

RulemakingComments Resource

From: Robert Applebaum <r.applebaum@yahoo.com>
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To: RulemakingComments Resource
Subject: [External_Sender] Docket ID NRC-2015-0057

This commenter stands strongly in opposition to the petitions contained within the docket listed above.

In PRM 20-30, it is stated that Dr. Mohan Doss is acting on behalf of Scientists for Accurate Radiation Information (SARI) and "supports and supplements" PRM 20-28 submitted by Dr. Carol Marcus. It should be noted that Doss, Marcus and Mr. Mark Miller (who submitted PRM 20-29) are all listed as members of SARI (<http://radiationeffects.org/members>).

It should also be noted that the additional reference material submitted by Dr. Marcus on May 16, 2015 was authored by Jeffry Siegel and James Welsh. Siegel and Welsh are also SARI members.

The redundancy is unnecessary.

The SARI petitioners are scientifically wrong to refer to LNT as a hypothesis. If it were, they could test the hypothesis and publish their results in the peer reviewed, scientific literature. Yet, they haven't done that. Why? LNT isn't a hypothesis, it's an explanation which ties together many tested hypotheses. It's a scientific theory. Those who feel compelled to attack a scientific theory (evolution, anthropogenic global warming, LNT, etc.) will often attempt to denigrate it by referring to the theory as a "hypothesis".

Scientific theories cannot be proven true, but they must be falsifiable. Since scientific theories cannot be proven to be true, they are frequently subject to attack by those with non-scientific agendas. For example, the scientific theory of evolution is supported by many tested hypotheses, but is constantly under attack by some who feel the theory threatens aspects of their religious beliefs.

The theory of LNT was strongly attacked in the late 20th century, when it was unclear what the primary carcinogenic components of cigarettes were. In addition to possible chemical carcinogens, tobacco was known to include naturally occurring radioactive isotopes. It was also recognized that naturally occurring radon progeny could attach to smoke particles and be inhaled deeply into the lung. Regulation of second hand smoke was particularly threatening to the cigarette industry.

The Tobacco Institute (TI), a trade group representing cigarette manufacturers, funded a small group of people with science degrees to manufacture and disseminate misinformation in order to slow regulation of cigarettes and second hand smoke.

One beneficiary of TI funding was the late T.D. Luckey, who proposed that radiation was beneficial. He called this process "hormesis", a term which had previously been used to describe the beneficial effects of certain chemical substances. In promoting his propaganda he actually employed the pseudo-science of homeopathy as being supportive: <http://giriweb.com/luckey.htm>.

Ultimately, science prevailed and the TI disbanded. However, it was widely recognized by some Libertarians (people with an anti-government political ideology) that the TI's tactics had been very

effective at creating public confusion and slowing the regulatory process. Today, well funded misinformation campaigns are being employed in order to slow regulatory efforts on greenhouse gas emissions.

T.D. Luckey went on to start the International Hormesis Society with another former TI funding beneficiary Edward Calabrese, a toxicologist. Over time they strategically dropped any references to homeopathy and changed the society's name to the International Dose Response Society.

The talking points of the petitions contained within this docket are essentially a resurrection of the propaganda originally manufactured by Luckey and others and perpetuated by Calabrese. There is nothing new contained within them, that hasn't already been dismissed years ago, with one exception.

That exception is the seemingly odd reference by Dr. Marcus to the 1956 BEAR I Committee. Why in 2015, would anyone mention that old committee?

That's because SARI members are familiar with Dr. Calabrese's more recent concocted attack - <http://news.sciencemag.org/physics/2011/10/attack-radiation-geneticists-triggers-furor>

It should be noted that Dr. Calabrese is an "expert" with the Libertarian Cato Institute, which was originally called the Charles Koch Foundation (one of the Koch Brothers), and it exists to manufacture and disseminate propaganda:

<http://www.cato.org/research/energy-environment>

The SARI petitioners are attempting to short-cut the rigors of science with their petitions, a fallacy known as special pleading. Though the petitioners appear to have scientific credentials, they are conveniently bypassing the scientific process and are engaging in rhetorical tactics (letters, petitions, and website). The SARI petitioners should have learned at the high school science level, that a scientist must produce evidence (hypothesis testing) which is accepted by the scientific community in order to overturn a scientific theory. The petitioners are free to publish their evidence to contradict the theory in the peer reviewed scientific literature. Should any of the authorized scientific consensus bodies change their conclusions based on this new evidence, the U.S. NRC would be compelled to consider revising its regulations.

However, modern scientific consensus bodies with the legal authority to draw conclusions on radiation effects are all unanimous in regards to LNT (ICRP 103, 2007 ; U.S. NAS BEIR VII, 2006; NCRP 136, 2001). Since LNT is the scientific consensus theory, the U.S. NRC has NO choice but to implement regulations based on that accepted theory. Any petitioner's claims of no scientifically valid support for LNT after so many decades of acceptance by BEAR I is not consistent with reality.

There have been many sincere efforts to disprove LNT and NONE have been successful. One of the most ardent efforts was undertaken by the U.S. DoE Low Dose Radiation Research Program whose sole function was to disprove LNT. After spending a decade (1998-2008) and over \$200 million, they failed to find any evidence to contradict LNT. Yet, these SARI petitioners are asking the U.S. NRC to discard a scientific theory on a whim!

The petitioners make unsubstantiated claims regarding LNT leading to the irrational fear of radiation. LNT is our best theory of low level radiation effects. We don't determine our science based on its consequences - that would be logically fallacious ("*argumentum ad consequentiam*"). Scientific rigor comes first, and then we try to understand and manage the consequences.

It isn't an understanding of LNT that leads to irrational fear, it is a LACK of understanding of LNT, which leads to irrational fear. The predictions of LNT are that even after relatively large radiation doses, the increase in expected cancer incidence (which will be mostly realized decades in the future) is very small. "Radio-phobes" tend to have completely different misunderstandings of low dose radiation effects which are NOT supported by LNT.

The petitions should be promptly denied as the U.S. NRC has serious matters to attend to.

Sincerely,

Robert Applebaum, CHP *Emeritus*