

*“Arsenic is one of the highest environmental cancer risks.”*

Arsenic Health Effects Program,  
University of California, Berkeley

# How Safe is Your Water?

The Nelsen Arsenic Reduction System with *LayneRT™ at the Core* is an eco-friendly solution for reducing arsenic in residences and small commercial water supplies, especially those on private wells.



**Nelsen Arsenic Reduction Systems**



# How Well do you know your Water?

## Arsenic

Albertus Magnus discovered Arsenic in 1250. The origin of the name comes from the Greek word arsenikon meaning yellow orpiment. It is a steel grey, brittle semi-metal that is highly toxic by inhalation or ingestion. Many of its compounds are deadly poison and used as weed killer and rat poison. It is found naturally in the rocks, water, soil, air and plants and animals of a region. Knowledge of Arsenic as a carcinogen dates back over 100 years.

Arsenic is found throughout the Earth's crust. It occurs naturally in the groundwater supplies – commonly found with iron. In groundwater, it normally appears as inorganic arsenite and arsenate. Other sources of Arsenic include

herbicides, rodent pesticides and pressure treated lumber.

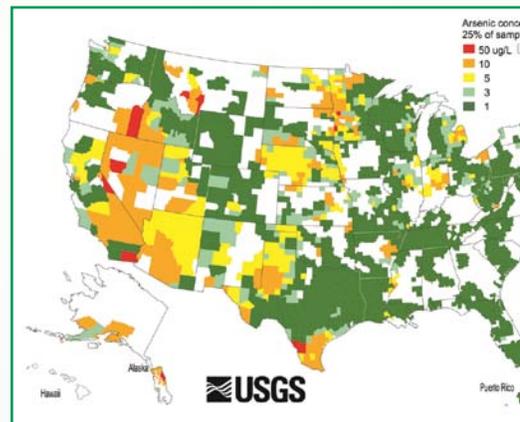


Arsenic Mineral

## Where we start...

We first need to find out if Arsenic is present in the water! Two water tests must be performed to accurately treat water contaminated with Arsenic. The first

indicates whether there is a presence of Arsenic and the second is to test for competing constituents in the water, Phosphate, pH, Silica, Iron, Manganese and the possible speciation (As<sub>3</sub> vs As<sub>5</sub>).



## Water Chemistry

There are typically two variations, or species, of Arsenic molecules in water: "Arsenic III"

and "Arsenic V." The form of the Arsenic, III or V, is very important relative to the effectiveness of many treatment methods. Arsenic V is generally easier to remove from water than Arsenic III. Arsenic III can be transformed to Arsenic V by the addition of a common oxidant to the water.



The LayneRT™ media has been tested and meets NSF 61 standard. This is an independent test standard for health effects that was performed by the WQA, Water Quality Association.



# Whole House Protection

An innovative leader in water treatment since 1954, Nelsen assures you the highest quality and reliability in the industry.

Nelsen Water Treatment systems are sold, installed and serviced by Independent Water Treatment Professional Dealers nationwide.

## How is the Arsenic Removed?

LayneRT™ adsorption media is the Core component in the *Nelsen Arsenic Reduction System*. LayneRT is a proprietary, durable, Arsenic selective media, developed as a significant improvement on the efficiency and longevity of traditional Arsenic media. It is a reliable, high capacity technology that effectively reduces Arsenic to safe levels without wasting any water or sending any waste water back into the environment through the drain.



Nelsen Arsenic Reduction Systems feature the Nelsen 7000PID Arsenic Reduction Control Valve and LayneRT™ adsorption media. The 7000PID is a non-backwashing controller programed for the specific water chemistry for each installation. The controller indicates the capacity of system and the remaining safe levels of media adsorption.

When service is required your water treatment professional removes and replaces the Arsenic adsorption material when the monitoring system notifies you of replacement. All waste material is removed from the treatment site and disposed of in an environmentally responsible manner - no mess, no worries.

### **Nelsen Arsenic Reduction System Advantages:**

- No connection to sewer or septic required
- System is always in service
- System life monitoring
- No wasted water
- Exhausted media is nonhazardous and passes TCLP (Toxicity Characteristics Leaching Procedure)
- Material disposal - no Arsenic laden waste is released at home



## How do I know the system is working?

The display also has three Warning Lights and an Alarm

**Green Light:** There is power going to the system.

**Yellow Light:** System is at 20% Capacity Remaining

**Red Light:** System is at 10% Capacity Remaining, Arsenic can begin to creep through the system

### **Alarm**

**Sounding:** System is at 0% Capacity Remaining, Arsenic will now pass through the system.



# Specifications

Water Quality Criteria	
pH Range	5.5 – 8.5
Arsenic <sup>1</sup>	< .05 mg/l
Arsenic Type <sup>2</sup>	Pentavalent
Phosphate (PO <sub>4</sub> ) (as P)	< 0.150 mg/l (< 0.05 mg/l)
Silica	< 20 mg/l
Iron	< 0.3 mg/l
Manganese	< 0.05 mg/l
Hydrogen Sulfide	Non Detectable
Chlorine Residual	< 1.0 ppm
Tannins	Non Detectable
Hardness	Not Applicable - Does not effect the performance of the media.

<sup>1</sup> If the total arsenic concentration is above 0.050 mg/L please consult a Nelsen Water Treatment Systems Professional.

<sup>2</sup> The arsenic removal media removes As (V). If As (III) is present oxidation is recommended.

Model Number	NARS-10	NARS-12	NARS-14	NARS-18
Service Flow Rate	6.6 gpm	10 gpm	15 gpm	26 gpm
Capacity (gallons treated <sup>3</sup> )	178,000	296,000	396,000	692,000
Tank Size	10" x 40"	12" x 52"	14" x 47"	18" x 65"
Filter Media	LayneRT			
Total Media Amount	1.0 cu.ft.	1.5 cu.ft	2.0 cu.ft.	3.5 cu.ft.
Underbedding	None			
Dimensions (approximate)	10" x 24" x 48"	12" x 24" x 60"	14" x 24" x 55"	18" x 24" x 73"
Inlet/Outlet	1" MPT			
Rated Service Flow @ Pressure Drop	6.6 gpm @ 5 psi	10 gpm @ 4 psi	15 gpm @ 4.5 psi	26 gpm @ 5 psi
Temperature Range	40°F - 100°F			
Operating Pressure	30 - 120 psi			
Electrical Requirements	110 volts			
Backwash	Not Applicable (Do Not Backwash)			

<sup>3</sup> Capacity will vary by individual site based on water quality and usage.

**NelsenWater**  
*Treatment Solutions*

Contact your local Water Treatment specialist for more information or to purchase a Nelsen Arsenic Reduction System.

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