–28
4. RAW WATER SAMPLE TAP AND SYSTEM DRAIN.
5. RECOMMENDED DRAIN IF NONE EXISTS. 12"x12" CATCH BASIN, NDS #1200 WITH GRATED LID, #1211 AND UNIVERSAL ADAPTER PLUG #1206. SLOPE CONCRETE FLOOR TO DRAIN. USE 3" OR 4" DRAIN PIPE TO SWALE, DITCH, OR DRAIN FIELD. IT IS NOT RECOMMENDED TO PLACE REGENERATION WATER INTO A SEPTIC DRAIN FIELD WITHOUT APPROVAL FROM A LICENSED SEPTIC DESIGNER.
6. OPTIONAL UNTREATED WATER FOR IRRIGATION.
7. NELSON A–10 IRON FILTER. 1054 WITH KATALOX MANGANESE DIOXIDE COATED MEDIA AND STANDARD GRAVEL UNDER BEDDING. FILTER HEAD TO BE THE TYPE THAT DRAWS AIR DURING BACK WASHING FOR SULFUR SMELL REMOVAL. CONTRACTOR TO SET TO BACKWASH EVERY 7 DAYS OR 3,000 GALLONS (ADJUSTABLE).
8. PRE–TREATED WATER SAMPLE TAP.
9. AQUA SCIENCE 1.5 CF WATER SOFTENER, MODEL FLECK 2510 SXT 1054. SET TO BACKWASH EVERY 2,500 GALLONS OR 7 DAYS WHICHEVER OCCURS FIRST.
10. WATER SOFTENER BRINE TANK.
11. PRE–TREATED WATER SAMPLE TAP.
12. PRE–TREATED WATER TO RESIDENCE. INSTALL ADEDGE AD2710 POINT OF USE (POU) ARSENIC FILTER UNDER KITCHEN SINK. SPLIT TREATED WATER LINE AND CONNECT TO REFRIGERATOR IF APPLICABLE.
13. RECOMMENDED OPTION FOR FREEZE PROTECTION (ONLY IF APPLICABLE): WALL MOUNTED, FAN POWERED 1.0 KW ELECTRIC HEATER WITH THERMOSTAT. MOUNT ON HARDI BACKER BOARD FOR IMPROVED FIRE SAFETY. INSTALL KING PIC–A–WATT OR EQUAL.
14. ELECTRICAL PANEL, BY ELECTRICIAN.
15. EXISTING WELL PUMP CONTROL PANEL, BY ELECTRICIAN.



SYMBOL LEGEND

- (P) PRESSURE GAUGE
- (PS) PRESSURE SWITCH, SET TO 40–60 PSI
- REDUCER
- SPRING CHECK VALVE
- UNION
- PIPE TEE
- HOSE BIBB, SYSTEM DRAIN, AND RAW WATER SAMPLE TAP
- ¾" OR LARGER ASME PRESSURE RELIEF, FACTORY SET TO 100 PSI.

CONSTRUCTION NOTES

A) VALVES:
GATE VALVE: BRONZE, 150 PSI WOG. HAMMOND.
CHECK VALVE: CLASS 150, 250 PSI WOG BRONZE SPRING CHECK, SIMMONS.

B) THE PIPING ARRANGEMENT SHOWN IS SCHEMATIC IN NATURE. THE ACTUAL LOCATIONS CAN CHANGE PROVIDED THE FUNCTIONALITY REMAINS THE SAME.

C) ALL INTERIOR PUMP HOUSE PIPING IS RECOMMENDED TO BE PEX OR SCH. 40 PVC, HOWEVER, ANY APPROVED PIPING MAY BE USED WITH THE OWNER'S PERMISSION. NO PVC ALLOWED IN THE HOME.

CARLTON H. GARRISON — STATE OF WASHINGTON — 31581 — REGISTERED PROFESSIONAL ENGINEER

Date Signed: 08/31/2022

REVISION

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11856 TEN ACRES LANE MOUNT VERNON, WA
ARSENIC TREATMENT
PUMP HOUSE SCHEMATIC

DATE:	FILENAME:
8/25/22	...AS–TMT–PLAN–DYKSTRA..
BY: CG	JOB NUMBER: 22039
SHEET 1 OF 1	