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US Department of Energy
Consent-based Siting Website www.energy.gov/consentbasedsiting
Public Comment Submissions Email: consentbasedsiting@hq.doe.gov

Subject: Submittal of Public Comment on the Department of Energy's Consent-based Approach for Siting Storage for the Nation's Nuclear Waste

The US Department of Energy has held public meetings around the country this year including one in Boise, Idaho on July 14, to obtain public input on how to create a process for a consent-based approach for siting storage facilities for the nation's nuclear waste. It is important to understand that the meeting was not about discussing actual proposed sites in Idaho or elsewhere. It was a meeting to discuss how to go about designing a consent-based approach as recommended by the Blue Ribbon Commission. [1] Some basic background on spent nuclear fuel storage can be found in the DOE's announced strategy[2] and a report by the Government Accountability Office.[3] Our comments are provided to highlight concerns with interim and permanent storage of the nation's spent nuclear fuel and high level waste. And in highlighting these concerns along with some highlights from DOE's historical practices, we hope that any community considering consenting to host interim or permanent storage will better understand the problem and will work to independently evaluate the information from the DOE and its hope-to-make-a-profit partners. It will take tremendous investigation by the community's deciders to **avoid a misinformed consent decision**.

Who is to give consent? This may be answered pragmatically by whoever controls the politics. But the question is worth deep consideration. By experience, if the governor of a state opposes storage, a state does not consent. If a state has a legal agreement with the Department of Energy which opposes accepting nuclear waste into Idaho or the state has voted to oppose accepting nuclear waste, obviously that state such as the State of Idaho does not consent, as pointed out by panel speaker Beatrice Brailsford, Nuclear Program Director, Snake River Alliance. And even if a tribe or local community has consented to storage of waste such as the

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[1] Blue Ribbon Commission of America's Nuclear Future. 2012. (It uses 2010 estimates for spent fuel quantities) www.brc.gov

[2] Department of Energy Strategy for the Management and Disposal of Used Nuclear Fuel and High-Level Radioactive Waste, January 2013. p. http://energy.gov/em/downloads/strategy-management-and-disposal-used-nuclear-fuel-and-high-level-radioactive-waste

[3] GAO Report GAO-13532T: Commercial Spent Nuclear Fuel – Observations on the Key Attributes and Challenges of Storage and Disposal Options, April 11, 2013. http://www.gao.gov/assets/660/653731.pdf

spent nuclear fuel from the nation's commercial nuclear power plants, state officials may effectively block that consent as occurred in the state of Utah, concerning Skull Valley [4] or in the state of Nevada concerning DOE's stymied spent fuel storage facility Yucca Mountain. [5]

An intriguing point made at the Boise meeting by panel speaker Talia Martin, representing the Shoshone-Bannock Tribes, was that a tribe may have rights to prevent desecrating land outside its reservation, when the land has ancestral value to the tribes. Land having spiritual significance to future generations as well as to people now passed on — now that would seem to be a concept unfamiliar to the Department of Energy who doesn't seem to care about people it has harmed and is harming today with environmental contamination and with inadequate radiation protection standards to protect workers and the public.

Who will represent the future generations of people affected by expected migration of the radionuclide contamination? It doesn't appear that DOE is attempting to even ask that question. They are desperately looking for a way—any way—to obtain interim storage and hopefully someday, permanent storage. Crisis management will likely prevail at some point when citizens understand the scope of the problem. But for now, the approach is the politically attractive one of seeking consent from communities rather than top-down decisions that force storage and disposal facilities on a state.

Are citizens to vote on acceptance of a storage facility in their state? Putting an issue on the ballot has gotten more difficult and more expensive in Idaho. The citizens of a state considering host nuclear waste storage are not the only citizens potentially impacted by the decision. People who may be affected by the potential accident risks, including transportation risks, ought to have a voice despite the DOE's characterization of nuclear waste transportation as "safe" despite packaging that will not withstand what has been the norm for high temperature and long duration fires? If it's so safe, why can't people's land, homes and businesses be insured against radionuclide contamination from a transportation accident or accident at a storage site? Relying on the Price Anderson Act's limited coverage will likely be slow and inadequate compensation for devastating losses. Physical injury due to radiation exposure will likely require years of lawsuits as the government will deny that illness was due to exposures from the radiological accident to emergency responders and citizens. And the DOE avoids mentioning the increasing problems with commercial reactor high burnup fuel that is more vulnerable to damage during storage and transport. Will communities faced with increased waste transportation through their towns have a say in who hosts interim or permanent storage? And will emergency responders be equipped with radiation detection instrumentation to stay safe themselves and to evacuate citizens?

For communities living in adjacent to neglected interim storage or to permanent storage sites,

[4] Utah Department of Environmental Quality reflects state leaders views and offers this information on its opposition to storage of spent nuclear fuel at the facility proposed on the Skull Valley Goshute Indian Reservation at http://www.deq.utah.gov/Pollutants/H/highlevelnw/opposition/concerns/concerns.htm

[5] State of Nevada's website reflecting its opposition to Yucca Mountain, see http://www.state.nv.us/nucwaste/

whose water sheds will be contaminated over the long run, will these communities have a say? This could involve many communities and some outside the hosting state. Likely the wide expanse of affected communities will not have a say in the siting of nuclear waste storage.

The Department of Energy will likely seek to simply influence politics in their direction rather than think too deeply about who should give consent. Bribery is encapsulated in the word "incentives" and proposed bribes were not discussed at the Boise meeting. There is the tradeoff of paying off the host community or community "deciders" and the cost born by taxpayer and rate-payers. "Incentives" often stated with an accompanying wink of one eye, have been a key feature of past attempts to obtain an interim storage site in Idaho via Partnership for Science and Technology presentations at Idaho Falls City Club luncheons. But when bribery does not seem effective, the DOE is quick to threaten punishment such as threatening to defund and close down DOE research at the INL if the state is not receptive to SNF interim fuel storage.

What amount of nuclear waste is to be stored and for how long? Along with the nation's spent nuclear fuel (SNF) from commercial nuclear reactors, sometimes called "used fuel," we also have SNF from Department of Energy research facilities, Navel submarines and carriers, and various forms of high-level waste from nuclear fuel reprocessing from DOE's Hanford, Savannah River and Idaho sites and West Valley commercial nuclear fuel reprocessing. The amount of waste originally and legally designated for the stymied Yucca Mountain has now doubled.

Where are the many suitable sites for permanent repositories? The DOE in written handouts at the Boise meeting assures us that there are many suitable geologic sites for disposing of the SNF and HLW, despite the failure to proceed with Yucca Mountain.[6] DOE does not identify those many sites. It is interesting that there are so many suitable sites, yet DOE had so few disposal sites suitable for the much lower volume and lower quantity of radio-toxic material for its Greater-Than-Class-C waste. The DOE has selected the defense-waste repository, the Waste Isolation Pilot Plant (WIPP) [7] in New Mexico as the site also to be the DOE's GTCC waste burial site [8] but Idaho remains a possible, although unsuitable, site for the DOE's GTCC waste burial. Many proposed sites for the DOE's GTCC radioactive waste, such as Hanford, were found to already have such high quantities of toxic radionuclides already poised to contaminate water sheds that adding GTCC waste to the existing mess was going to exceed drinking water standards in the future, if not already exceeded. Recent studies of waste migration hold vastly different assumptions that affect greatly the conclusion of whether the dose from ingesting water exceeds

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[6] See Yucca Mountain Environmental Impact Statement, DOE/EIS-0250F-S1.

[7] DOE accident investigation reports have found virtually every aspect of WIPP operations to be seriously flawed. See www.wipp.energy.gov.

[8] Department of Energy, "Draft Environmental Impact Statement for the Disposal of Greater-Than-Class C GTCC) Low-Level Radioactive Waste and GTCC-like Waste," DOE/EIS-0375-D), February 2011. http://www.gtcceis.anl.gov/guide/gtccllw/index.cfm

what are deemed applicable standards. [9]

The already in-place — never to be exhumed buried radioactive waste — at the Idaho National Laboratory will yield contamination to downgradient communities, essentially forever, of both chemical and radionuclide contamination of the waste buried at the Radioactive Waste Management Complex[10] [11] The removal of above-ground stored waste at the Advanced Mixed Waste Treatment Facility at the INL is often confused with the never-to-be-removed buried waste at RWMC with the exception of a small amount of "targeted" chemically laden waste. The waste migration into the aquifer from RWMC has not been realistically modeled by the DOE nor is it conservatively modeled. Flooding and fast paths of contaminant migration are ignored. [12] The ingestion doses will undoubtedly exceed the 30 to 100 mrem/yr radiation doses shown for extended periods of time. DOE has planned to bury more nuclear waste over the aquifer in the replacement for RWMC, the Remote-Handled Low-Level Waste Facility. [13]

Efforts to remediate the waste injection well disposal of chemical contamination at INL's RWMC and Test Area North so far have failed. [14] Experts avoid mentioning the fact that contaminants in the aquifer flow downgradient to communities 50 to 100 miles south of the INL. And these contaminants take 20 years or so, not the 50 to 700 years that presentations depict.

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[9] Idaho National Laboratory, "Explanation of Significant Differences Between Models Used to Assess Groundwater Impacts for the Disposal of Greater-Than-Class C Low-Level Radioactive Waste and Greater-Than-Class-C-Like Waste Environmental Impact Statement (DOE/EIS-0375D) and the Environmental Assessment for the INL Remote-Handled Low-Level Waste Disposal Project (INL/EXT-10-19168)," INL/EXT-11-23102, August 2011. http://www.inl.gov/technicalpublications/documents/5144355.pdf and a report prepared for the US Department of Energy, DOE Idaho Operations Office, "Preliminary Review of Models, Assumptions, and Key Data Used in Performance Assessments and Composite Analysis at the Idaho National Laboratory," INL/EXT-09-16417, July 2009. See p. 11, Tables 3 and 4 for sorption coefficients.

[10] U.S. Department of Energy, 2007. Performance Assessment for the RWMC Active Low-Level Waste Disposal Facility at the Idaho National Laboratory Site. DOE/NE-ID-11243. Idaho National Laboratory, Idaho Falls, ID and U.S. Department of Energy, 2008. Composite Analysis for the RWMC Active Low-Level Waste Disposal Facility at the Idaho National Laboratory Site. DOE/NE-ID-11244. Idaho National Laboratory, Idaho Falls, ID. (https://www.inl.gov/about-inl/general-information/research-library/ Search the DOE-ID Public Reading Room for the reports.

[11] See that the publically available administrative record for RWMC cleanup does not contain the assessment of radionuclide migration and radioactive doses after 10,000 years. The pre-10,000 year contaminant migration is artificially suppressed for the first 10,000 years and then rapidly escalates and stays elevated for hundreds of thousands of years. See the Administrative Record at Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) documents for documents associated with this cleanup action, including "Record of Decision" documents and EPA mandated Five-year Reviews at http://ar.inel.gov or http://ar.icp.doe.gov

[12] Johnson TM et al., *Geology*, "Groundwater "fast paths" in the Snake River Plain aquifer: Radiogenic isotope ratios as natural groundwater tracers," v. 28; no. 10; p. 871-874, October 2000.

[13] US Department of Energy, "Environmental Assessment for the Replacement Capability for Disposal of Remote-Handled Low-Level Radioactive Waste Generated at the Department of Energy's Idaho Site," Final, DOE/EA-1793, December 2011. http://energy.gov/sites/prod/files/EA-1793-FEA-2011.pdf

[14] Department of Energy Idaho Operations Office, *Five-Year Review of CERCLA Response Actions at the Idaho National Laboratory Site,* Fiscal Years 2010-2014, DOE/ID-11513, December 2015.

Interim Pilot or Consolidated Storage Facilities Beware. To the question "how long will the waste be here?" — geologic repository means "forever" and interim means "forever" if there's no geologic repository.

What is the DOE proposing? DOE is proposing creating "pilot interim storage facilities" with pilot to infer that no repackaging capability will be provided. These are the hurry-up sites DOE wants to ship SNF from closed commercial nuclear reactors to. Apparently the weasel word "pilot" means that the 1995 Idaho Settlement Agreement stipulation that the Navy's SNF in Idaho be shipped to an interim site if a permanent repository is not available can be ignored? There was no answer to my question on this specific matter at the meeting. Along with one or multiple "pilot interim storage facilities," DOE wants one or multiple "Consolidated Interim Storage Facilities" for SNF that would have repackaging capability, and of course, also one or several deep geologic facilities. It also will be necessary to dramatically improve transportation infrastructure to support movement of shipments of the SNF and HLW from current storage locations to the new sites. [15]

Insights from the Boise Meeting. Several of the table-top discussions among a dozen tables at the meeting in Boise came to same conclusion regarding the question of how to establish and maintain trust. **The conclusion was that there was no public trust in the Department of Energy. The good news for the DOE is that with public trust at rock bottom, it can only improve.** The reasons for so little trust in the Department of Energy are highlighted in a later section of these comments.

Several table top discussions recognized the importance of access to information, full disclosure of information, the transparency of information, and the need for independent scientific review of the information pertaining to safety, risks, potential consequences of accidents, expected migration of contaminants, and human health risks. Along with the DOE's long history of hiding information, giving deliberately distorted and incomplete information, and maliciously making a mockery of the Freedom of Information Act process, DOE's promotion of nuclear energy was evident at the Boise meeting with the poster session limited to pro-nuclear propaganda with a scientific guise, omission of any mention of issues that would undermine its intention to create more—unlimited and unspecified amounts—of additional spent nuclear fuel and high level waste from existing and future programs. **Completely absent from the meeting was any expression of remorse from the Department of Energy for creating such a huge burden on the current and future generations. In fact, being the DOE means never having to say you are sorry.**

DOE's posters touted borehole research as a possible solution for disposal of radioactive waste. In 2016, it had been reported that Battelle Energy Alliance was recently awarded a $35 million, five-year U.S. Department of Energy contract to drill a test borehole more than 16,000

[15] Note that spent nuclear fuel (SNF) is sometimes included as a subset of high level waste (HLW) and sometimes not, depending on the government agency and the era.

feet, or a little more than three miles, into a crystalline rock formation in North Dakota. The goal was to learn more about whether such extremely deep boreholes might be useful for the disposal of high-level radioactive waste. There was no mention at the Boise meeting or on the posters or handouts of the fact that North Dakota has since prohibited DOE from conducting the research there or the primitive state of its borehole research.

Maintaining Scientific Integrity Requires More Than Simply Repeating What DOE Says. The DOE demonstrated excellent soothing smokescreen public-relations spin to press for its nuclear ambitions at the Boise meeting. But posturing its position as rationale and scientific, they undermined a non-expert's ability to be aware of the information being left out. Full disclosure is needed to communicate the existing state-of-knowledge of nuclear waste storage problems pertaining to expected migration of contaminants from permanent repositories and possible accident or terrorism risks at all interim and permanent storage sites.

The public is encouraged to assume that the two pillars relied upon for protecting human health and the environment from the expected migration of nuclear waste are resting on unquestionably solid scientific evidence. **The two pillars relied upon for siting nuclear waste disposal sites are US radiation protection standards and predictions of waste migration over millennia; neither of these currently rest on scientific bedrock.** US radiation protection standards have not provided adequate protection of adult male radiation workers and will not be protective of the unborn, children, women or the elderly. The body of human evidence showing the US radiation protection standards are inadequate is growing and the US DOE and US Nuclear Regulatory Commission (NRC) are actively ignoring this information, even when it comes from industry-aligned groups such as the BEIR-VII report. [16] There is a continually expanding recognition of harm to US DOE workers as illness compensation act investigations continue. [17] And even bipolar nuclear industry friendly and sometimes not so friendly, US Environmental Protection Agency knows that there is plenty of evidence of radiation harm from doses below 10 rem despite the DOE's and numerous university health physics program's active denial. [18]

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[16] "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 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.

[17] 42 USC 7384, The Act--Energy Employees Occupational Illness Compensation Program Act of 2000 (EEOICPA), as Amended

[18] US EPA 2015 http://www.regulations.gov/#!documentDetail;D=NRC-2015-0057-0436 . For important low-dose radiation epidemiology see also John W. Goffman M.D., Ph.D. book and online summary of low dose human epidemiology in "Radiation-Induced Cancer from Low-Dose Exposure: An Independent Analysis," Committee for Nuclear Responsibility, Inc., 1990, http://www.ratical.org/radiation/CNR/RIC/chp21.txt And see EDI's April 2016 newsletter for Ian Goddard's summary and listing of important human epidemiology concerning low dose

Honest scientists know that little confidence should be placed on DOE's ability to predict the timing of migration of radionuclides from buried waste as the waste and its containers corrode. **At best, a community's consent to a nuclear waste storage facility will be misinformed consent unless unprecedented levels of independent analysis are funded.** There may be more confidence in the short term. And this is enough for many people at the DOE who will tell you not to worry about the future contamination. Someone who believes he will not be likely be poisoned is often amazingly good at ignoring that other folks now or in future generations will be poisoned. The NRC's recent low level radioactive waste disposal rule making has given up pretending that radionuclide ingestion doses can be predicted and has rested its approach on claiming they used defense-in-depth and they tried hard to minimize to some unspecified extent the future harm they will cause from burying the waste. The NRC wants to make no specific promise as to future levels of contamination that will trickle out. [19] The DOE is great at pretending it can predict the average dose to someone drinking the water thousands of years from now. Even if the lifetime dose protection criteria were to be believed despite being especially ill-suited for internal radiation, the DOE's approach allows the protective limits to be exceeded half of the time and for extended periods of time, perhaps spanning many human generations. The approach is touted to assure that the radiation ingestion doses will be low, but in fact, it does not assure the doses will be low even if the models were robust, which they are not.

NIMBY and NIM2 are Realities. The DOE apologists at the meeting made excuses for DOE's failure to succeed in opening nuclear SNF and HLW burial at Yucca Mountain. First, there is the problem that people don't want the threat of migrating radionuclides in the air from an accident or in their water from waste migration—the not-in-my-backyard (NIMBY) problem. And now recognized is the not-in-my-term (NIM2) problem when politicians avoid the hari-kari of controversial nuclear waste storage issues. The DOE is careful to avoid pointing the finger at its own role in belatedly addressing waste issues as it makes more waste. The reason for the nuclear waste not from generating electricity is waste from nuclear weapons production. Nuclear reactors and processes associated with nuclear weapons making is the reason for numerous superfund contamination sites created at the many DOE sites and much of it involved making plutonium. And now DOE has another waste problem not even mentioned at the meeting. The DOE doesn't know what to do with all the plutonium it made. The DOE can't even give away free mixed oxide nuclear reactor fuel from the over-budget, behind schedule mixed oxide (MOX) fuel plant at Savannah River— a river of pork that can't be stopped. [20]

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radiation exposure.

[19] NRC LLW disposal rulemaking for 10 CFR Part 61; Docket NRC-2011-0012. See http://www.regulations.gov/#!docketDetail;D=NRC-2011-0012

[20] Department of Energy's South Carolina "Mixed Oxide (MOX) fuel plant is under construction to blend plutonium with uranium to use in conventional light water reactors and costs continue to spiral. See http://nukewatch.org/MOX.html and http://www.scientificamerican.com/article/mox-fuel-nuclear/ and CB&I Areva MOX http://www.moxproject.com/

When Dealing with the Devil. What experiences can serve as good examples or illustrate what should be avoided? For one thing, it appears no agreement or law enactment is actually able to limit the quantity of the material stored or buried, given experience with the Department of Energy. A potential host community should consider the WIPP experience. Laws enacted to limit the total quantity of waste and the type of waste are being actively and continuously under siege by the Department of Energy. WIPP stores the nation's transuranic defense waste but DOE continues to study putting at WIPP Hanford's high-level waste from future vitrification activities, if ever successful. DOE continues to study putting the Navy's spent nuclear fuel and its various other wastes at WIPP. Regarding Yucca Mountain, the law to limit the total metric tons of nuclear waste entombed there and thus limit the radionuclides that would leach out, is being ignored as promoters for Yucca Mountain waive away the fact that there is already double the waste that Yucca Mountain was to hold.

No one, not even the uranium mining industry can trust an agreement with the DOE. When DOE promised in writing to not sell uranium in amounts that would injure the US uranium mining industry, the DOE then sold off large amounts and decimated the mining industry. DOE's John Kotek excused DOE's actions and explained that the DOE's agreement was simply a guideline and not a requirement. The Government Accountability Office (GAO) found that DOE did not properly value the uranium that was being transferred, nor did DOE adequately assess the impact of the transfers on the commercial uranium market as it had promised to do.[21]

Poor Performance at Low-Level Waste and Transuranic Defense Waste Disposal Facilities. Read about the many problems of buried radioactive waste disposal of the simpler "low-level" radioactive waste in EDI's February 2016 newsletter, "Wide Spread Waste Disposal Woes." Nothing the Department of Energy has ever said about its waste disposal has been true, from its intentionally poor record keeping, inadequate safety and confinement assessment, to its inability to foresee flooding, fires and excessive migration of contaminants at its buried waste sites. Still in 2016, the Idaho National Laboratory still doesn't know what wastes were disposed of in the aquifer. But this much is clear: the DOE and the US Geological Survey have lied since the 1950s and are still lying about what was disposed of into the aquifer. Even CERLCA cleanup documents don't come clean on what and how much was disposed of into the aquifer although its investigations have found high concentrations of transuranics and other radionuclides. Basically, DOE very deliberately never quite knows the quantity of waste disposed of, never correctly estimates the migration of contaminants in the short term, never offers believable estimates of migration of contaminants in the long term, and expresses unwarranted confidence in barriers such

[21] www.Environmental-defense-institute.org June 2015 newsletter article " DOE uranium sales have hurt uranium industry" and http://oversight.house.gov/hearing/examining-dept-energys-excess-uranium-management-plan/ and http://www.4-traders.com/URANIUM-ENERGY-CORP-62414/news/Uranium-Energy--Lummis-Examines-Energy-Department-Uranium-Transfers-20245072/

as soil caps as being protective for millennia despite the barriers requiring maintenance and being vulnerable to geologic instability such as seismic events, erosion, volcanism, flooding and so forth.

Wasted Forever. You cannot limit the time your host community will house the waste because this is impossible to do with the Department of Energy. There may never be the political will or public acceptance of becoming radioactively contaminated even if limited to contamination after our lifetime. Radioactive contamination from buried waste is inevitable. Radioactive emissions from routine reactor operation and from accidents can be expected. Radioactive emissions are released from dry storage if there is a leaker. Radioactive exposures occur with routine transportation and vast tracts of land may become uninhabitable should a severe transportation accident occur, despite DOE's repeated phrase that transportation of SNF is safe.

DOE's Safety Record. DOE's safety record can best be understood by the WIPP accidents in 2014. [22] After obtaining the most extensively reviewed and scrutinized DOE nuclear facility safety analysis of all time, the DOE systematically and deliberately revised and undercut the safety analysis and safety programs such as fire protection, radiation monitoring and automatic isolation systems to leave us all very lucky that the two 2014 accidents at WIPP were not far worse. And even in 2015, DOE could not be honest with the Idaho National Laboratory's Citizens Advisory Board about the number of waste drums containing the forbidden explosive combination of nitrates and organic absorbent. [23] DOE's safety programs are based on outdated acceptance of substantial unmitigated environmental damage as long as they can argue that few people will have greater than 25 rem doses because of evacuation.

Long History of Inadequate Environmental Monitoring. In terms of environmental monitoring, the DOE has a horrible record of inadequate monitoring in the past and at the recent radiological release from WIPP following the burp of a single barrel of plutonium/americium laden waste. The barrel held expressly prohibited materials and far more radioactive material than was expected. The DOE's site monitoring failed to find external contamination but the state's monitoring of air offsite did identify the contamination before DOE did. When DOE has monitored contamination, it has not necessarily completely and honestly disclosed the levels of contamination, as was the case in the early years at the Idaho National Laboratory and still is the case as tritium emissions are not monitored, estimated or reported from the INL's Advanced Test Reactor.

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[22] US Department of Energy, Office of Environmental Management, "Accident Investigation Report, Phase 2, Radiological Release Event at the Waste Isolation Pilot Plant, February 14, 2014," April 2015. p. 164 http://www.wipp.energy.gov/Special/AIB_WIPP%20Rad_Event%20Report_Phase%20II.pdf

[23] Lauren Villagran and Mark Oswald, *Albuquerque Journal*, "LANL, DOE blamed in WIPP leak," April 17, 2015. http://www.abqjournal.com/570812/news/final-report-on-wipp-leak-blames-lanl-doe.html The INL Citizens Advisory Board when specially asked DOE how many drums were incorrectly loaded with organic kitty litter, was not provided with an answer. DOE refused to answer, but DOE knew it was hundreds of drums.

Environmental monitoring by other agencies such as the US Geological Survey have long failed to disclose significant contamination disposed of and censored environmental monitoring of radioisotopes DOE deemed an issue of weapon's making secrecy or adverse to positive public perception of nuclear energy research. Despite the fact that INL Cleanup CERCLA investigations found shocking levels of radionuclide contamination in groundwater (perched or aquifer) at the INL [24] that included long-lived radionuclides never mentioned as disposed of by INL practices in previous USGS reports, [25] the USGS proceeded to pretend that TRA had no alpha emitting radionuclide contamination at the Test Reactor Area (now called the ATR Complex) and did not monitor for gross alpha or americium-241 in shallow perched water at TRA. [26] The CERCLA Record of Decision for the Test Reactor Area stated that only tritium and hexavalent chromium would exceed normal background levels at TRA. [27] [28] Various CERCLA documents avoid estimating the total amount of long-lived radionuclides disposed of at the INL. Reports of long-lived radionuclides in the aquifer and disposed of at INL's INTEC facility were intentionally not published in USGS or DOE reports. [29] And even while acknowledging INL's involvement with nuclear weapons work, cleanup contractors avoid admitting the quantity and years of aquifer disposal waste water contamination. [30] Subsequent findings of elevated gross alpha levels in the

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[24] 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 The report documents that Americium-241 at 100 times the drinking water maximum contaminant level was found in shallow perched water at TRA.

[25] Robertson, J.B., Schoen, R., and Barraclough, J.T., 1974, The influence of liquid waste disposal on the Geochemistry of water at the National Reactor Testing Station, Idaho, 1952-1970: U.S. Geological Survey Open-File Report 73-238, IDO- 22053, 231 p. http://pubs.er.usgs.gov/usgspubs/ofr/ofr73238

[26] "An Update of the Distribution of Selected Radiochemical and Chemical Constituents in Perched Ground Water, Idaho National Laboratory, Idaho, Emphasis 1999-2001" by Linda C. Davis, 2006-5236, DOE/ID-22199.

[27] Department of Energy DOE-ID, Record of Decision Test Reactor Area Perched Water System, Operable Unit 2-12, Idaho National Laboratory, Document ID 5230, US Environmental Protection Agency, Region 10, December 1992. See https://ar.icp.doe.gov

[28] Department of Energy Idaho Operations Office report, "Response to the First Five-Year Review Report for the Test Reactor Area, Operable Unit 2-13 at the Idaho National Engineering and Environmental Laboratory," DOE/NE-ID-11189, May 2005 at https://ar.icp.doe.gov , this report myopically looks only at short-lived radionuclides tritium, cobalt-60, strontium-90. **But no gross alpha monitoring is performed despite huge amounts of alpha contamination in perched water at WAG-2 found in 1991.**

[29] T. M. Beasley, P. R. Dixon, and L. J. Mann, "^{99}Tc, ^{236}U, and ^{237}Np in the Snake River Plain Aquifer at the Idaho National Engineering and Environmental Laboratory," Environmental Science & Technology, 2:3875-3881, 1998. This INL aquifer monitoring by USGS was not published in USGS or a DOE report. Instead, it was published in a closed access journal as DOE made no mention of these findings in its presentations. At my request, USGS had added the report to its INL bibliography.

[30] 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.

aquifer at TRA in 2008, [31] for example, that exceeded drinking water standards and normal background levels, are ignored by the DOE, Idaho DEQ, and Region 10 Environmental Protection Agency regarding CERCLA cleanup.

The timing of INL waste water in the aquifer flowing off the INL site has also been deliberately mischaracterized. The USGS avoids admitting in clear language that the source of the chemical and radionuclide contamination is the INL. [32] [33] [34] The understated timing, contents and quantity of contamination migrating from the INL in the aquifer from the INL site has misinformed public health reviewers who could have notified the public of the problems and reviewed methods of water contamination removal. Instead, we have the hindsight of elevated cancer statistics from increased illnesses in counties like Minidoka where INL waste water has long since arrived and in concentrations harmful enough to affect many people.

The Idaho Department of Environmental Quality, an agency that takes publically funded environmental monitoring data, dilutes the data by obscuring the date and place of the data, and then removes the reports from its public website for data reports prior to 2010 despite creating the reports since the late 1980s. Idaho DEQ limits public access to historical online reports to cover up past contamination. The information can only be accessed via Freedom of Information Act request permission for in-office viewing and copying, with fees.

Our state watch-dog over the Department of Energy, the Idaho DEQ, offers assurances that all releases were small but doesn't want citizens to see the detailed monitoring data directly from analytical laboratories that are not made available on-line. Idaho DEQ spends time creating watered-down quarterly and annual reports to obscure the timing and sources of contamination from the Idaho National Laboratory. Idaho DEQ has been silent on the source of elevated gross alpha, gross beta, and hexavalent chromium reaching community wells south of the Idaho National Laboratory.

Communities considering becoming consenting communities for DOE nuclear waste storage

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[31] "Annual Groundwater Monitoring Status Report for Waste Area Group 2 for Fiscal year 2008" July 2008, RPT-509 available at https://ar.icp.doe.gov It shows **gross alpha for well USGS MIDDLE-1823 at 26.4 pCi/L** which exceeds both the drinking water maximum contaminant level of 15 pCi/L for gross alpha and typical background that would be less than 3 pCi/L based on nearby aquifer monitoring in year 2000 near INL's Naval Reactors Facility.

[32] Knobel, L.L., Bartholomay, R.C., Cecil, L.D., Tucker, B.J., and Wegner, S.J., 1992, Chemical constituents in the dissolved and suspended fractions of ground water from selected sites, Idaho National Engineering Laboratory and Vicinity, Idaho, 1989: U.S. Geological Survey Open-File Report 92-51 (DOE/ID-22101), 56 p. http://pubs.er.usgs.gov/usgspubs/ofr/ofr9251

[33] Geophysical Logs and Water-Quality Data Collected for Boreholes Kimama-1A and -1B, and a Kimama Water Supply Well near Kimama, Southern Idaho By Brian V. Twining and Roy C. Bartholomay, 2011 Prepared in cooperation with the U.S. Department of Energy (DOE//ID 22215) Data Series 622. http://pubs.usgs.gov/ds/622/pdf/ds622.pdf Herein are presented deep aquifer contamination consistent with historical Idaho National Laboratory waste water releases, yet there is no stated recognition of that fact.

[34] US Geological Survey website link: http://id.water.usgs.gov/projects/INL and INL bibliography at http://id.water.usgs.gov/INL/Pubs/INL_Bibliography.pdf

facilities need to go beyond typical DOE and typical state monitoring programs if they hope to have adequate monitoring of airborne emissions from above ground storage containers, airborne or soil contamination effects of transportation accidents, or buried waste migration in watersheds. Typically, state environmental laws, despite allowing monitoring, do not allow for regulatory action against the DOE for radionuclide emissions. And EPA laws for air emission reporting allow error-prone estimates rather than actual monitoring to depict the air emissions stated in annual air emission reports in both quantity and radionuclides present.

Concerning past releases from the INL, wouldn't the Center for Disease Control (CDC) notice if there were elevated cancers in your community? No. Based on Idaho's experience, it would not. And wouldn't the CDC recognize waste migration or contamination affecting your community? No. Based on Idaho's experience, it would not. The CDC tries very hard not to see any problems with nuclear contamination. When the CDC reviewed the 1991 INEL Historical Dose Evaluation prepared by the DOE, [35] the CDC issued its review *promptly* in 2006. The CDC found that some of the largest releases had been underestimated by DOE but stated that the doses were too low to have had an effect. Another DOE report understated INL's releases. [36] So does the CDC notice when Bonneville county's thyroid cancer rate is double that of the rest of the state? [37] No. It does not. This elevated thyroid cancer rate cannot be blamed on weapons testing as other contamination from INL has been because other parts of the state received a lot of weapons fallout. But populations near the Idaho laboratory were subjected to very high Iodine-131 releases, along with other INL fallout and DOE weapons fallout.

The CDC presented its argument for concluding that no communities downgradient of the INL received aquifer contamination requiring evaluation. [38] What would those CDC report authors say now to the USGS reports of still elevated levels of radionuclide and chemical contamination at deeper levels in the aquifer not found in shallower sampling? It is obvious that these contaminants originated from the INL even though the USGS does not admit it. These contaminants have for years been affecting drinking water quality in Idaho communities and the elevated cancer rates in these communities reflect the waste water contamination.

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[35] US Department of Energy Idaho Operations Office, "Idaho National Engineering Laboratory Historical Dose Evaluation," DOE-ID-12119, August 1991. See Table E-5 on p. E-36 for mystery milk and see Table C-21 for the public annual dose summary. Volumes 1 and 2 can be found at https://www.iaea.org/inis/inis-collection/index.html

[36] US Department of Energy Idaho Operations Office, Technical Basis for Environmental Monitoring and Surveillance at the Idaho National Laboratory Site," DOE/ID-11485, February 2014. https://inldigitallibrary.inl.gov/PRR/164104.pdf#search=DOE%2FID-11485 (it's summary shows public radiation doses below 10 mrem/yr while the stated INL HDE doses reach 30 mrem/yr and have been found to be underestimates in several cases. Unacknowledged releases are evident by high levels of Iodine-131 in milk in Idaho Falls in the 1960s that analysts could not attribute to known INL releases or weapons tests.

[37] Idaho Cancer Registry, see the map of counties that can be clicked on to get the 2009 to 2013 cancer incidence and mortality rates by county: http://www.idcancer.org/ContentFiles/special/CountyProfiles/CountyMap.htm

[38] Agency for Toxic Substances and Disease Registry, Public Health Assessment for the Idaho National Engineering and Environmental Laboratory, March 2004. http://www.atsdr.cdc.gov/hac/pha/pha.asp?docid=1051&pg=0

Some people hope that a new agency, not the Department of Energy, will be involved in consent-based siting of nuclear waste storage sites. But history of the long reach of the Department of Energy to have a stifling effect on the energy worker compensation program and on the CDC's evaluation of harm to the public from weapons testing and nuclear energy research programs suggest that a new agency will likely also be poisoned by the DOE's influence.

The CDC does not address conducting epidemiology near commercial nuclear power plants. It was left to the US Nuclear Regulatory Commission to decide whether or not to fund human epidemiology near US nuclear plants. The US NRC, predictably, declined to fund the research, [39] which if conducted with scientific integrity, would have shown elevated cancer and leukemia in children near the plants as well as other effects. [40] [41] The US NRC knows that science like that would not be good for business. The CDC does not offer to fund the modest $8 million study. Besides, the CDC still hasn't finished looking at the harm from DOE's weapons testing conducted decades ago.

Unquestioned State-Sponsored DOE Propaganda. Another example to avoid is how Idaho funds propaganda for the Department of Energy. Our state funds advocates for the Department of Energy, such as former Vice Admiral and INL director John Grossenbacher to directly provide propaganda to support DOE's programs and undercut cleanup of nuclear waste in Idaho. The 1995 Idaho Settlement Agreement [42] requires packaging of the calcine in order to ship it and requires shipping the calcine to an as of yet unidentified repository by 2035. Idaho needs to plan for the contingency that the DOE is tardy and must address seismic weakness of the calcine storage rather than allow the lack of a repository for the calcine high level waste to become an excuse to delay repackaging of the calcine to a road-ready condition. But the LINE Commission 2013 report makes the strong push for Idaho to put repackaging of the calcine behind research funding for the INL. [43] The LINE Commission report fails to represent the interests of Idahoans and does not

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[39] See cancer risk study at nap.edu. and 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

[40] 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

[41] Federal Office for Radiation Protection on behalf of the Federal Ministry for the Environment 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. www.bfs.de/en/kerntechnik/kinderkrebs/stellungnahme_kikk.html

[42] See more about Idaho's Settlement Agreement at https://www.deq.idaho.gov/inl-oversight/oversight-agreements/1995-settlement-agreement.aspx

[43] See the Leadership in Nuclear Energy Commission reports and the 2013 report at LINE Exec Summary:

disclose how continued calcine storage leaves Idaho vulnerable to accidents including severe Natural Phenomena Hazards events that can cause release of the calcine. The serious hazard posed by calcine waste storage is not discussed in any meaningful way but is instead waived away in LINE presentations and is not presented in IDEQ distributed literature concerning the calcine. The presumed low risk is not backed up by any meaningful disclosure of an adequate risk analysis. It is left for Idahoans to search out the pertinent facts not provided by the LINE reports. **What is extremely disturbing is the fact that the utterances of DOE advocates go unquestioned—and then repeated, completely unexamined, by politicians, nuclear boosters and Idaho DEQ.**

There would, realistically, be no cleaning up the contamination from a calcine storage release. Once in the aquifer, the contamination flows downstream to communities, even if the contamination lies deeper in the aquifer than is typically monitored or acknowledged.[44]

Now for a list of the top ten reasons why there is no public trust in the US Department of Energy:

1. **The Weapons Testing Harm.** The DOE, via its predecessor agency the Atomic Energy Commission, lied to the public about the harm of its nuclear weapons testing. It lied to the Marshall Islanders. And it lied to US citizens. [45]And it still hasn't come clean on what it knew about the contamination it spread. Despite the Radiation Exposure Compensation Act that compensated some of the communities near to the weapons testing, many other communities including Idaho were exposed to significant fallout and have not been compensated. [46] Studies of the harm to downwinders are still in progress decades after the weapons testing. [47]

2. **The Weapons Production Environmental Harm.** The DOE gave rosy assurances to to US citizens that its weapons making facilities were not harming the environment.

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http://gov.idaho.gov/mediacenter/press/pr2015/pdf/LINE%20Exec%20Summary.pdf The LINE commission report narrative downplays the hazards posed and the lack of a designated repository for permanent disposal of calcine, arguing instead for the State of Idaho to ignore the calcine, delay repackaging and forget about the 1995 Idaho Settlement Agreement. Specifically, the 2013 LINE report states: "Thus, the state should be open to alternative approaches for the calcine; this could include the possibility of keeping the calcine in its current, safe storage configuration so long as any change in plans brought commensurate value to the state of Idaho, such as redirecting the funds saved to other INL [research] projects."

[44] Geophysical Logs and Water-Quality Data Collected for Boreholes Kimama-1A and -1B, and a Kimama Water Supply Well near Kimama, Southern Idaho By Brian V. Twining and Roy C. Bartholomay, 2011 Prepared in cooperation with the U.S. Department of Energy (DOE//ID 22215) Data Series 622. http://pubs.usgs.gov/ds/622/pdf/ds622.pdf Herein are presented deep aquifer contamination consistent with historical Idaho National Laboratory waste water releases, yet there is no stated recognition of that fact.

[45] Fradkin, P. L., *Fallout – An American Nuclear Tragedy*, Johnson Books, Boulder, Colorado, 2004. p. 203, 219, 220.

[46] http://www.risch.senate.gov/public/index.cfm/2015/7/senators-call-for-hearing-on-reca and 114th Congress S.331 Radiation Exposure Compensation Act at https://www.congress.gov/bill/114th-congress/senate-bill/331

[47] National Cancer Institute, webpage for Radioactive I-131 from Fallout. See http://www.cancer.gov/cancertopics/causes/i131 and https://ntsi131.nci.nih.gov/ The I-131 calculator has recently been taken out-of-service for an undetermined amount of time.

DOE made reports documenting its rigorous environmental monitoring ensured that they were not harming the environment. Billions of cleanup dollars later, after other federal and state agencies had to step in to prompt the DOE to conduct at least general housekeeping and some cleanup actions, DOE is still hasn't come clean. It is actively deceptive in disclosing the quantity and type of radionuclides that will never be cleaned up. See the Idaho National Laboratory's forever contamination despite the highly touted cleanup. [48]

3. **The Intentional Excessive Airborne Contamination from the Idaho National Laboratory.** The DOE didn't know what amount of radionuclides it had released when it assured citizens that its releases were too small to harm people living near the site. The DOE then underestimated its radionuclide airborne releases in its INEL Historical Dose Evaluation. [49] While knowing the DOE was smoking southeast Idaho with its weapons testing fallout [and not disclosing the environmental monitoring of it], and knowing that radiation doses are cumulative, [50] the DOE Idaho Operations office knowingly smoked us with intentional destructive unfiltered open-air nuclear fuel tests at the Idaho laboratory. This is one of the reasons for the Idaho National Laboratory's inclusion in the DOE's Human Radiation Experiments Collection. [51] Even the CDC found DOE's estimates were too low. But the CDC didn't look hard. It is known in the industry that U-235 nuclear weapons and highly enriched U-235 fuel release essentially the same fallout. If the DOE's 1961 Stationary Low-Power (SL-1) accident only released, as DOE claims, a little Iodine-131 despite having melted a significant portion of fuel, having had an open reactor vessel and an open ventilation directly above the reactor, then the fuel should be patented. Such miraculous nuclear fuel that doesn't spread any contamination except short-half life I-131 would save enormous money as containments for nuclear reactors would no longer be required. There would

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[48] INL Waste Area Group Institutional Controls Report. Dated February 16, 2016. https://cleanup.icp.doe.gov/ics/ic_report.pdf from the EPA page: https://cleanup.icp.doe.gov/ics/ See also EDI 2016 report by Tami Thatcher, "The 'Forever' Contamination Sites at the Idaho National Laboratory" at http://www.environmental-defense-institute.org/publications/EarthDayINLreport.pdf

[49] Department of Energy, INEL Historical Dose Evaluation, DOE/ID-12119, 1991 available at https://inis.iaea.org/search/search.aspx?q=INEL+Historical+Dose+Evaluation&src=inws

[50] 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

[51] February 1995, the Department of Energy's (DOE) Office of Human Radiation Experiments published *Human Radiation Experiments: The Department of Energy Roadmap to the Story and Records* ("The DOE Roadmap"). See also the INL site profile on Occupational Environmental Dose: http://www.cdc.gov/niosh/ocas/pdfs/tbd/inl-anlw4-r2.pdf) Most of the documents in the DOE's Human Radiation Experiments collection remain perversely out of public reach. Documents are said to be stored at the INL site, out of state in boxes, [Good luck with getting these documents via the Freedom of Information Act] and in the National Archives. I found that retrieving documents from the National Archive would require extensive fees for searches and copying. Where is the transparency in creating a document collection that cannot be viewed by the public?

be no more concern for wide-spread contamination of Cesium-137, Strontium-90 and other radionuclides. Only the I-131. A miracle, really? No. Just a complete farce that CDC dares not question.

4. **The Epidemiology Hidden if Deemed Unfavorable.** The DOE has concealed epidemiology results of public exposed to its weapons testing fallout and epidemiology results of its workers exposed to radiation. The elevated leukemia rates in Utah were thus discovered twice, with the second investigation not knowing of the first investigation by the DOE. Unfavorable epidemiology results at Hanford were stifled by being defunded. Yet the authors were able to obtain funds and complete the study which found Hanford workers were faced with elevated cancer and death risks from their workplace radiation exposure. [52] The DOE has spent millions of dollars fighting downwinders. By 2009, the DOE had spent over $57 million fighting lawsuits by Hanford downwinders.

5. **The Past and Continuing Aquifer Contamination from INL.** The DOE has concealed its past contamination of the Snake River Plain aquifer both in the timing of offsite migration of contaminants and in what INL waste water disposal constituents were. Exerting its message control over the US Geological Survey, the quantity and isotopes of significant contaminants were not reported as disposed of or monitored in USGS reports. [53] [54] USGS monitoring was intermittently revealing, but often incomplete and too irregular to see trends. Aquifer monitoring of INL contamination onsite and offsite has been conducted since the 1950s. Yet results of such monitoring often did not identify the well or location, only high, low and average for the sampled wells. The missing disposal records discussed in INL CERCLA documents go unmentioned by the USGS. And waste that logically would be attributed to the INL

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[52] Alice Stewart, M.D., George W. Kneale, Ph.D., "The Hanford Data: Issues of Age at Exposure and Dose Recording," 1993. http://www.ippnw.org/pdf/mgs/psr-3-3-stewart.pdf

[53] US Geological Survey report 2006-5122 provides a brief history of waste-water disposal practices but identifies only one disposal well at the Test Reactor Area (now the ATR Complex). The "INEEL Subregional conceptual Model Report, Volume 3: Summary of Existing Knowledge of Natural and Anthropogenic Influences on the Release of Contaminants to the Subsurface Environment from Waste Source Terms at the INEEL," INEEL/EXT-03-01169 Rev. 2, September 2003 at https://inldigitallibrary.inl.gov/sti/3562854.pdf identifies two disposal wells at TRA. In addition to reactor and fuel storage pool operations, fuel separations were taking place in the TRA hot cell and hot alpha cave. These areas were washed down and likely flushed to the pond or these disposal wells. CERCLA investigations found 100 times the MCL for americium-241 in shallow perched water at TRA that USGS had never identified and still doesn't monitor or report.

[54] Linda C. Davis, "An Update of the Distribution of Selected Radiochemical and Chemical Constituents in Perched Ground Water, Idaho National Laboratory, Idaho, Emphasis 1999-2001. There is no americium monitoring at the Test Reactor Area now called the ATR Complex. There is not even gross alpha monitoring in the perched water found to have exceeded the MCL for americium in CERCLA studies conducted just a few years before this report was written although it was not released until 2006.

waste water, inexplicably, often is not attributed to the INL.

6. **The Inadequate Protection of Workers from Radiation and Chemical Exposures.** The DOE has always assured its radiation workers saying that they were protected from harm. This old lie is still being told today. Recent radiation worker epidemiology shows that 100 mrem/yr doses yield elevated cancer risk, yet the annual radiation dose standard is 5000 mrem/yr (or 5 rem/yr). [55] And there's plenty of evidence that DOE still doesn't adequately protect its radiation workers. [56] DOE actively ignores the years of historical drinking water contamination at INL, sometimes 5 times the drinking standard and a soup of multiple chemical and radionuclide contaminants. [57] The drinking water contamination is ignored despite epidemiology showing that both radiation and non-radiation workers at INL had elevated risk of certain cancers. [58] DOE is still failing to protect its workers from harmful chemical exposures. Hanford still does not provide workers adequate protection from known chemical hazards from tank farms after twenty years of making workers ill from chemical vapors from high level waste tanks. [59] [60] Chemical exposures have also sickened workers around the DOE complex and with inadequate monitoring can be difficult for workers to prove despite rather immediate onset of symptoms. Related for worker and public safety, the US Government Accountability Office recently issued a report concerning DOE's inadequate attention to the problem of unlawful retaliation to workers, whistleblowers, who raise safety concerns. [61]

7. **The Obstruction of Energy Worker Compensation.** The energy worker compensation act of 2000 (EEOICPA) was not created by the DOE, it was created despite the efforts of DOE. [62] And DOE, despite its statements to the contrary, still

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[55] Richardson, David B., et al., "Risk of cancer from occupational exposure to ionizing radiation: retrospective cohort study of workers in France, the United Kingdom, and the United States (INWORKS), BMJ, v. 351 (October 15, 2015), at http://www.bmj.com/content/351/bmj.h5359 Richardson et al 2015

[56] See radiation worker issues described in EDI May 2016 newsletter at www.Environmental-Defense-Institute.org.

[57] Environmental Defense Institute report by Tami Thatcher, *The Hidden Truth About INL Drinking Water*, June 2015, http://environmental-defense-institute.org/publications/INLdrinkwaterR1.pdf

[58] "An Epidemiology Study of Mortality and Radiation-Related Risk of Cancer Among Workers at the Idaho National Engineering and Environmental Laboratory, a U.S. Department of Energy Facility, January 2005. http://www.cdc.gov/niosh/docs/2005-131/pdfs/2005-131.pdf and http://www.cdc.gov/niosh/oerp/ineel.htm

[59] Nicholas K. Geranios, Associated Press, "Workers at some Hanford tanks stop in dispute over vapors," July 13, 2016.

[60] Hanford Tank Vapor Assessment Report, written by an assessment team for the Department of Energy, SRNL-RP-2014-00791, October 30, 2014 http://srnl.doe.gov/documents/Hanford_TVAT_Report_2014-10-30-FINAL.pdf

[61] US Government Accountability Office, "Whistleblower Protections Need Strengthening," GAO-16-618, July 11, 2016. http://www.gao.gov/products/GAO-16-618

[62] 42 USC 7384, The Act--Energy Employees Occupational Illness Compensation Program Act of 2000 (EEOICPA), as Amended and see the website for the Center for Disease Control, National Institute of Occupational Safety and

avoids providing important records and information to the CDC's NIOSH that performs radiation dose reconstruction to determine eligibility for compensation. Billions of dollars have been paid out in energy worker illness claims nation-wide since the program began in 2000. But two thirds of INL's radiation illness claims have been denied. Only this year has NIOSH recommended special exposure cohorts, admitting that it had insufficient information to reconstruct doses and the doses may likely have been harmful. There are many more years of operation and locations that NIOSH needs to continue investigating for additional cohorts at INL. [63]

8. **The Unscientific Refusal to Admit its Radiation Protection Standards are not as Protective as Claimed.** Energy workers from recent decades are still getting ill and still submitting claims to EEOICPA—not just workers from the 1950s and 1960s. There appears to be no learning curve. The DOE continues actively avoiding understanding that its radiation protection programs and its radiation protection standards are not protecting human health. It likewise fails to acknowledge that its derived concentration guidelines, far less stringent than federal EPA guidelines, are not protective.

9. **The DOE's Continuing Culture of Secrecy.** DOE's version of transparency is anything but transparent. From deliberate destruction of records, to failure to tell the full truth, to made-up excuses to unlawfully deny Freedom of Information Act requests, the DOE is self-serving but not serving the citizens of the US. For the most part, DOE makes obtaining information about its past and current operations as difficult as possible by lying about having the information, excuses for not releasing the information, threatening thousands of dollars of charges for the search, etc. A FOIA was conducted by EDI specifically to find [64] [65] out if seismic vulnerabilities of Advanced Test Reactor experiment loops had been assessed. DOE denied any problem existed. Later, experiment loop leakage prompted seismic evaluations and all loops were found to be seismically vulnerable. My documented recommendation to conduct the seismic evaluations made several years prior had never been followed up as evidenced by no seismic evaluations on experiments loops being made since my

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Health, Division of Compensation Analysis and Support at http://www.cdc.gov/niosh/ocas/ and U.S. Department of Labor, EEIOCPA Program Statistics, http://www.dol.gov/owcp/energy/regs/compliance/weeklystats.htm

[63] See NIOSH dose reconstruction website for the Idaho National Laboratory, including Petition 217 and 2015 written comments to NIOSH by Tami Thatcher http://www.cdc.gov/niosh/ocas/ineel.html

[64] Post Register Freedom of Information Act Request, July 2013 (ID-2013-00814-F)(OM-PA-13-032) This FOIA requested, among other things, experiment loop seismic performance assessment documentation. DOE provided a seismic risk assessment for ATR stating that the risk was low. No specific documentation concerning the status of seismic performance assessment was provided. Therefore, the risk assessment basis was not adequately supported and it likely underestimated the core damage risk.

[65] DOE Occurrence Report, Idaho National Laboratory, Advanced Test Reactor, NE-ID—BEA-ATR-2014-0036, "Declaration of Positive Unreviewed Safety Question (USQ) Concerning ATR Experiment Loop Pressurizer Seismic Vulnerability," Notification date 12/16/2014, Final 03/17/2015. See EDI September 2015 newsletter.

recommendation but only after leakage occurred recently.

10. **Public Input Ignored.** DOE's public comment opportunities, including this one, tend to waive away the public comment, failing to learn from the important comments. And the DOE has on many occasions found excuses not post the invited public comment. For the consent-based process, DOE has stated it will provide a summary of the comments. For other NEPA actions, invited comments are often not publically posted because the action is withdrawn or altered slightly, as was the case with the Pu-238 EIS and with the "Two Proposed Shipments to INL" in 2015. [66] Public comment was sought, was sent, and DOE did not disclose the public comment submittals. Even the NRC can manage the transparency of a website that allows commenter's to immediately upload and display their comments during the commenting process and retained forever after.

[66] Department of Energy, Supplement Analysis: Two Proposed Shipments of Commercial Spent Nuclear Fuel to Idaho National Laboratory for Research and Development Purposes, DOE/EIS-0203-SA-07DOE/EA-1148-SA-01 DOE/EIS-0250F-S-1-SA-02, June 12, 2015. http://energy.gov/nepa/draft-supplement-analysis-two-proposed-shipments-commercial-spent-nuclear-fuel-idaho-national. Previous public comment invitation was at www.id.energy.gov/insideNEID/Public Involment.htm. U.S. Department of Energy, Idaho Operations Office, 1955 Fremont Avenue, Idaho Falls, Idaho 83415-1222 or by email at: comnfsa@id.doe.gov. No comments submitted were ever publically posted by the DOE.

Respectfully Submitted,

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