

Treatment Options

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There's Always a History Lesson

- The only historical data Nebraska had was Gross alpha monitoring with little to no Uranium data
- All of this historical data was a result of early distribution system monitoring
- States were allowed to develop Grandfathering Programs (Start June 2000-End December 7, 2003)
- Nebraska submitted Grandfathering Plan to EPA Region VII in March 2002
- EPA Region VII approved Nebraska plan in May 2002

More History

- Program bombarded CWSs with GF info.
- Of the 610 CWSs, 550 were eligible for GFP
- 526 CWSs participated in the GFP
- Conservative estimate of sampling cost savings - \$750,000.00
- Identified our potential troublesome systems.

Compliance Consequence

- **Data gathered during the Grandfather period revealed Uranium would be Nebraska's dark horse problem with the Radionuclide Rule**
- **High concentrations found in three river valleys**
 - Republican
 - North Platte
 - Platte
- **Compliance monitoring began January 2004**
- **Systems believed to have problems or potential problems were scheduled for this first year**

Compliance Consequence con't

- **Currently, 13 CWSs have been issued Administrative Orders for exceeding the Uranium MCL of 30 ug/l**
- **As with any enforcement document, the systems are given suggestions (potential solutions) to pursue in the effort to return to compliance**

Compliance Options

➤ Potential Solutions

- Cease use of well with elevated Uranium
- Seek new source (well or wells)
- Blend water from source lower in Uranium concentration with higher concentration well
- Install centralized treatment plant
- Install Point-of-Use (POU) devices
- Purchase water from another permitted public water system

Decision Time

- **Cease use of well**
 - May not be possible if this is the systems only well or all wells are high in Uranium
- **New well source**
 - No frills/cut corners - \$250,000.00 and up range
- **Blend high and low source water wells**
 - Tremendous variables - \$???????????
- **Centralized Treatment**
 - At today's prices - \$1,000,000.00 and up range
- **POU**
 - Financial breakpoint is somewhere around 100 connections
- **Purchasing water**
 - Tremendous variables - \$???????????

Technologies

- **EPA Best Available Technologies (BATs) for Uranium**
 - **Ion Exchange (Anion is the most efficient)**
 - **Reverse Osmosis**
 - **Lime Softening**
 - **Enhanced Coagulation/Filtration**

Small System Technologies

- **Additional BATs for Small Systems**
 - POU – Ion Exchange (Anion)
 - POU – Reverse Osmosis
 - Activated Alumina (Lab tested only)
- **Technologies other than those listed by EPA can also be used if the CWS demonstrates that the technology is efficient (pilot study)**

So, Where Are We?

- **New Source – 1 system returned to compliance**
- **New Source – 5 systems developing new well fields**
- **New Source – 1 system developed 2 new wells only to have the Uranium levels fail after first month**
- **Purchase Water – 2 systems are now Consecutive**
- **POU/RO – 1 system currently installing units**
- **Decision in Progress – 3 systems still in time frame to explore options**

Issues Have We Seen

- **Waste Disposal Questions – Whether it be Centralized Treatment or POU Devices**
 - **Mixed Waste (Uranium + Arsenic)?**
 - **License to handle Radiological materials?**
 - **Worker Protection Criteria?**
- **Requirements dealing with POUs – 100% participation; Liability; etc.**
- **Monitoring Schedule/Compliance Determination when using POU devices**

Questions – Comments – Good Advise – Bad Advise – Contact Us

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