

NATURE'S CORNER

By
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Follow up to the Results are In

In my last article, I informed you about the tests that were conducted on Ten Mile Creek and the Clyde Mine discharge into Ten Mile Creek. I received several comments about what the tests actually indicate. In the following, I will try to explain what the DEP testing indicates and how long the radiation affects will be around.

Let us begin with some of the parameters of the radiation affects. Before you can understand the effects of radiation, you must understand how radioactive emitters behave. To begin, one must understand what half-life means. Half-life means that half of the radiation being emitted reduces to half of the original radiation being emitted in a given time period. For example, if a radio active particle has a half-life of 10 years and the radiation being emitted is 100 PCI/L, then in 10 years the emissions of radiation will be 50 PCI/L. In the next additional 10 years, the emission will be 25 PCI/L, in the next 10 years the radiation will be 12.5 PCI/L and so on. Simply put, the emissions decrease by half in every half-life period.

Let us put this concept to what is found in Ten Mile Creek. The radio active half-life for Radium 226 is 1,600 years. The level of Radium 226 found in the stream was 175 PCI/L. This means in 1600 years the radiation emitted from the current Radium 226 would be 87.5 PCI/L. In another 1600 years, the emissions would be 43.55 PCI/L. Remember, the radiation level for Radium 226 combined with Radium 228 in drinking water is 5 PCI/L. It will be thousands of years before the level of Radium 226 is at 5 PCI/L. Another thought to keep in mind is that our water treatment plants can not remove the Radium 226 or 228 from our drinking water.

If we look at the Thorium 232 levels, it becomes enlightening on the danger this element possesses in our environment. Thorium 232 is found naturally in the environment, but the element is more concentrated as we go deeper into the earth. Thorium 232 was once used in X-rays and rat poisons, but it was so dangerous, it was banned. The half-life of Thorium 232 is billions of years. For example: if you have 50 PCI/g of Thorium 232, it will take 45 billion years to reduce the emission to 5 PCI/g. At present, the Thorium 232 level is 151 PCI/L in Ten Mile Creek. Before the Thorium 232 level reaches the 5 PCI/L, the Earth will no longer exist. It is here to stay. What affects this will have on the health of the population remains to be recorded.

Radium 228 is similar to Radium 226. Remember, the standard for drinking water is 5 PCI/L for combined radium 226 and Radium 228. If we add up the Radium 226 and 228 found in Ten Mile Creek, they will total to 326 PCI/L. It will take a long, long time before the current radiation from Radium 226 and 228 reaches the 5 PCI/L. It will be here for generations to come.

The million dollar question is, "Where does all this radiation originate?" We now know that the level of Radium 226 coming from the Clyde Mine is 301 PCI/L. It is hard for me to believe that this amount of radiation is found in coal. We now know that the Marcellus Shale is very radioactive and there is a large amount of Radium 226 found in

the shale layer. Is it possible that the "flow back" water from the drilling operation has entered our mine pools and is being discharged into our raw drinking water sources? Is it possible that the high levels of radiation are somehow responsible for the high cancer rates found in our area? We know that Thorium affects the human Thyroid gland. Could it be that the high levels of Thorium are responsible for the drastic increase in Thyroid problems in our area? Could it be that the long history of the extraction industry is now beginning to show its affects? What is in store for us with the new found drilling for gas in our area? The future will tell the outcomes of drilling on our health. How does it feel to be a "lab" animal? Added to this is "how will all these new chemicals being introduced into our environment affect our endocrine system?" To be honest, I am really deeply concerned about our future health.

As always, place your problems in a higher power and things will work out.