

### **How are registrants determined?**

Radium is found in varying concentrations in the rock, soil, and waters throughout Illinois. The purpose of 32 IAC 330.40(d) is to ensure the radium removed from groundwater and concentrated due to treatment, is handled and disposed of in a manner that is environmentally sound and protective of both workers and the public. This is achieved through monitoring the radium generated and reporting on its ultimate disposal. The amount of radium concentrated in water treatment residuals (both at the drinking water and wastewater plant) depends upon several factors; the most important of which are the source water and a multitude of variables associated with the treatment processes employed.

In an effort to minimize the regulatory impacts on communities, IEMA has based the selection of registrants on a process that narrows the scope of those communities regulated under 330.40(d) to those most likely to concentrate radium. Radium is most prevalent in the confined aquifers of Northern Illinois. Radium is also present, albeit in lower concentrations, in the groundwater in southern and central Illinois. Therefore, if a treatment technology is employed at these facilities that are capable of accumulating radium, the facility must monitor the drinking water treatment media (sand filters, anthracite, etc.) before disposal to ensure it meets acceptable landfill limits. Non-exempt concentrations have been observed in disposed treatment vessels in Southern Illinois. Often times, proper backwashing prior to media removal will avoid more expensive disposal options. These drinking water treatment facilities are denoted "T" (treatment only) in this program and carry only drinking water media monitoring requirements.

For those facilities in Northern Illinois, where the groundwater is often in contact with bedrock, sandstone, and dolomite formations that contribute radium to the source water; the concentrations of radium generated is often substantially higher. For many facilities, the media at the drinking water treatment plant can significantly exceed the exempt levels (concentrations of 400 - 2000 pCi/g have been observed). The flushing of this media to downstream wastewater treatment plants affects the radium content of the finished sludges or biosolids. This, in turn, limits the disposal options for those wastewater treatment facilities. For this reason, if a drinking water treatment facility has BOTH a treatment technology capable of concentrating radium AND draws water from a confined, Northern Illinois aquifer; the downstream wastewater plant must register and monitor as well. In the searchable database, these drinking water treatment facilities are denoted as "TA" (Treatment and Aquifer), and their downstream wastewater treatment facilities "R" (for Registrant).