



Newly Released TEPCO Data Provides Evidence of Periodic Chain Reaction at



Hi, I'm Arnie Gundersen from Fairewinds Associates, and it's Sunday, April 3rd.

A couple of videos ago I talked to you about the types of radiation. I talked about alpha particles and beta particles. There's one more type, and that's called a neutron. I want to talk about today. When a uranium atom splits, it gives off two heavy pieces as products, but it also gives off a couple of neutrons. Those neutrons hit the next uranium atom and cause it to split, and then we get a chain reaction. So, when you see neutrons, that's a sign that a chain reaction is occurring inside a nuclear reactor. That's how you determine if it is a chain reaction.

Some data over the last couple of days and weeks have come up that indicate that reactors at Fukushima may still be experiencing a chain reaction. First off, there was one of the English [language] Japanese newspapers that discussed neutron bursts about a mile away from the reactor. Now, that got my curiosity because when I was an engineer back in 1974 on Millstone 2, we had neutron problems. We were actually detecting neutrons at the guard shed at the fence boundary. So, I know that nuclear reactors emit neutrons and they travel a long way. In and of itself, that report wasn't enough, and the newspaper that covered it.

This week a prestigious scientific paper came out, and it talked about the discovery of an isotope called chlorine-38. Chlorine-38 doesn't exist in nature, and it comes from the reactor by absorbing a neutron. Well, chlorine-37 is in seawater, and seawater is inside the reactors. So, this paper postulated that we had a chain reaction going on in one of the reactors, and it was turning saltwater into chlorine-38. Again, it wasn't definitive.

Well, on April 1st, TEPCO came out with its own report, and it had a curious table that indicates that for [Fukushima] Unit 1 there is an isotope called tellurium-128, 128. That isotope has a seventy-minute half-life. Well, that can only exist if there had been a reactor the last half-day, because it would have all decayed away otherwise. So the report told me, really quickly, that "Whoa, something is going on in Unit 1." Now, I read the report further down and it also indicated high levels of iodine-131. In fact, the iodine levels were ten times higher than they are in Units 2 and 3. If they all shut down at the same time, that would happen. So, where is the iodine coming from? Where is the tellurium coming from? Where is the chlorine coming from? And where did those neutron bursts come from? I think Unit 1 is still undergoing periodic nuclear fissions. We call that "criticality," meaning: we didn't really plan on this happening, but it is.

What it means is that: one, extra heat is being generated. Remember I talked about how 95 percent (95%) of the heat came from fission, and five percent (5%) from the daughter products. Well, if fission is occurring, there is a lot more heat in Unit one than [could come from] daughter products. The other thing is [that] a lot more radiation, especially gamma radiation, is being generated. And the last thing, and really the most important thing, is that a lot more neutrons are being generated. Neutrons are incredibly difficult to measure, and could be a hazard to personnel on that site to doses that they're not aware of.

I want to make clear what I am saying, and what I'm not saying. I'm not saying "the reactor is running at full power," but what I am saying is that a portion of the core is periodically turning on without human intervention. How can that happen? Well, as they flood the reactor, the chain reaction begins. The chain reaction creates heat, boils off the water, and the reaction stops. They flood the reactor, chain reaction begins, boils off the water, and the reaction stops. It is possible that a portion of Unit 1's core is turning itself on and off and exposing the workers to neutrons that their dosimeters are not detecting. What this means for TEPCO is that they have to add boron to the water that's going into Unit 1 to stop that chain reaction from occurring.

Thank you very much. If I hear any more, I will pass it on to you through these videos.

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