

Summary of Radium Compliance Report for Lake Meadow Water Trust

In February, 2008 the City of Muskego requested that Ruckert/Mielke, Inc. perform a review of the options available to the Lake Meadow Water Trust to obtain compliance with the Safe Drinking Water Act radionuclides rule. That review included a discussion of the advantages, disadvantages and potential cost of the following options:

- a. Connection to Muskego public water system
- b. Construction of a blending well
- c. Construction of an HMO treatment system
- d. Construction of an ion selective media treatment system
- e. Modification of Well 2 by logging high radionuclide sections and lining those areas
- f. Install new private wells at each residence served by the LMWT
- g. Installation of individual softeners at residential customer homes

These options were identified as potential ways to comply with orders by the Department of Natural Resources (DNR) requiring compliance with the radionuclides rules. DNR has strongly indicated that the Lake Meadows Water Trust needs to quickly progress towards a solution to the radium problem or face legal action and potential costly fines. Such action and fines would affect all homeowners in the Water Trust.

After careful review of the options available to the Water Trust, it is clear that two specific options are the most desirable from a monetary and ease of implementation standpoint. These are connection to the municipal water system of the City of Muskego; and construction of a blending well near existing Well No. 2. A third option of providing individual water softeners at each home was discussed at length with residents and DNR. DNR strongly indicated that this option is not considered viable and, in similar situations, has not been approved.

Potential costs for the two most viable options are estimated as follows:

Connection to the City of Muskego Water System	\$ 2,025,000
Construction of a Blending Well and Associated Facilities	\$ 291,000

Advantages and Disadvantages to each option are:

Treatment Method	Advantages	Disadvantages
<p>Connection to Muskego Public Water System</p>	<ol style="list-style-type: none"> 1. Assuming retail sales, it makes water system part of municipal water system. 2. In agreement with long-term plans to provide area with water. 3. Opens areas between Lake Meadows and Muskego to water service. 4. Removes water quality compliance obligations from Lake Meadows 5. Fire protection will be available to the area. 6. System O&M becomes responsibility of City. 7. City water is of generally better quality 	<ol style="list-style-type: none"> 1. Long, dead end water main. Requiring additional maintenance by City. 2. Higher capital cost.
<p>Construction of a Blending Well</p>	<ol style="list-style-type: none"> 1. Increases water producing capability of system. 2. Employs similar technologies to those currently used. 3. Lower capital cost. 	<ol style="list-style-type: none"> 1. Total water production limited by shallow well production. 2. Radionuclide concentration in Well #2 may increase. 3. Blending test well contains relatively high amount of arsenic. 4. Very high iron content in new well. 5. Unknown rate of production of new well. 6. Operation and maintenance of system remains with homeowners.

The other options reviewed are either very difficult to construct due to timing issues and site limitations or not allowable by regulatory agencies. These study results are provided for use by the City in their efforts to assist City residents and not intended as a professional recommendation to the Lake Meadow Water Trust.