

# **Environmental Defense Institute**

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### **Former Idaho Governor Andrus Sues DOE**

Advocates for the West has filed a suit on behalf of former Idaho Gov. Cecil D. Andrus against the Department of Energy in an effort to force the federal agency to comply with the Freedom of Information Act and share more information related to the proposed shipments of commercial spent nuclear fuel to the Idaho National Laboratory. <sup>1</sup> The lawsuit comes after months of effort by Andrus to require DOE to provide relevant and timely information about its request for a “waiver” from the 1995 Idaho Settlement Agreement.

“Without DOE leveling with Idaho about both near-term and longer range plans we simply have no ability to assess the wisdom of what they are planning for the state. I suspect they know what they are planning will be very controversial and for that reason they want to keep it secret. That is simply unacceptable,” states Andrus.

Andrus said he thinks DOE has formulated long range plans to bring significantly larger amounts of commercial waste material to Idaho and that lacking a permanent national repository for this highly radioactive material, Idaho will for the foreseeable future become that repository.

A 2011 waiver had been granted, allowing research quantities of spent nuclear fuel to come to the INL as long as DOE was meeting the milestones in the Settlement Agreement. <sup>2</sup> However, DOE has missed the milestone for treating liquid sodium-bearing waste with the Integrated Waste Treatment Unit (IWTU) and also is missing milestones for not shipping transuranic waste to the closed New Mexico underground salt mine, WIPP.

Two signatures are needed in order to grant waivers to the Idaho Settlement Agreement: current Gov. Otter and Idaho Attorney General Lawrence Wasden. So far, Wasden has said he won’t sign the waiver until the Integrated Waste Treatment Unit at the INL is up and running. Wasden is scheduled to speak publically about the issues in Idaho Falls October 8 at the Idaho Falls City Club luncheon.

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<sup>1</sup> Read more at <http://advocateswest.org/case/keeping-nuke-waste-idaho/> and read the complaint filed in the US District Court for the District of Idaho at <http://www.advocateswest.org/wp-content/uploads/2015/03/9-29-15-INL-FOIA-complaint.pdf>

<sup>2</sup> See more about Idaho’s Settlement Agreement at <https://www.deq.idaho.gov/inl-oversight/oversight-agreements/1995-settlement-agreement.aspx>

## **Continuing Debate Over Nuclear Energy's Role in Providing Carbon-Free Energy**

The nuclear boosters in Idaho Falls are eager to promote nuclear energy as a source of carbon-free power despite the fact that much of the research taking place at the Idaho National Laboratory regarding Terra Power's small modular reactor fuels and other advanced reactor concepts will not be deployed any time soon.

The 5<sup>th</sup> United Nations Intergovernmental Panel on Climate Change 20 concluded that actions to limit carbon emissions need to happen within the next 15 years. The good news is that the IPCC concludes that renewable energy and energy efficiency can meet the need. But the IPCC does not see nuclear energy as a significant part of the solution because of "a variety of barriers and risks." Those include: "operational risks, and the associated concerns, [like another Fukushima], uranium mining risks, financial and regulatory risks, unresolved waste management issues, nuclear weapon proliferation concerns, and adverse public opinion." <sup>3</sup>

The recent EPA's clean power rule doesn't call for ending nuclear energy, but it does not embrace nuclear energy because of its high cost and slow deployment. The EPA Clean Power Plan announced August 3 is bound to be a subject of discussion around the country. Nuclear energy is not promoted in the plan because of its high cost and slow deployment.

Despite nuclear boosters continuing assertion that nuclear costs are competitive, cost overruns at the new US plants being built in Georgia and South Carolina are being called a debacle. Ratepayers for these plants have seen 11 rate increases and the plants are still several years from being completed.

The EPA plan excluded new nuclear from "Best System of Emission Reduction" (BSER) but included new renewable energy: "Investments in new nuclear capacity are very large capital-intensive investments that require substantial lead times. By comparison, investments in new RE generating capacity are individually smaller and require shorter lead times. Also, important recent trends evidenced in RE development, such as rapidly growing investment and rapidly decreasing costs, are not as clearly evidenced in nuclear generation. We view these factors as distinguishing the under construction nuclear units from RE generating capacity, indicating that the new nuclear capacity is likely of higher cost and therefore less appropriate for inclusion in the BSER. The EPA also "seeks to drive the widespread development and deployment of wind

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<sup>3</sup> Intergovernmental Panel on Climate Change, Climate Change 2014: Mitigation of Climate Change, See Chapter 7. <http://www.ipcc.ch/report/ar5/wg3/>

and solar, as these broad categories of renewable technology are essential to longer term climate strategies” (p. 874).

One continuing problem is that despite the Department of Energy generously offering to provide loan guarantees for new nuclear power plants, there are few investors willing to put their company at risk due to nuclear cost overruns or catastrophic nuclear accidents. Where are the big giants like Westinghouse and General Electric? Their nuclear divisions were bought by Japan companies: Toshiba bought Westinghouse’s nuclear division and Hitachi partnered with General Electric’s nuclear division. And provides additional incentive for Japan’s continuing denial of the problems it faces with the Fukushima nuclear disaster, a disaster whose continuing consequences have affected the Pacific Ocean and other countries, including the US. <sup>4</sup>

Most of the small modular reactor players have not found customers and have gone into limbo. NuScale is an exception with its customer the Utah Associated Municipal Power Systems (UAMPS). NuScale plans to submit a design certification application to the US Nuclear Regulatory Commission by the end of 2016 and an application for a combined construction and operation license (COL) in late 2017 or early 2018.

Still, small modular reactors are expected to struggle to be cost competitive with conventional nuclear plant costs at least initially. <sup>5</sup> And it remains to be seen whether they can provide overall safety or waste disposal improvement over full-sized nuclear plants.

Guess how many megawatts must be standing by to replace the power of a 1000 MW nuclear plant when it isn’t running? You guessed it. 1000 MW.

Meanwhile, no evacuations, poisoned oceans or airways, nuclear waste or nuclear weapons material arises from the growth of solar power. <sup>6</sup> Battery technology will increasingly make it a 24/7 energy source.

But every dollar siphoned off for nuclear research takes away from the investment needed for clean, affordable, life-affirming sources of energy.

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<sup>4</sup> Karl Grossman, “The Giant Lie about Fukushima,” March 3, 2014. <http://www.counterpunch.org/2014/03/03/the-giant-lie-about-fukushima/>

<sup>5</sup> David Shrophire, “The International Deployment Case for SMRs” at the 5<sup>th</sup> Annual Small Modular Reactor Summit, April 14-15, 2015, in S. Carolina at <http://www.nuclearenergyinsider.com/smr/presentations2015/1200-1230-DShropshire-IAEA.pdf>

<sup>6</sup> Rocky Mountain Institute, “Learning from Japan’s Nuclear Disaster,” March 18, 2011, Amory B. Lovins <http://blog.rmi.org/LearningFromJapansNuclearDisaster>

## NIOSH Public Comment Transcripts from July Meeting in Idaho Falls

It's interesting to watch the folks who work for the National Institute of Occupational Safety and Health (NIOSH) politely listen to claimants, spouses of deceased claimants, and workers with evidence of radiation dose falsification from the Idaho National Laboratory and Rocky Flats weapons plant. NIOSH is not required to respond to public comment during the meeting and they basically do all they can to avoid responding to it after the meeting as well.

Radiation dose reconstruction involves considerable expertise and some unavoidable jargon. But it is clear to me after watching NIOSH operate that the health of the nuclear industry and good graces of the Department of Energy are of much more importance than worker health.

Transcripts are available online <sup>7 8</sup> of the July 23 meeting in Idaho Falls of the Advisory Board on Radiation and Worker Health for dose reconstruction regarding compensation decisions for former Energy workers.

The most important topic of the July meeting was cancelled at the last minute: the investigations underway regarding inadequate radiation protection at INL historically. The presentation is available online and is quite a shift from the rubber stamp issue closures discussed one year ago.  
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In addition to the current petition for the Idaho National Laboratory regarding serious deficiencies in radiation worker protection at INL, public comment was given by the author regarding NIOSH continuing to ignore historical INL drinking water contamination and by former INL workers or family members. Several former Rocky Flats plant speakers talked of radiation dose record shredding, and practices of deliberate turning off of measurement instruments.

The issue of the lack of NIOSH documentation regarding interviews they conducted in Idaho Falls last fall was raised during public comment by Ralph Stanton. This prompted NIOSH to Fed-ex interview summaries to people they interviewed — eight months late. The hodge-podge

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<sup>7</sup> See meeting transcripts at the Center for Disease Control, National Institute of Occupational Safety and Health website at <http://www.cdc.gov/niosh/ocas/pdfs/abrwh/2015/tr072315.pdf> Topics include NIOSH's lack of consideration of contaminated INL drinking water and prevailing tendency to ignore dose falsification at INL and Rocky Flats.

<sup>8</sup> NIOSH Radiation dose reconstruction at <http://www.cdc.gov/niosh/ocas/> and <http://www.cdc.gov/niosh/ocas/ineel.html>

<sup>9</sup> The NIOSH omitted presentation is online at NIOSH Advisory Board and Public meetings for July 2015 at <http://www.cdc.gov/niosh/ocas/pubmtgs.html> and the omitted presentation is at <http://www.cdc.gov/niosh/ocas/pdfs/abrwh/pres/2015/sca-inlgapanlys-072315.pdf>.

of note-taking by NIOSH for the interviews generally did not capture key points made by interviewees and more importantly, appeared to lead to no increase in NIOSH comprehension of issues or to taking action.

As someone who NIOSH interviewed and who sat in on other interviews, the main emotion is one of betrayal. Perhaps the biggest rude surprise was that the interview summaries were to be directly given to INL contractor management and the Department of Energy with the commenter's identification. Basically, this limits any bad news NIOSH would learn from existing employees.

As one NIOSH person put it: "people just get cancer, radiation doesn't cause cancer." This attitude is basically the product of our university education system for Health Physics. They are inundated with out-dated radiation research intended to support the health of the nuclear industry. Ever hear of a certified health physicist (CHP) lobbying for using updated information like that of the BEIR VII report <sup>10</sup> to tighten radiation dose limits? Or adopt tighter limits to protect pregnant workers as they do in Europe?

It remains clear that NIOSH has marching orders to believe that the contractor and DOE were rigorously monitoring and recording radiation doses and to maintain that façade no matter the facts. NIOSH continues to protect DOE's interests by not identifying the facilities and jobs that have led to the most cancer claims to the Energy Employee Occupational Illness Compensation act.

The spoken response by NIOSH to one worker's interview concerning radiation dose estimates were that his dose was understated by several orders of magnitude. But NIOSH has yet to document their conclusion. One NIOSH person dismissed the falsified dose estimate as: "mistakes were made."

But the multiple actions taken by the INL contractor to reduce the stated radiation dose were deliberate. The only "mistakes" by INL are that the coverup of the falsified dose was not entirely successful.

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<sup>10</sup> "Health Risks from Exposure to Low Levels of Ionizing Radiation BEIR VII – Phase 2, The National Academies Press, 2006, [http://www.nap.edu/catalog.php?record\\_id=11340](http://www.nap.edu/catalog.php?record_id=11340) The BEIR VII report reaffirmed the conclusion of the prior report that every exposure to radiation produces a corresponding increase in cancer risk. The BEIR VII report found increased sensitivity to radiation in children and women. Cancer risk incidence figures for solid tumors for women are about double those for men. And the same radiation in the first year of life for boys produces three to four times the cancer risk as exposure between the ages of 20 and 50. Female infants have almost double the risk as male infants.

## **NRC Public Comment Period for Loosening Radiation Protection Standards**

The Nuclear Regulatory Commission is accepting public comments regarding a petition to eliminate the existing linear-no-threshold (LNT) model for radiation protection and replace it with a fantastical “radiation is good for you” hormesis theory.<sup>11 12</sup>

Never mind the epidemiology that shows that radiation protection standards should be tightened, not loosened. Never mind that the 2006 BEIR-VII report<sup>13</sup> revealed that the young are much more vulnerable to radiation and women are more vulnerable than men. Never mind that radiation dose is cumulative and that, despite industry hopes to the contrary, chronic doses adding up over time have been shown to be as harmful at a sudden large one-time dose. And never mind that the prevalence of medical radiation exposure creates a cumulative dose currently leaves no rational support for additional radiation exposure from nuclear plant emissions, waste burial, transportation, and accidents.

In this 2012 article by Jan Beyea<sup>14</sup> “Thus, pressure to update regulations may build, as awareness grows of the five-to-tenfold disparity between the risk estimates per unit dose recommended by scientists today and the older values still used by regulators in cost-benefit calculations for determining allowable doses. . . . It is now reasonably clear that protracted exposure does not protect against radiation-induced cancer. Rather, it is the cumulative radiation exposure from all sources that must be examined.”

And rather than use medical radiation exposure as a contrived argument to illustrate that nuclear industry radiation exposure is comparatively low, Beyea makes the important point that the medically treated population will be primed for radiation-induced, delayed cancers from nuclear plant releases. . . (p. 23).

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<sup>11</sup> See or submit public comments on NRC rulemaking actions <http://www.nrc.gov/public-involve/doc-comment.html>. See specifically [NRC-2015-0057](#) Linear No-Threshold Model and Standards for Protection Against Radiation.

<sup>12</sup> Karl Grossman, September 8, 2015, “Radiation is Good for You! and Other Tall Tales of the Nuclear Industry,” <http://www.counterpunch.org/2015/09/08/radiation-is-good-for-you-and-other-tall-tales-of-the-nuclear-industry/>

<sup>13</sup> BEIR-VII *ibid*.

<sup>14</sup> Jan Beyea, “The scientific jigsaw puzzle: Fitting the pieces of the low-level radiation debate,” Article in Bulletin of the Atomic Scientists, May 2012, see <http://www.researchgate.net/publication/228085435>

The NRC also wants to gut any restriction on buried radioactive waste,<sup>15</sup> but do it in a way that sounds to laypeople like it is reasonable and protective while in reality it is a hoax that removes limits on the amount of contamination the buried waste can create.

The NRC has recognized some of the shortcomings of its existing rule regarding the need for assessment contaminant migration beyond 500 years and addressing the now common practice of waste blending which is maximizing the long-lived waste concentration beyond the original intent. But the rule changes proposed by the NRC results in far less protection.

The proposed rule allows virtually unlimited burial of long-lived Greater-Than-Class C waste including uranium that increases in radioactivity over time due to radioactive decay ingrowth. The proposed rule basically says do a performance assessment for the time frame of peak doses and whatever radiation dose you come up with is fine. It is intended to allow unlimited shallow burial of long-lived radioactive waste although using phrases like “efforts shall be made to minimize releases” and “the institutional controls must be adequate to protect the public health and safety because they provide reasonable assurance of that long-term stability . . . will be achieved.”

The US Court of Appeals determined in 2004 that an arbitrary cutoff of 10,000 years was inadequate for the proposed Yucca Mountain spent nuclear fuel repository.<sup>16</sup> The EPA’s law for maximum public doses to be allowed from the proposed repository at Yucca Mountain, Nevada in the EPA rule 10 CFR 197, from all pathways of exposure is to be limited to 15 mrem/yr for the first 10,000 years and 100 mrem/yr after 10,000 years.

There is no reason to assume that humans will be more resilient to radiation 10,000 years from now. They just don’t have a way to reduce the doses that will be leaching out of the Yucca Mountain repository.

The NRC’s “low level” radioactive waste proposed limit is infinitely less restrictive than the Yucca mountain law. The NRC is proposing that the objective would be to **“keep doses below 500 mrem/yr or to a level that is reasonably achievable based on technological and economic considerations.”**

The petition to loosen radiation protection standards is outrageous in the face of epidemiology and scientific consensus that the standards need to be tightened. And the proposed rule change

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<sup>15</sup> Docket [NRC-2011-0012](http://www.regulations.gov/#!documentDetail;D=NRC-2011-0012-0161) Low-Level Radioactive Waste Disposal proposed rule change. See detailed discussion by Arjun Makhijani at <http://ieer.org/resource/testimony/nrc-briefing-gtcc-radioactive-waste/> and see my comment at <http://www.regulations.gov/#!documentDetail;D=NRC-2011-0012-0161>.

<sup>16</sup> See the Environmental Protection Agencies Radiation Protection Document Library for the 2004 court ruling at [http://www2.epa.gov/sites/production/files/2015-05/documents/dc\\_circuit\\_ruling.pdf](http://www2.epa.gov/sites/production/files/2015-05/documents/dc_circuit_ruling.pdf)

for low level radioactive waste disposal is guaranteeing that we poison land and life for millennia.

## **NRC Refuses to Fund Epidemiology around Nuclear Power Plants**

It is now official: the US Nuclear Regulatory Commission refuses to fund epidemiology studies near US nuclear power plants. And if you understand the real reasons why, you would not support nuclear energy. And you certainly would not choose to live near a nuclear plant.

The framework for the study was reported in “Analysis of Cancer Risks in Populations Near Nuclear Facilities; Phase I (2012).<sup>17</sup> After 5 years in planning for the study, the NRC has now decided it would take too long and cost too much. I think the NRC knows that a credible study would be the end of licensing new nuclear plants.

Serious epidemiology studies have been conducted in Europe — not like the flawed 1990 study performed in the US that did not and could not possibly detect elevated cancer risk. Studies conducted in Europe have reported increased rates of childhood leukemia around nuclear facilities. In 1992, the [German Childhood Cancer Registry](#) found a statistically significant increased incidence rate for leukemias among children below five years of age within the 5-km-zone around nuclear sites. A second study was published in 1997, and again found increased childhood leukemias near nuclear plants.

The third study was initiated, funded and published by the [Federal Office for Radiation Protection on behalf of the Federal Ministry for the Environment](#) and conducted by the German Childhood Cancer Registry on childhood cancer near nuclear installations. The study is known by its German acronym KiKK (Kinderkrebs in der Umgebung von Kernkraftwerken). The KiKK study on Childhood Cancer in the Vicinity of Nuclear Power Plants, completed in 2007 is scientifically rigorous and statistically sound and its peer reviewed results show significantly elevated cancer risk for children under five years of age living within 5 km of a nuclear power plant. The study looked at childhood leukemia and cancer near nuclear plants from 1980 to 2003.

The German Federal Office for Radiation Protection formally confirmed these findings, stating that ‘in the vicinity of nuclear power plants, an increased risk of 60 per cent was observed for all types of childhood cancer, and for childhood leukaemia the risk doubled equaling a risk increase of approximately 100 per cent’.

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<sup>17</sup> See cancer risk study at [nap.edu](http://nap.edu).



With the attention to technical detail associated with Germany, the German government also appointed a multi-disciplinary Expert Group to assess the KiKK study findings. They concluded that ‘the study-design complies with the state-of-the-art of epidemiological science, the study is the methodically most elaborate and comprehensive investigation of this interrelation world-wide, and incidence risk has been sufficiently proved for Germany’. Further analysis of the KiKK study by the German Expert Group went on to state that childhood cancer near to nuclear power plant sites was actually underestimated by the KiKK researchers – and so the risks are considerably above those reported.<sup>18</sup>

The NRC issued a statement<sup>19</sup> explaining their decision which included this excuse: “For example, the German study initially found an association of increased childhood leukemia risk within 5 kilometers of the facilities. However, upon examination of the offsite exposures, the authors concluded the increased risk could not be explained by the releases from the facilities.” In other words, it couldn’t happen, so it didn’t.

But while it is true that the mechanism is unknown, the elevated cancers around each nuclear facility is undisputed. Emissions from plants have sometimes been incorrectly characterized.<sup>20</sup> No one should accept the NRC’s excuses: the financial as well as human toll from excess cancers is very high.

In Illinois, near the Braidwood and Dresden nuclear power plants, one family learned that many children in the area had cancer, brain cancer, and leukemia, after their daughter Sarah was diagnosed with brain cancer when she was seven.<sup>21</sup> Cindy and Joe Sauer lived in the area of these reactors from 1998-2004. Joe Sauer, a medical doctor, conducted his own epidemiology study which showed clear increases in childhood cancers near the plants. Read his findings of elevated brain and other cancers near these plants.

A study by Joseph Mangano points to adverse health impact of nuclear energy in Michigan.<sup>22</sup> Van Buren County death rates were 3 to 6 percent below the state into the 1970s and early 1980s, but have risen since, to a level 12.5 percent greater than Michigan (2003-2010). The

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<sup>18</sup> Dr. Paul Dorman, “Why UK nuclear power plants may cause childhood cancer and leukaemia,” May 16, 2011, <https://www.escosubs.co.uk/theecologist/promotion.asp?code=RF2011ROW>

<sup>19</sup> NRC Policy Issue Information SECY-15-0104, August 21, 2015 “Analysis of Cancer Risks in populations Near Nuclear Facilities Study,” <http://pbadupws.nrc.gov/docs/ml1514/ML15141A404.pdf>

<sup>20</sup> Steve Wing, David B. Richardson, Wolfgang Hoffman, “Cancer Risks Near Nuclear Facilities,” *Environ Health Perspect.* 2011;119(4):417-421.

<sup>21</sup> Read about Cindy and Joe Sauer and what they learned about childhood cancer near nuclear power plants: <http://ieer.org/resource/commentary/on-life-near-two-nuclear-power-plants-in-illinois/> and read Joe Sauer, MD, presentation on elevated cancer rates near the Dresden and Braidwood nuclear plants at <http://ieer.org/wp/wp-content/uploads/2013/06/Health-Concerns-and-Data-Around-Illinois-Nuclear-Plants-slides-for-SDA-2013.pdf>

<sup>22</sup> Nuclear Contamination and Health Risks from the Entergy Palisades Nuclear Reactor, Radiation and Public Health Project Joseph Mangano, MPH, MBA Executive Director August 19, 2013

Entergy Palisades Nuclear began operation in 1971. Elevated levels were observed for all age groups (especially children/young adults), both genders, and all major causes of death. Joe Sauer's study, Joseph Mangano's study and the German KiKK study may be some of the best information we are going to get. So, it is important to understand what these studies have to say.

*Articles by Tami Thatcher, October 2015.*