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Boise Consent-based Siting Meeting Attendees Agree On This: There is No Trust in the Department of Energy —

EDI Submits Comments to the Department of Energy on Consent-Based Siting for Spent Nuclear Fuel

At the July 14 meeting held in Boise, Idaho and hosted by the Department of Energy to invite public input on the process that should be created for obtaining consent-based siting of nuclear waste storage, several table-top discussions responded to the question of "how to maintain trust in the Department of Energy." The response was that "there is no trust in the Department of Energy." See EDI's comments pertaining to consent-based siting of interim storage and permanent waste disposal sites and the reasons for the wide-spread lack of trust in the DOE at http://www.environmental-defense-institute.org/

The Department of Energy is considering the siting of a range of nuclear waste facilities for spent nuclear fuel and various forms of high level waste — from pilot interim storage facilities that lack repackaging capability and consolidated interim storage facilities to permanent disposal facilities. This year, the DOE has been conducting public meetings and requesting public comment on the process of obtaining consent-based siting of nuclear waste storage facilities. [1]

With the opposition of the State of Nevada to the DOE's long studied Yucca Mountain, Nevada has successfully thwarted the construction of the Yucca Mountain disposal facility. And despite a lawsuit that required the Nuclear Regulatory Commission and the Department of Energy to complete the safety analysis reviews of Yucca Mountain, the state of Nevada has blocked access to water and land effectively blocking the repository and therefore, the NRC did not issue construction authorization.

Since 2015, the DOE has had to settle or resolve 68 lawsuits, with 19 cases still pending, brought by nuclear energy utilities that want the DOE to take their spent nuclear fuel as promised. The utilities built their nuclear power plants with the plan that the spent nuclear fuel would be reprocessed at West Valley. That quickly proved to be much more costly than

[1] See https://www.federalregister.gov/articles/2015/12/23/2015-32346/invitation-for-public-comment-to-inform-the-design-of-a-consent-based-siting-process-for-nuclear and http://www.energy.gov/ne/consent-based-siting

expected. And although West Valley only processed SNF from 1966 to 1972, the environmental cleanup is still in progress.

With the promised 1998 opening of Yucca Mountain long since passed, the utilities have had to use costly dry storage when they ran out of wet storage space in fuel pools. The dense packing of spent fuel pools increases the inventory of radioactive material to release should an accident occur and increases the likelihood of an accident because cooling the fuel is more difficult. Ultimately, the fuel in dry storage will require repackaging if it is not shipped to a permanent deep geologic repository. Any leaking or damaged canisters will also require repackaging. The billions DOE is paying to settle these lawsuits provides monetary incentive for the DOE to create stop-gap "pilot interim" storage facilities. It has been a concern for many years that the creation of temporary storage facilities for the DOE might be counterproductive because it would give the appearance of making progress while taking pressure off developing the needed deep geologic repositories.

Sen. Harry Reid (D-NV) sponsored S.1825 Nuclear Waste Informed Consent act, introduced last year, stipulating that the DOE not spend money from the Nuclear Waste Fund to repackage, transport or construct test and evaluation facilities unless DOE has entered into an agreement to host a permanent repository with the governor of the state, each affected local government through which the waste will be transported and each affected Indian tribe. [2]

The Nuclear Waste Fund was created to pay for permanent disposal of spent nuclear fuel and was paid for by a tariff on electricity rate payers. The history of the Nuclear Waste Fund is summarized in a resolution to discontinue charging ratepayers in the state of Georgia until a viable plan is in place to dispose of spent nuclear fuel. [3]

GAO Issues Report on Department of Energy Whistleblower Concerns

The Department of Energy uses contractors to operate its nuclear facilities, but the Government Accountability Office found that the DOE rarely holds its contractors accountable for retaliating against workers who raise safety concerns.[4] The July GAO report cited a statement by the Defense Nuclear Facilities Safety Board:

"More recently, in 2011, the Defense Nuclear Facilities Safety Board (DNFSB) reported that DOE had failed to recognize, and likely contributed to, a "chilled atmosphere" and a "failed safety culture" at one of its largest and costliest cleanup facilities, the Waste Treatment and Immobilization Plant (WTP), which is being designed and constructed at DOE's Hanford Site

[2] https://www.congress.gov/bill/114th-congress/senate-bill/1825
[3] http://www.psc.state.ga.us/GetNewsRecordAttachment.aspx?ID=315
[4] US Government Accountability Office, "Whistleblower Protections Need Strengthening," GAO-16-618, July 11, 2016, http://www.gao.gov/products/GAO-16-618

near Richland, Washington. DNFSB received an allegation in 2010 from a former WTP contractor employee and manager claiming that he had been removed from his position in retaliation for raising serious safety and technical concerns, which later became the subject of litigation. The employee also alleged that efforts by contractor and DOE managers to suppress or downplay serious concerns had become part of the work environment and safety culture and work environment of that facility. DNFSB conducted an investigation and, in June 2011, recommended to the Secretary of Energy that DOE take immediate actions to improve the safety culture and environment for raising concerns."

The GAO conducted numerous interviews and found problems at DOE sites. In my opinion, the GAO report touches only the tip of the iceberg concerning the chilled work environment for raising safety concerns at DOE facilities. While I am grateful for the report, as someone who has seen contractor's lie to DOE investigators, seen how stacked against the employee the whistleblower protections are, and seen the deceitful actions of DOE contractors and the DOE, I can only marvel at the polite tone of the report and wonder if it is due to superior self restraint or due to a lack of comprehension of the problem.

NIOSH to Hold Meeting in Idaho Falls in August -
Special Exposure Cohort Investigations Continue

The Advisory board is scheduled to meet in Idaho Falls August 9 and 10. On Tuesday August 9, INL-related presentations are scheduled at 3:30 – 5:00 and public comment at 5:00 to 6:00 pm, limited to one hour. For other agenda items for August 9 and 10, see the meeting agenda. [5]

An interesting admission on the NIOSH website about a recently the approved special exposure cohort for INL 1970 to 1974 is that "This recommendation is based on the following factors: **Workers at this facility during the time period in question were involved in operations related to nuclear weapons production.** . ." [6]

The problem was not of inherent higher risk of working with radionuclides involved with weapons production material — the problem is the secrecy that renders worker dose reconstruction more difficult or impossible because records to discern process information and quantities of material handled are not available from the DOE. The secrecy also may explain the gaps of environmental monitoring long-lived alpha emitter radionuclide contamination at INL sites by the US Geological Survey despite the large extent of alpha contamination found during

[5] Center for Disease Control, National Institute of Occupational Safety and Health, NOISH Advisory Board Meeting, See August http://www.cdc.gov/niosh/ocas/pubmtgs.html

[6] Center for Disease Control, National Institute of Occupational Safety and Health: http://www.cdc.gov/niosh/ocas/pdfs/abrwh/secrecs/bdrecinl-229.pdf

CERCLA Cleanup investigations in the 1990s that had not been identified by USGS before – or since.

The Secretary of Human Health Services designated the class of employees covered by this report based upon the findings summarized below. [7]

"Principal sources of internal and external radiation exposures for members of the proposed INL class included exposures to various isotopes of **uranium, thorium, and plutonium;** tritium; exotic radionuclides (produced from, or as a result of, reactor neutron irradiation); and mixed fission and activation products (MFP/MAP) [mixed fission product/mixed actinide product]."

"For the period from March 1, 1970, through December 31, 1974, NIOSH has not located sufficient personnel or area-monitoring documentation to support reconstruction of internal personnel exposures to **uranium, neptunium, plutonium**, **and other related transuranic radionuclides**. Without additional personnel radiation-monitoring data or air-monitoring data during this period, NIOSH has insufficient information to appropriately characterize radioactive material intakes of these radionuclides during these INL operations."

The other special exposure cohort (SEC) recently approved is for Argonne National Laboratory – West (ANL-W) for 1951 to 1957. The investigation continues of INTEC 1963 to 1970 and of other INL and ANL-W facilities and time periods. Roughly two thirds of illness claims of INL workers are denied by the CDC because radiation dose reconstruction concludes that the doses were too low to have caused the illness.[8]

The original INL petition for creating a special exposure cohort, including ANL-W, was to include all workers at INL before 1970. The NIOSH approved SEC for 1970 to 1974 is a step in right direction. But that still leaves workers in the 1950s and 1960s without a special exposure cohort when these years also involved transuranic-intensive and secretive defense research. And problems with radiation monitoring after 1974 through the 1990s are apparent from the worker-populated areas like the Auxiliary Reactor Area where the 1961 SL-1 accident occurred. CERLCA investigations that began in the late 1980s found that buildings workers were still using were too radiologically contaminated to remediate by means other than demolition. CERCLA soil excavations then created vast amounts of elevated radionuclide air contamination far and wide over the INL site and offsite in the 1990s and later.[9] Illness claims are coming into NIOSH from recent years of CERCLA cleanup. As the investigations continue, everyone who worked at INL before 1974 should be included in an INL cohort. And everyone who worked at INL after 1974 should be included in a cohort as well.

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[7] http://www.cdc.gov/niosh/ocas/pdfs/sec/inl/inlhhsdes-219.pdf

[8] See the NIOSH Radiation Dose Reconstruction Program at http://www.cdc.gov/niosh/ocas. See the Idaho National Laboratory status at http://www.cdc.gov/niosh/ocas/ineel.html and see the portion of INL formerly ANL-W at http://www.cdc.gov/niosh/ocas/anlw.html

[9] See ar.icp.doe.gov for CERCLA cleanup documents.

At the INL's Test Reactor Area, CERCLA cleanup and NIOSH reports have yet to determine the quantity and the specific radionuclides flushed to the open-air retention basin and open-air ponds (all very near to employee offices, walkways and roads) or to aquifer injection wells. Records have not been located to determine what amounts were flushed or when. A 2005 INL cleanup contractor report acknowledges INL's involvement with defense work but downplays the prevalence of flushing of hot waste to open air ponds rather than the later practice of tanker trucking hot waste to INTEC if deemed highly radioactive. [10] Spent fuel canal and reactor primary coolant, unfiltered in early years, was flushed to the leaking retention basin and open-air ponds from 1952 to 1993. After 1993 when the new lined evaporation pond was put in service, waste water was still routed through the retention basin which still leaked. From 1952 and likely to 1984, most **laboratory and hot cell radioactive waste including chemically treated uranium and transuranics was also flushed** to open-air ponds and likely to disposal injection wells. Increased concern about the chemical waste after 1984 [11] led to some changes to waste water flushing to open-air ponds at TRA but secrecy and inability to obtain records applies to most years of TRA operations as evidenced by the inability of CERCLA cleanup investigations to determine what and when radionuclides were disposed of in waste water there.

Agencies Document 16 Additional Soil Contamination Areas at the Idaho National Laboratory

The Department of Energy, Environmental Protection Agency, and state of Idaho have released an Explanation of Significant Differences addressing contaminated areas not previously identified. New contamination is addressed under a New Site Identification (NSI) process in Operable Unit 10-08. Because access to the INL is restricted, the risk to the public currently is blown off by these agencies – or, is it blowing in the wind? See the Explanation of Significant Differences document for 2011 through 2015. [12]

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[10] US Department of Energy, Idaho Completion Project, DOE Environmental Management under DOE/NE, Idaho Operations Office, "Defense-Related Waste Determination for Legacy Transuranic Waste at the Idaho National Laboratory Test Reactor Area Warm and Hot Waste Systems, ICP-EXT-04-00729, April 2005. http://efcog.org/wp-content/uploads/Wgs/Waste%20Management%20Working%20Group/Waste%20Classification%20Library/INEL/ICP_EXT-04-00729.pdf This document continues to coverup the fact that warm and hot wastes were disposed of in disposal wells and the open air ponds for many years before the practice of trucking the hot waste to INTEC began. And note that only in 2016 has NIOSH admitted that weapons production secrecy has made some years of INL worker radiation dose reconstruction impossible.

[11] S.M. Lewis et al., "Remedial Investigation Report for the Test Reactor Area Perched Water System (Operable unit 2-12)," EGG-WM-10002, June 1992. See https://ar.icp.doe.gov p. 4-24 discuses that some liquid waste may not have been flushed to the open-air retention basin and ponds based on high gamma levels should not provide sufficient reason to believe that enormous levels of alpha emitters were not flushed. In 1984, mixed chemical and radioactive waste was disposal practices shifted to ship mixed waste to a disposal facility, likely the Radioactive Waste Management Complex.

[12] See DOE/ID-11547 at https://ar.icp.doe.gov or https://ar.icp.doe.gov/images/pdf/201605/2016052601046BRU.pdf

New contamination was found at Test Area North, INTEC, and the Test Reactor Area (or ATR Complex). Here is an excerpt: "TRA-04—TRA-712 Warm Waste Retention Basin System (TRA-712 and TRA-612).TRA-04 is an existing CERCLA site at the Advanced Test Reactor complex identified in the OU 2-13 ROD (DOE-ID 1997). The site comprises soil contamination associated with the Warm Waste Retention Basin. The OU 2-13 ROD and subsequent ESD (DOE-ID 2000) selected no further action with institutional controls. After basin structures were demolished under a non-time-critical removal action, the site was reevaluated using the OU 10-08 NSI process. Because **long-lived radionuclide contamination that will take over 24,000 years to decay to acceptable levels remains at depths greater than 10 ft, institutional controls will be required indefinitely (NSI-26002)**. The Agencies determined there is no change to the OU 2-13 selected remedy of no further action with institutional controls."

The described timeframe of "over 24,000 years" is an odd understatement. The americium-241there will decay to neptunium-237 with a 2,144,000 year half life. And there are quantities of material that require several half lives of decay to achieve safe levels. Close enough for government work...

Recent Radiological Incidents at INL's RWMC

No reportable internal contamination was found following a May 10 radiological incident of skin contamination at the Advanced Retrieval Project at the Idaho National Laboratory's Radioactive Waste Management Complex. The worker was using a respirator. A similar event occurred June 29. [13] But any intake less than 100 mrem is not reportable and the contractor does not use Super Class S solubility which would probably be appropriate and yield a higher dose.

This type of skin contamination has been discussed at INL Citizens Advisory Board meetings in past years: clothing dampened with sweat has been known to allow radioactive contamination to penetrate the clothing and contaminate skin. This isn't anything new — even though the leaving cleanup contractor (CWI) and the new cleanup contractor, Fluor, don't seem to know this.

The larger concern is the pig pen of elevated airborne contamination from the excavation of the Advanced Retrieval Projects that workers are breathing year around. And the soup of radionuclide and chemical contaminants in the drinking water and shower water there.

[13] Luke Ramseth, *Idaho Falls Post Register*, "No internal contamination exposure for workers," July 29, 2016.

Sorry Nukes, More Solar Good News

The Federal Energy Regulatory Commission announced its ruling that energy co-ops and small municipals will be able to buy more solar power. [14] Rocky Mountain Institute writes that "In recent years as renewable energy costs have plummeted, these local distributed projects have become an opportunity for co-ops and munis to save money. . . .Now that renewable energy prices rival those of wholesale power, the co-op and muni renewable electricity market is poised to explode." [15]

RMI also writes that "This FERC ruling is a clear sign that generation and transmission providers will need to work collaboratively with member co-ops toward a cleaner, more distributed energy future."

And Even More Solar Good News:
President Obama Announces Solar Energy Financing for Low- and Moderate- Income Families

On July 19, President Obama announced **The Clean Energy Savings For All Initiative** that is expected to result in lower energy bills, more empowered consumers, and cleaner communities. The goal is to bring 1 gigaWatt (GW) of solar energy to low- and moderate-income families by 2020. Financing with no upfront cost and pay back over time with your property tax bill. Read more about it at Whitehouse.gov [16] and at Rocky Mountain Institute. [17]

And Even in Idaho, More Solar Good News:
40 MW Boise City Solar Project

The Boise City Solar Project, a solar farm on 550 acres is being built southwest of Boise that will produce 40 megawatts of electricity.[18] In addition, the Snake River Alliance has promoted

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[14] Federal Energy Regulatory Commission at https://www.ferc.gov/whats-new/comm-meet/2016/061616/E-16.pdf
[15] Rocky Mountain Institute at http://blog.rmi.org/blog_2016_06_21_new_ruling_opens_up_400_gw_renewables_market
[16] https://www.whitehouse.gov/the-press-office/2016/07/19/fact-sheet-obama-administration-announces-clean-energy-savings-all
[17] http://blog.rmi.org/blog_2016_07_29_Small_Steps_and_a_Giant_Leap_for_DERs_in_Low-Income_Communities
[18] Rocky Barker, Idaho Statesman, http://www.idahostatesman.com/news/local/news-columns-blogs/letters-from-the-west/article77252997.html

the **Solarize the Valley** project, bringing together home and business owners, and hoping to get 250 kw of new solar installed this year. [19]

Articles by Tami Thatcher, for August 2016.

[19] Snake River Alliance, 2016 Solarize list at http://snakeriveralliance.org/