Public Comment Submittal on the U.S. Department of Energy Draft Environmental Assessment for Microreactor Applications Research, Validation and Evaluation (MARVEL) Project at Idaho National Laboratory (DOE/EA-2146)

Comment submittal by Tami Thatcher, due January 26, 2021.

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The Department of Energy's Environmental Assessment for the design and demonstration of the Microreactor Applications Research Validation and Evaluation Project (MARVEL), which allowed a scant 14 days for review, is inadequate, especially given the glaring omissions and dis-information in the EA. [1]

According to the Department of Energy, MARVEL is a sodium-potassium cooled, thermal microreactor with a power level of less than 100 kilowatts of electricity. The EA states the thermal power level is expected to provide only 20 kilowatts of electricity, which would light something like 300 light bulbs. This is tiny, yet the Department of Energy considers anything up to 20 megawatts-thermal (or 20,000 kilowatts-thermal) to be included in the category of "microreactor." In contrast, a large commercial nuclear reactor generates an average of about 3,000 megawatts of thermal energy and about 1000 MW of electricity.

The fuel will be 150 kilograms of about 20 percent uranium-235 enrichment in 36 fuel pins and the fuel material will be uranium-zirconium-hydride in a stainless steel cladding. Each fuel pin is about 38-in. long and will be sodium-bonded. In contrast, existing large commercial nuclear reactors use roughly 100,000 kilograms of fuel, but at less than 5 percent uranium-235 enrichment. MARVEL will be using High-Assay Low-Enriched Uranium (HALEU) and Stirling engines.

MARVEL is actually a micro-sized reactor, unlike the significantly larger reactors DOE likely may want to deploy. Far larger problems will occur if mobile or micro reactors are actually deployed in our country or beyond our borders. The real problem will be having one of these on the free-way next to you in a snowstorm pile up car accident or having one operating where you work or where you live and the continued storage of the spent nuclear fuel because there is no spent nuclear fuel repository. The trillions of dollars it will cost to attempt to confine the spent nuclear fuel will be placed on future generations as well as the radiological harm from radiological releases.

DOE's public outreach has been inadequate and deliberately misleading, the draft Environmental Assessment is not bounding, representative, or clear about waste management of the proposed expansion or its consequences, and a full Environmental Impact Statement is needed.

The EA is actually stating that the EA will allow the continued burial of beryllium waste over the Snake River Plain aquifer, without clearly stating so. The EA omits the serious health and

[1] *Draft Environmental Assessment for the Microreactor Applications Research, Validation and Evaluation Project at Idaho National Laboratory (DOE/EA-2146)*, January 2021 at https://www.id.energy.gov/ or https://www.id.energy.gov/insideNEID/PDF/Final%20MARVEL%20Draft%20EA%20DOE%20EA-2146.pdf

environmental problems of beryllium handling and its waste disposal. The INL has a long history of not fully disclosed beryllium releases. The disposal limits on beryllium at WIPP as so strict that the INL cleanup contractor lied about the presence of beryllium carbide in waste. The lie was only revealed because of the explosion of the waste drums of uranium and beryllium carbide.

The EA has failed to disclose how the Department of Energy's reclassification of high level waste will impact the Idaho National Laboratory.

The EA will apparently allow spent nuclear fuel, as well as radiologically contaminated beryllium, from MARVEL to be buried over the Snake River Plain Aquifer or in low-level waste commercial facilities and must fully discuss the beryllium waste issues as well as health hazards.

The EA is unclear and deliberately vague as to where the spent nuclear fuel from the INL's Radioactive Scrap and Waste Facility is actually being disposed of.

The EA fails to mention that the Department of Energy is simultaneously pretending it has a spent fuel repository while refusing to construct a facility at the INL (limited to fuel at INL) for spent nuclear fuel repackaging for a repository.

The EA fails to mention that DOE is on track to miss all of the main milestones in the 1995 Idaho Settlement Agreement because it is not repackaging spent nuclear fuel or high-level waste for permanent disposal or even for shipment to pawn off the waste for "temporary" storage in another state, such as New Mexico.

The EA unscientifically and indefensibly pretends that the Department of Energy has a spent fuel disposal program when U.S. court proceedings have found that the DOE has no spent fuel disposal program.

Despite no completed design or construction or licensing of the non-existent DOE standardized canister, the MARVEL EA states that the DOE's standardized canister will be used to package the MARVEL spent nuclear fuel for disposal at the non-existent Yucca Mountain. The fiction used by the EA is intentionally deceptive because for years now the design of the standardized canister design and its neutron absorbers was never completed, never built and never licensed. But that is consistent for the spent nuclear fuel disposal facility, which it names as Yucca Mountain, does not exist and has not been funded since 2010.

Because the Department of Energy does not have a program for spent nuclear fuel disposal, the EA the costs and risks of continued storage of Department of Energy owned spent nuclear fuel have not been addressed. The EA is therefore built on a foundation of sand. This pushes the cost and the potential for devastating radiological releases on to future generations. The DOE lavishly is spending money on new ways to make more spent nuclear fuel, all while not funding the work of aging management of spent nuclear fuel, not funding the needed repackaging facilities and not having conducted a credible repository program.

The DOE is only pretending that a repository will soon be operational. The courts have forced the DOE to stop collecting money into the Nuclear Waste Fund because the DOE has no

spent nuclear fuel repository program and does not even have an appropriate estimate of the cost of getting a repository, packaging and/or repackaging the waste, and waste emplacement. Simply hand-waving that there was a past EIS that assumed wrongly that a repository would be in place is not truthful and undermines the entire purpose of the NEPA process. The truth is that the DOE has not found a feasible way of isolating spent nuclear fuel from air, water and soil for the millennia that the waste is radio-toxic.

The EA fails to acknowledge the significantly increased problems as well as higher costs for safe disposal of higher enriched fuels and higher burnup fuels.

The EA fails to acknowledge the billions of dollars already needed to repackage spent nuclear fuel and the trillions of dollars to continue attempting to find a way to isolate these wastes from the biosphere.

The EA allows the careless disposal of spent nuclear fuel over the Snake River Plain aquifer if DOE deems the spent nuclear fuel to be related to research. This artificial definition defies science and is simply to shortcut proper disposal to isolate the material from soil, air and groundwater.

The EA asserts that environmental monitoring programs are adequate even though elevated levels of gross alpha in our public water supplies go without gamma spectrometry evaluations to determine the level of americium, plutonium and other INL released radionuclides.

The EA incorrectly states that "INL maintains the necessary apparatus, equipment, and a state of the art Emergency Operations Center in Idaho Falls to respond to emergencies, not only at from the MARVEL microreactor and other INL Site operations, but also throughout local communities." **The EA fails to acknowledge decades of repeated inadequate emergency preparation for site emergencies in terms of training, decontamination, radiological medical treatment, inadequate emergency radiological monitoring during and after the emergency.**

The EA claims that the accident release consequences are only a few rem, yet fails to acknowledge only short-term dose and ignores the long term ingestion consequences, the crop interdiction, the uncompensated and uninsurable car, home, business, livelihood and health costs of an accident radiological release.

The EA fails to acknowledge that the monitoring will ignore the uranium-235 released by the accident as well as inadequate actinide (plutonium, americium, curium, etc.) monitoring because of intentional environmental monitoring inadequacies to avoid implicating the INL as the source of the contamination. The decay products from plutonium-240 and uranium-236 are thorium decay progeny which the environmental monitoring falsely asserts are from naturally occurring thorium-232. The elevated levels of uranium-234, uranium-235, uranium-236 are intentionally not delineated by the specific isotope so the DOE can falsely claim that the uranium is naturally occurring.

From the 1961 SL-1 accident where radiological monitoring was especially inadequate for emergency responders, to the 2011 plutonium inhalation accident caused by management failure to heed repeated warnings of high worker risks and the multiple failures that caused the event

and the multiple failures in responding to the event, to the 2018 four drums of waste that exploded and fire fighters, once again, responded without support of adequate training or radiological support personnel.

The EA fails to acknowledge that the lack of proper decontamination facilities means that an injured worker is going to radiologically contaminate medical facilities in Idaho Falls.

The EA omits mention of the airborne releases by production of high assay low-enriched uranium fuel and omits deliberate and unnecessary as well as inadequately monitored INL Test Range radiological releases and others.

The EA generally fails to address the Department of Energy's refusal to acknowledge strong epidemiology that shows far more cancer risk and other health risks than the biased and inadequate models it relies on.

The EA specifically implies that its radiation monitoring and radiation health models are adequate.

The EA fails to address the inadequacy of the radiation health modeling despite years of double the thyroid cancer incidence in the counties surrounding the INL. As the DOE has been forbidden to conduct epidemiology because of its many past efforts to improperly bias human epidemiology, the assessment of growingly obvious health impacts of INL radiological releases must be conducted by properly independent evaluation. This has not been done, as is evident in the DOE's environmental assessment for the Versatile Test Reactor which displays some of the increased cancer rates yet fails to utter any recognition of the obvious doubling of thyroid cancers in counties surrounding the INL. The incidence of thyroid cancer has been doubling for years and is wide-spread, yet the rates ramp up at double the rest of Idaho and the US, in the counties surrounding the INL. Refusing to recognize the impact, which would not be predicted by DOE's accepted radiological release estimates and radiation health models, is immoral as well as not based on scientific integrity.

In 1975, the rate of thyroid cancer incidence for men and women combined was 4.8 per 100,000 in the US. In 2015, thyroid cancer incidence reached 15.7 per 100,000 according to the Surveillance, Epidemiology, and End Results Program (SEER) website. Thyroid cancer incidence and mortality in the US may have finally leveled off after years of increases, according to the National Cancer Institute, Surveillance, Epidemiology, and End Results Program (SEER). [2] However, several counties surrounding the Idaho National Laboratory have roughly double (or more) the thyroid cancer incidence than the Idaho state average and US average.

The SEER 9 region is roughly 10 percent of the US population and includes parts of California [San Francisco and Oakland], Connecticut, Georgia [Atlanta only], Hawaii, Iowa, Michigan [Detroit only], New Mexico, Utah, and Washington [Seattle and Puget Sound region]. [3]

[2] National Cancer Institute, Surveillance, Epidemiology, and End Results Program, Cancer Stat Facts: Thyroid Cancer. https://seer.cancer.gov/statfacts/html/thyro.html

[3] National Cancer Institute, Surveillance, Epidemiology, and End Results Program, Cancer Query System. https://seer.cancer.gov/canques/incidence.html

Thyroid cancer incidence in the US increased, on average, 3.6 percent per year during 1974-2013, from 4.56 cases per 100,000 person-years in 1974-1977 to 14.42 cases per 100,000 person-years in 2010-2013. These thyroid cases were not trivial: the mortality also increased. Mortality increased 1.1 percent per year from 0.40 per 100,000 person-years in 1994-1997 to 0.46 per 100,000 person-years in 2010-1013 overall and increased 2.9 percent per year for SEER distant stage papillary thyroid cancer. [4] From 1974 to 2013, the SEER 9 region cancer data included 77,276 thyroid cancer patients and 2371 thyroid cancer deaths.

Bonneville County, where Idaho Falls is located, has double the thyroid cancer rate of the US and double the rate compared to the rest of Idaho, based on the Cancer Data Registry of Idaho (CDRI) for the year 2017. [5] See Table 1.

Table 1. Bonneville County thyroid cancer incidence rate compared to the rest of Idaho, 2017.

Cancer type	Sex	Rate in Bonneville County	Adjusted Rate in Bonneville County	Rate for remainder of Idaho
Thyroid	Total	28.2	30.7	14.2
	Male	16.0	17.8	7.4
	Female	40.3	43.5	21.0

Table notes: Rates are expressed as the number of cases per 100,000 persons per year (person-years). Rates are expressed as the number of cases per 100,000 persons per year (person-years). Adjusted rates are age and sex-adjusted incidence rates for the county using the remainder of the state as standard. Data from Factsheet for the Cancer Data Registry of Idaho, Idaho Hospital Association. Bonneville County Cancer Profile. Cancer Incidence 2013-2017. https://www.idcancer.org/ContentFiles/special/CountyProfiles/BONNEVILLE.pdf

Some people have wondered if the thyroid incidence rate is due to overdiagnosis of elderly patients — no, it is not. A study of pediatric thyroid cancer rates in the US found that in pediatric patients with thyroid cancer diagnosed from 1973 to 2013, the annual percent change in pediatric cancer incidence increased from 1.1 percent per year from 1973 to 2006 and markedly increased to 9.5 percent per year from 2006 to 2013. [6]

Some people have wondered if the increased rate of incidence is due to overdiagnosis of trivial nodules — no, it is not. The figures for the incidence rates for large tumors and advanced-stage disease suggest a true increase in the incident rates of thyroid cancer in the United States. I've seen this just from a handful of acquaintances in Idaho Falls.

[4] Hyeyeun Lim et al., JAMA, "Trends in Thyroid Cancer Incidence and Mortality in the United States, 1974-2013," April 4, 2017. https://pubmed.ncbi.nlm.nih.gov/28362912/ or https://jamanetwork.com/journals/jama/fullarticle/2613728

[5] C. J. Johnson, B. M. Morawski, R. K., Rycroft, Cancer Data Registry of Idaho (CDRI), Boise Idaho, Annual Report of the Cancer Data Registry of Idaho, *Cancer in Idaho – 2017*, December 2019. https://www.idcancer.org/ContentFiles/AnnualReports/Cancer%20in%20Idaho%202017.pdf

[6] Z. Jason Qian et al., *JAMA*, "Pediatric Thyroid Cancer Incidence and Mortality Trends in the United States, 1973-2013," May 23, 2019. https://pubmed.ncbi.nlm.nih.gov/31120475/ or https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6547136/

For pediatric patients, the thyroid incidence rate was 0.48 cases per 100,000 person-years in 1973 to 1.14 cases per 100,000 person-years in 2013. The incidence rate for large tumors were not significantly different from incidence rates of small (1-20 mm) tumors.

Both thyroid cancer US trend studies (by Lim and by Qian) used the SEER cancer incidence file maintained by the National Cancer Institute and includes 9 high-quality, population-based registries.

As the SEER 9 region thyroid incidence peaked at 15.7 per 100,000, and the State of Idaho thyroid incidence average was 14.2 per 100,000, Bonneville County reached thyroid cancer rates of 30.9 per 100,000. [7] **But other counties near the Idaho National Laboratory also have elevated thyroid cancer incidence rates: Madison (29.3 per 100,000), Fremont (27.9 per 100,000), Jefferson (28.9 per 100,000), and Bingham (28.6 per 100,000). But let's not forget Butte county. Butte county's thyroid cancer rate of 45.9 per 100,000 puts it in a class by itself. Much of Butte county is within 20 miles of the INL and nothing says radiation exposure like Butte's leukemia rate at 3 times the state rate and myeloma at 5 times the state average rate.**

The news headline for the Idaho cancer register report issued in 2018 read that "cancer trends for Idaho are stable." [8] That is what citizens were supposed to take away from the 2017 cancer rate study in Idaho. Why were citizens not told about any of the cancers in the counties in Idaho that significantly exceeded state average cancer rates and exceeded the rest of the US? [9]

The wide-spread thyroid cancer incidence increases in the US do not appear to be due to radiation exposure. I suspect other governmentally permitted and highly profitable environmental toxins related to our food and perhaps also cell phone use. **But the rates that are double the rest of Idaho and the US in only counties near the Idaho National Laboratory are, I believe, due to the radiological releases from INL and are perhaps aggravated by airborne chemical releases from the INL.**

The Department of Energy and the State of Idaho are actively ignoring the likely environmental causes of elevated rates of cancer in the communities surrounding the INL and especially the elevated rates of childhood cancer.

The forty-first annual report of the Cancer Data Registry of Idaho (CDRI) was issued in December 2019 for the year 2017. [10] While the rate of some cancers decreased, the bad news for the State of Idaho is that the overall rate of cancer incidence continues to increase.

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[7] Environmental Defense Institute February/March 2020 newsletter article "Rate of cancer in Idaho continues to increase, according to Cancer Data Registry of Idaho."

[8] Brennen Kauffman, *The Idaho Falls Post Register*, "New cancer report on 2017 shows stable cancer trends for Idaho," December 13, 2018.

[9] https://statecancerprofiles.cancer.gov/

[10] C. J. Johnson, B. M. Morawski, R. K., Rycroft, Cancer Data Registry of Idaho (CDRI), Boise Idaho, Annual Report of the Cancer Data Registry of Idaho, *Cancer in Idaho – 2017*, December 2019. https://www.idcancer.org/ContentFiles/AnnualReports/Cancer%20in%20Idaho%202017.pdf

And, very importantly, childhood cancers in Idaho continue to increase. Pediatric (age 1 to 19) cancer increased at a rate of about 0.6 percent per year in Idaho from 1975 to 2017, see https://www.idcancer.org/pediatriccancer.

The rate of childhood cancer incidence in Bonneville County exceeded the remainder of the state for boys, based on the adjusted rate of cancer incidence. For girls the rate was high, but not above the remainder of the state, see Table 2.

Table 2. Bonneville County childhood cancer incidence rate compared to the rest of Idaho, 2017.

Cancer type	Sex	Rate in Bonneville County	Adjusted Rate in Bonneville County	Rate for remainder of Idaho
Pediatric	Total	17.8	17.9	18.2
Age 0 to 19	Male	19.0	**19.3**	19.1
	Female	16.5	16.5	17.2

Table notes: Rates are expressed as the number of cases per 100,000 persons per year (person-years).

The INL has continued to release radionuclides to the air within 50 miles of the lab with radionuclides including iodine-131, iodine-129, americium-241, strontium-90, cobalt-60, plutonium-238, plutonium-239, ruthenium-103, cesium-134 and cesium-137 and many others. And while doing so, has continued to insinuate that all the radionuclides are from former nuclear weapons testing or some other mysterious source. A study published in 1988 found the mallard ducks near the ATR Complex percolation ponds at the Idaho National Laboratory to be full of transuranic radionuclides including plutonium-238, plutonium-239, plutonium-240, americium-241, curium-242 and curium-244. [11] An employee who I knew had the habit of jogging around the radioactive waste ponds at lunchtime. He died of liver cancer in his 50s. This health-conscious non-smoker was told, like the rest of us, that the radioactivity in the ponds was mainly tritium and was of no health concern what-so-ever.

The stated radionuclide releases from the Idaho National Laboratory to air have often been incomplete or underestimated the releases. The stated "effective dose equivalent" whole body dose has been a *fictional* fraction of a millirem.

[11] O. D. Markham et al., Health Physics, "Plutonium, Am, Cm and Sr in Ducks Maintained on Radioactive Leaching Ponds in Southeaster Idaho," September 1988. https://pubmed.ncbi.nlm.nih.gov/3170205/ (This study evaluated the concentrations of strontium-90, plutonium-238, plutonium-239, plutonium-240, americium-241, curium-242 and curium-244 in the tissues of mallard ducks near the ATR Complex reactive leaching ponds at the Idaho National Laboratory. It found the highest concentrations of transuranics occurred in the gastrointestinal tract, followed closely by feathers. Approximately 75%, 18%, 6% and 1% of the total transuranic activity in tissues analyzed were associated with the bone, feathers, GI tract and liver, respectively. Concentrations in the GI tracts were similar to concentrations in vegetation and insects near the ponds. The estimated total dose rate to the ducks from the Sr-90 and the transuranic nuclides was 69 millrad per day, of which 99 percent was to the bone. The estimated dose to a person eating one duck was 0.045 mrem. The ducks were estimated to contain 305 nanoCuries of transuranic activity and 68.7 microCuries of strontium-90.)

The INL releases tons of volatile organic compounds with chlorine compounds to the air, such as the vapor extraction of carbon tetrachloride from buried Rocky Flats waste at the INL's Radioactive Waste Management Complex. A few years ago, EPA monitoring found high levels of carbon tetrachloride in Idaho Falls air. This emission is said to be within federal guidelines, but because chlorine compounds are so unhealthy for the thyroid, the prevalent chemical toxins that are released by the INL that are not even discussed in its environmental monitoring reports may need to be considered in light of elevated thyroid cancer incidence rates near the INL.

The radiation dose reconstruction analysts for the Center for Disease Control, who determine eligibility for the Energy Employee Occupational Illness Compensation Program (EEOICP) continue to ignore what went on and what is still going on at INL facilities, particularly the ATR Complex formerly known as the Test Reactor Area. The radiation dose reconstruction has continued to pretend that the fuel composition of the operating reactors and lack of fuel melt in these reactors means that workers were not exposed to airborne contamination. The CDC need only look at the radionuclides in the ducks. The levels of transuranics including americium-241 and curium in the air at the ATR Complex and other facilities at the INL are sometimes extensive. [12] [13]

The extensive airborne concentrations of americium-241 at the INL may be important to the underestimation of thyroid doses and risks of thyroid cancer incidence. A 1993 study estimated that the dose to the thyroid from americium-241 to be about 1.42 times that delivered to bone. They concluded that the thyroid dose is much higher from americium-241 than has been reported in people. [14]

On the potential health harm of americium-241, the Agency for Toxic Substances and Disease Registry has stated that: "The radiation from americium is the primary cause of adverse health effects from absorbed americium. Upon entering the body by any route of exposure, americium moves relatively rapidly through the body and is deposited on the surfaces of the bones where it remains for a long time. As americium undergoes radioactive decay in the bone, alpha particles collide with nearby cell matter and give all of their energy to this cell matter. The gamma rays released by decaying americium can travel much farther before hitting cellular material, and many of these gamma rays leave the body without hitting or damaging any cell matter. The dose from this alpha and gamma radiation can cause changes in the genetic material of these cells that could result in health effects such as bone cancers. Exposure to extremely high levels of americium, as has been reported in some animal studies, has resulted in damage to organs

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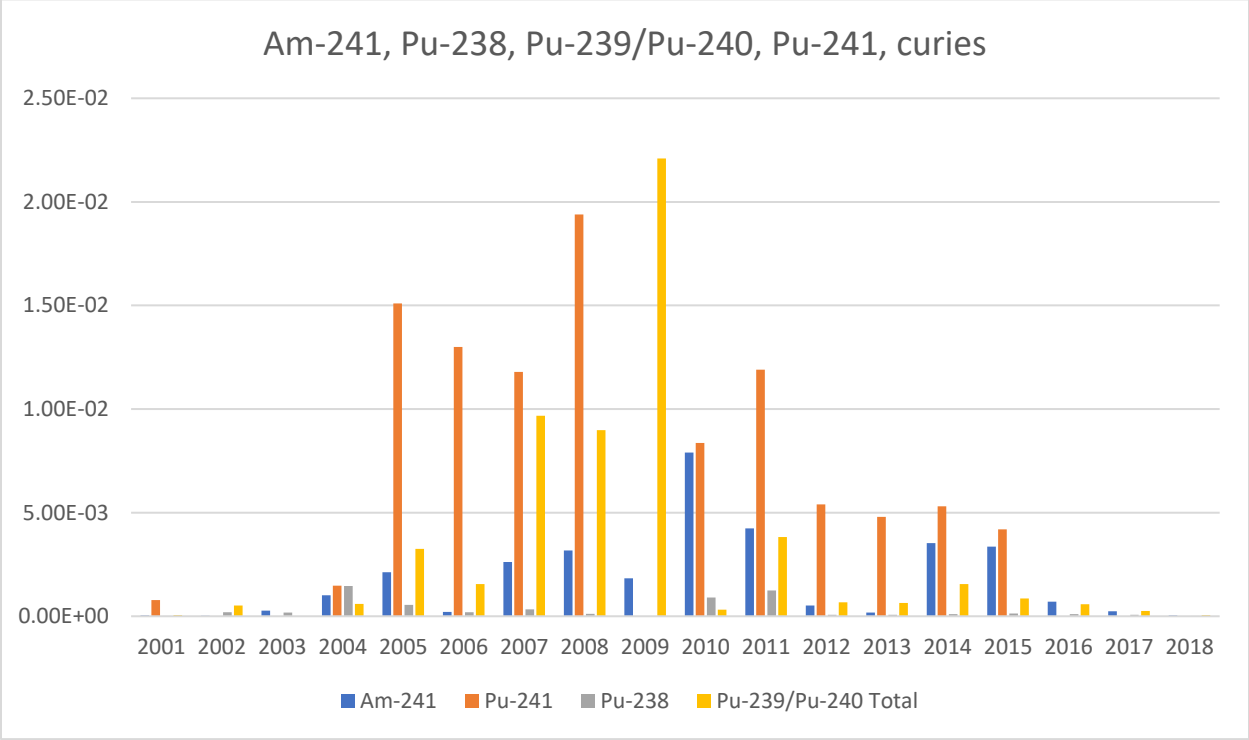
[12] F. Menetrier at al., *Applied Radiation Isot*., "The Biokinetics and Radiotoxicology of Curium: A Comparison With Americium," December 2007. https://pubmed.ncbi.nlm.nih.gov/18222696/ (This study found that the biokinetics of curium are very similar to those of americium-241. Lung and bone tumor induction appear to be the major hazards. Retention in the liver appears to be species dependent.)

[13] R. L. Kathren, Occupational Medicine, "Tissue Studies of Persons With Intakes of the Actinide Elements: The U.S. Transuranium and Uranium Registries," April-June 2001. https://pubmed.ncbi.nlm.nih.gov/11319054/ (This study finds that the dose coefficients for alpha radiation induction of bone sarcoma may be too high while those for leukemia are a factor six too low.

[14] G. N. Taylor et al., Health Physics, "241Am-induced Thyroid Lesions in the Beagle," June 1993. https://pubmed.ncbi.nlm.nih.gov/8491622/

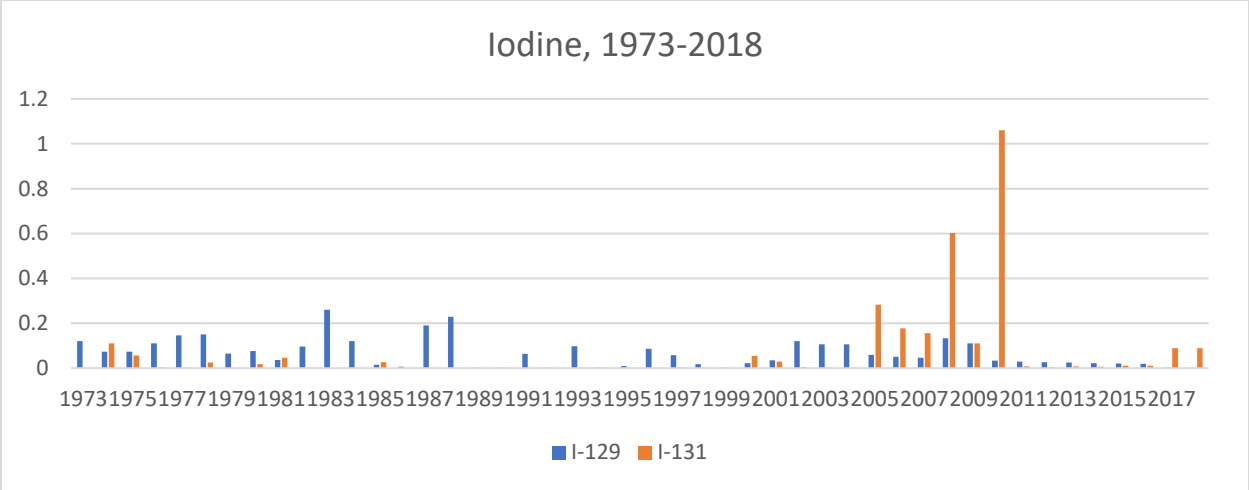
The EA fails to address the inadequate and actually fraudulent environmental monitoring by its contractors, including the annual environmental surveillance report contractor, which incorrectly attributes americium-241 from the INL to past nuclear weapons testing.

Take a look at the plutonium and americium-241 releases from the Idaho National Laboratory between 2001 and 2017 based on Department of Energy environmental monitoring reports. [15] The State of Idaho DEQ does not display, report or trend any data before 2013….and I can see why. The huge releases from the INL between 2004 and 2013 are shocking and certainly would not fit well with a tourist brochure for visiting Idaho.



Then let's take a look at the iodine-129 and iodine-131 releases between 1973 and 2017, in curies. The State of Idaho DEQ went from displaying all of their environmental monitoring reports to displaying ten years of the reports, to know displaying only six years of annual reports and only 4 years of quarterly data reports from 2013 to 2018. **Again, here you can see why the Idaho DEQ didn't want to display INL monitoring data before 2013.**

[15] Department of Energy's environmental monitoring reports, see idahoeser.com and inldigitallibrary.inl.gov.



The plutonium and americium-241 and the iodine-129 and iodine-131 are not the only radionuclides with elevated releases from the INL. But these radionuclides might have influenced the elevated thyroid cancers in Bonneville County reported for 2013 to 2017.

Iodine-129 with its 16-million-year half-life has higher inhalation and ingestion dose conversion factors than iodine-131 with its 8-day half-life. While iodine-131 does give a higher air emersion and ground shine dose, the iodine-129 dose often is a dominant dose contributor for INL airborne releases.

The EA fails to address the rather short-lived radionuclides produced in nuclear reactors that were found in marmot tissue as far away as Pocatello Idaho which cannot have come from past weapons testing or radioactive disposal activities such as importation of radioactive waste via train car past Pocatello to US Ecology Grandview Idaho.

The EA ignores the past radiological releases, their resuspension and buildup in the environment.

The INL's EBR-II fuel is the feedstock for its high-assay low-enriched uranium (HALEU), DOE/EA-2087, being pyroprocessed at INL's Materials and Fuels Complex and increasing the radiological airborne emissions from the INL 170-fold, see Table 3.

The EA cumulative impacts evaluation is arbitrary and misleading and fails to address the buildup of radionuclides in our air, water and soil and fails to acknowledge the inadequacy of the environmental surveillance programs.

https://www.energy.gov/sites/prod/files/2019/09/f66/draft-ea-2063-expanding-capabilities-nstr-rrtr-inl-2019-09.pdf

Table 3. Estimated annual air pathway dose (mrem) to Idaho communities from normal operations to the maximally exposed offsite individual from proposed projects, including the estimated dose from expanding capabilities at the Ranges based on DOE/EA-2063.

Current and Reasonably Foreseeable Future Action	Estimated Annual Air Pathway Dose (mrem)
National Security Test Range	0.04[e]
Radiological Response Training Range (North Test Range)	0.048[d]
Radiological Response Training Range (South Test Range)	0.00034[a]
HALEU Fuel Production (DOE-ID, 2019)	1.6[a]
Integrated Waste Treatment Unit (ICP/EXT-05-01116)	0.0746[h]
New DOE Remote-Handled LLW Disposal Facility (DOE/ID 2018)	0.0074[a]
Recapitalization of Infrastructure Supporting Naval Spent Nuclear Fuel Handling (DOE/EIS 2016)	0.0006[c]
TREAT (DOE/EA 2014)	0.0011[a]
DOE Idaho Spent Fuel Facility (NRC, 2004)	0.000063[a]
Plutonium-238 Production for Radioisotope Power Systems (DOE/EIS 2013)	0.00000026[b]
Total of Reasonably Foreseeable Future Actions on the INL Site	1.77[g]
Current (2018) Annual Estimated INL Emissions (DOE2019a)	0.0102[f]
Total of Current and Reasonably Foreseeable Future Actions on the INL Site [**DOE WOULD INCREASE INL'S AIRBORNE RELEASES BY OVER 170 TIMES**]	1.78[g]

Table notes:

a. Dose calculated at Frenchman's Cabin, typically INL's MEI for annual NESHAP evaluation.

b. Receptor location is not clear. Conservatively assumed at Frenchman's Cabin.

c. Dose calculated at INL boundary northwest of Naval Reactor Facility. Dose at Frenchman' Cabin likely much lower.

d. Dose calculated at INL boundary northeast of Specific Manufacturing Capability. Dose at Frenchman's Cabin likely much lower.

e. Sum of doses from New Explosive Test Area and Radiological Training Pad calculated at separate locations northeast of MFC near Mud Lake. **Dose at Frenchman's Cabin likely much lower. PLEASE NOTE THAT THE PUBLIC AT MUD LAKE IS CLOSER TO THE RELEASE THAN TO FRENCHMAN'S CABIN.**

f. Dose at MEI location (Frenchman's Cabin) from 2018 INL emissions (DOE 2019a). The 10-year (2008 through 2017) average dose is 0.05 mrem/year. **PLEASE NOTE THAT MANY RADIOLOGICAL RELEASES ARE IGNORED AND NOT INCLUDED IN THE RELEASE ESTIMATES IN NESHAPS REPORTING.**

g. This total represents air impact from current and reasonably foreseeable future actions at INL. It conservatively assumes the dose from each facility was calculated at the same location (Frenchman's Cabin), which they were not.

h. Receptor location unknown, according to the Department of Energy, the agency that is supposed to know the receptor location.

The EA ignores many the ongoing radiological releases including the decision by the U.S. Department of Energy to allow the DOE to release long-lived radionuclides to air and soil at the Idaho National Laboratory, from the Expanding Capabilities at the National Security Test Range and the Radiological Response Training Range at Idaho National Laboratory (DOE/EA-2063) at

The EA fails to address the existing contamination levels in communities and drinking water. The draft EA fails to acknowledge that current INL radiological airborne monitoring is woefully inadequate because (1) emissions from the INL are usually based on estimates and not the reality, (2) the current environmental monitoring programs are designed to be inadequate, (3) the reports are tardy by nearly a year and are increasingly tardy, and (4) the quarterly and annual environmental monitoring reports are not reliable and are prone to "lost samples" or "air monitor not functioning" excuses.

Historical and current radiological monitoring programs omit INL releases, and are designed to hide, not reveal, the level and the source of radiological contamination.

The EA fails to truthfully discuss the multitude of INL CERCLA cleanup sites that cannot be released in 2095, as it goes about creating more CERCLA sites at the INL.

DOE expects to continue increasing the "normal background" radiation levels both on and off the Idaho National Laboratory site until our communities all receive unhealthy levels of radionuclide ingestion and inhalation.

"Normal background levels" are already elevated above what was naturally occurring and continue to rise. By selecting a contaminated area to determine "normal background," it appears to me that this is how some radiological facilities can claim to operate within "normal expected background" no matter what radiological release incident just occurred.

The DOE continues to not disclose what it considers "normal background levels" on and off the INL or to trend how the "normal background levels" have changed over time.

The INL's past practices of inflating "normal background levels" meant that employees worked in contaminated areas that when assessed independently during CERCLA cleanup investigations in 1995, these facilities had to be disposed of as radiological waste. Various INL areas had been highly contaminated for decades, and yet not monitored or controlled as such. See the Administrative Record for CERCLA cleanup at the Idaho National Laboratory at https://ar.icp.doe.gov .

The EA fails to acknowledge that the DOE's allowable radiation level of 100 mrem/yr would devastate public health

The EA relies on the DOE's allowable radiation level of 100 mrem/yr and implies that reaching such high levels would not be a devastation to the health of people in our communities.

By no means is the DOE's 100 mrem/yr dose limit to the public protective of human health. DOE ignores the epidemiology that shows that a few years of an average 400 mrem/yr to adult radiation workers increases cancer risk. Exposure of pregnant women to DOE's allowed 100 mrem/yr dose would greatly harm fetal health. The DOE ignores all modern epidemiology

studies for human health effects that show harm greater than DOE chose to believe decades ago, especially to the unborn, and to females and children.

The EA fails to address the fact the radiation workers are still wrongly told that there is no evidence of damage to DNA or genetic effects from radiation exposure to humans. DOE's radiation workers are not told of the infertility and increased risk of birth defects from radiation.

The EA fails to address the fact that the investigations into worker contamination at the INL historically are not complete and do find evidence of inadequate worker protection. The investigations continue at a snail's pace by the Center for Disease Control's National Institute of Occupational Safety and Health (NIOSH) for the Energy Employee Occupational Illness Compensation Program. Meanwhile, injured workers and their survivors die, having had their illness claim wrongly denied.

The EA states that "In addition, worker doses are monitored and controlled below the regulatory limit to ensure that individual doses are less than an INL administrative limit of 700 millirem per year." The EA needs to point out that whenever staying below 700 mrem/yr is inconvenient, they will go over this dose. The fact is if that the Department of Energy wants to claim its limit is 700 mrem/yr and not the current 5000 mrem/yr, then the DOE needs to change the federal limit to 700 mrem/yr. The EA also needs to acknowledge the extent that radiological records of contamination in urine and fecal samples is withheld from workers, enabling errors and deliberate falsifications. Many workers go to medical providers and the worker lacks any exposure and radiological intake history, let alone accurate radiological (and chemical) intake information.

The public as well as radiation workers need to keep in mind that, despite what they may have been taught:

- The cancer risk is not reduced when radiation doses are received in small increments, as the nuclear industry has long assumed. [16]

- Despite the repeated refrain that the harm from doses below 10 rem cannot be discerned, multiple and diverse studies from human epidemiology continue to find elevated cancer risks below 10 rem and from low-dose-rate exposure. [17]

- The adverse health effects of ionizing radiation are not limited to the increased risk of cancer and leukemia. Ionizing radiation is also a contributor to a wide range of chronic illnesses including heart disease and brain or neurological diseases.

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[16] 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 This cohort study included 308,297 workers in the nuclear industry.

[17] US EPA 2015 http://www.regulations.gov/#!documentDetail;D=NRC-2015-0057-0436 . For important low-dose radiation epidemiology see also John W. Gofman 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 radiation exposure.

The public and radiation workers take cues from their management that they should not be concerned about the tiny and easily shielded beta and alpha particles. DOE-funded fact sheets often spend more verbiage discussing natural sources of radiation than admitting the vast amounts of radioactive waste created by the DOE. The tone and the meta-message from the DOE, the nuclear industry, is that if you are educated about the risks, then you'll understand that the risks are low. Yet, these agencies continue to deny the continuing accumulation of compelling and diverse human epidemiological evidence that the harm of ingesting radionuclides is greater than they've been claiming.

The biological harm that ionizing radiation may cause to DNA is mentioned sometimes but it is emphasized that usually the DNA simply are repaired by the body. And the training to radiation workers will mention that fruit flies exposed to radiation passed genetic mutations to their offspring but workers are told that this phenomenon has never been seen in humans even though, sadly, the human evidence of genetic effects has continued to accumulate. Birth defects and children more susceptible to cancer are the result.

Gulf War veterans who inhaled depleted uranium have children with birth defects at much higher than normal rate. The same kinds of birth defects also became prevalent in the countries were citizens were exposed to DU. There are accounts to suggest that the actual number of birth defects resulting from the World War II atomic bombs dropped on Japan and by weapons testing over the Marshall Islands have been underreported. The Department of Energy early on made the decision not to track birth defects resulting from its workers or exposed populations. But people living near Hanford and near Oak Ridge know of increased birth defects in those communities.

In radworker training, there may be discussion of the fact that international radiation worker protection recommends only 2 rem per year, not 5 rem per year. There is no mention of recent human epidemiology showing the harm of radiation is higher than previously thought and at low doses, below 400 mrem annually to adult workers, increased cancer risk occurs.

There is no mention of the oxidative stress caused as ionizing radiation strips electrons off atoms or molecules in the body at energies far exceeding normal biological energy levels. And there is no discussion explaining the harm of inhaling or ingesting radioactive particles of fission products such as cesium-137, strontium-90, or iodine-131; of activation products such as cobalt-60; or transuranics such as plutonium and americium; or of the uranium itself.

The volatile or gaseous radionuclides, some of which can't be contained even with air filters — include technetium-99, tritium, carbon-14, iodine-129, argon-39, krypton-85, and radon-222 as the volatile radionuclides dominating the proposed Greater-Than-Class C radioactive waste disposal for the Andrews County, Texas facility. In Idaho, it appears that the DOE fails to adequately address these gaseous emissions from waste and other sources.

Often radionuclides with low curie levels dominate the harm to human health from radioactive waste disposal. So, when DOE states an overall curie level without stating which radionuclides and their specific curie levels, neither the radiotoxicity nor the longevity of the radioactive waste has been indicated.

Uranium and thorium and their decay products may be natural but in concentrated form in drinking water, soil or air, they are harmful. Radioactive waste disposal classification has often left out concentration limits for these radionuclides. Massive amounts of depleted uranium are considered Class A radioactive waste but won't be safe at the end of 100 years but will actually be more radioactive through decay progeny. The DOE has typically ignored its extensive releases of uranium and transuranic radionuclides to Idaho communities.

Plutonium-238, plutonium-239, and other transuranic radionuclides in radioactive waste in what appear to be low curie amounts also pose health harm. Is DOE planning to say that they stayed below some curie amount, while not disclosing the actual radionuclides released?

Cancer rates for uranium are typically based on natural forms for uranium and not chemically altered forms that may be more soluble in the human body. The internal radiation cancer harm is not based on solid epidemiological evidence and there are experts from Karl Z. Morgan to Chris Busby to Jack Valentine that understand that the accepted models may understate the cancer harm by a factor of 10, 100 or more. The nuclear industry continues to ignore the epidemiological evidence that implies tighter restrictions are needed.

Importantly, the chemical forms released by the INL may be more harmful than predicted because of particle size, temperatures during processing or releases, or other factors which may affect retention in the human body.

The DOE has long given presentations to the public that deliberately withheld information about long-lived radionuclide contamination. Even now, when filters are evaluated and found to have americium-241, plutonium-238 and plutonium-239, for example, the DOE and State of Idaho usually pretend to not know the source of the radionuclides.

Monitoring of waste burial sites for CERCLA at INL has often been inadequate and biased to hide contamination findings by reduced monitoring and reduced reporting. Spotty monitoring of land and the aquifer means "no discernable trend could be found."

At the Idaho National Laboratory, formerly the Idaho National Engineering and Environmental Laboratory, the Idaho National Engineering Laboratory, and the National Reactor Testing Station, historical releases were monitored yet not actually characterized as to what and how many curies were released. When asked by the governor in 1989 to provide an estimate of the radionuclides released from routine operations and accidents, the Department of Energy issued the "INEL Historical Dose Evaluation." [18] [19] It has been found to have underestimated serious releases by sometimes 10-fold. Furthermore, the past environmental monitoring used all along to claim no significant releases had occurred were not used in the INEL Historical Dose Evaluation. The environmental records that could have been used against the Department of Energy or its contractors were destroyed.

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[18] US Department of Energy Idaho Operations Office, "Idaho National Engineering Laboratory Historical Dose Evaluation," DOE-ID-12119, August 1991. Volumes 1 and 2 can be found at https://www.iaea.org/inis/inis-collection/index.html

[19] Environmental Defense Institute's comment submittal on the Consent-based Approach for Siting Storage for the nation's Nuclear Waste, July 31, 2016. http://www.environmental-defense-institute.org/publications/EDIXConsentFinal.pdf

The Center for Disease Control commenced reviewing the DOE's radiological release estimate that were the basis for denying that any epidemiological study was needed in Idaho communities near the site. The CDC in 2007 issued its review of the 1989 study and found many releases, some of the largest ones, underestimated by a factor of 7. [20] Errors causing underestimation of the INL releases continue to be found as energy worker compensation studies have continued. The INL was originally called the National Reactor Testing Station, later called the Idaho Engineering Laboratory, and then the Idaho National Engineering and Environmental Laboratory before being named the Idaho National Laboratory.

The estimates of the 1991 INEL Historical Dose Evaluation [21] continue to be found in error and to significantly underestimate what was released. [22] [23] [24] Theoretical and idealized modeling of the releases were used for estimating the releases for the 1991 INEL HDE without using environmental monitoring to confirm the estimates — except for the 1961 SL-1 accident in which the environmental monitoring showed that the **theoretical modeling had underestimated the release**. In fact, many of the environmental monitoring records were deliberately destroyed before the 1991 report was released. [25] INL airborne releases included a long list of every fission product that exists including iodine-131, long-lived I-129, tritium, strontium-90, cesium-37, plutonium, and uranium.

The source documents for the INEL HDE are in fact part of the Human Radiation Experiments collection of DOE documents. Why? Because there was enough information available for the DOE to know that showering nearby communities and their farms and milk cows with radiation really was likely to be harmful to their health. The INL (formerly the NRTS, INEL and INEEL) takes up dozens of volumes of binders in the DOE's Human Radiation Experiments collection and that isn't including the boxes of documents no one can get access to or the records that were deliberately disposed of. [26]

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[20] Center for Disease Control, CDC Task Order 5-2000-Final, Final Report RAC Report No. 3, by Risk Assessment Corporation, October 2002. https://www.cdc.gov/nceh/radiation/ineel/to5finalreport.pdf

[21] US Department of Energy Idaho Operations Office, "Idaho National Engineering Laboratory Historical Dose Evaluation," DOE-ID-12119, August 1991. Volumes 1 and 2 can be found at https://www.iaea.org/inis/inis-collection/index.html p. 40

[22] Risk Assessment Corporation, "Identification and Prioritization of Radionuclide Releases from the Idaho National Engineering and Environmental Laboratory," October 8, 2002, https://www.cdc.gov/nceh/radiation/ineel/to5finalreport.pdf See p. 117, 118 for SL-1.

[23] SENES Oak Ridge, "A Critical Review of Source Terms for Select Initial Engine Tests Associated with the Aircraft Nuclear Program at INEL," Contract No. 200-2002-00367, Final Report, July 2005. http://www.cdc.gov/nceh/radiation/ineel/anpsourceterms.pdf See p. 4-67 for Table 4-13 for I-131 estimate for IET's 10A and 10B and note the wrong values for I-131 are listed in the summary ES-7 table.

[24] CDC NIOSH, "NIOSH Investigation into the Issues Raised in Comment 2 for SCA-TR-TASK1-005," September 3, 2013. https://www.cdc.gov/niosh/ocas/pdfs/dps/dc-inlspcom2-r0.pdf See p. 3 stating various episodic releases underestimated by the INEL HDE: IET 3, IET 4 and IET 10.

[25] Chuck Broscious, Environmental Defense Institute Report, "Destruction and Inadequate Retrieval of INL Documents Worse than Previously Reported," Revised September 1, 2018. http://environmental-defense-institute.org/publications/DocDestruction.pdf

[26] 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

DOE and the CDC still not disclosing the full extent of historical releases, including the magnitude of the 1961 SL-1 release which affected communities including Atomic City and Mud Lake.

Communities near the INL, include Atomic City to the south and Mud Lake to the north and Osgood west of the MARVEL project have been adversely affected already and isn't the harm done to those poor people enough?

The Atomic Energy Commission, predecessor of the Department of Energy, claimed that no other fission products were detected other than 0.1 Curies of strontium-90 and 0.5 curies of cesium-137 within the perimeter fence of the SL-1. [27] The derived release fractions based on trying to fit the AEC claims to a computer derived release fraction show that the AEC claimed low curie amount releases are fiction. Never before or since has a reactor fuel had such low release fractions! The AEC not only left out many radionuclides, they underestimated the amount of the fission product releases from the accident by a factor of over 22 for iodine-131, 588 for Cs-137 and 277 for Sr-90. And even with the low-balled curie releases, the SL-1 accident was a serious accident.

Despite what Risk Assessment Corporation (RAC) writes about prevailing meteorological conditions at the time of the SL-1 accident being characteristic of the typical conditions at the time of year, the conditions were not typical. During the accident, the prevailing winds were from the north to northeast for 100 hours with an extremely strong inversion. Typical conditions are a prevailing wind in the opposite direction during the daytime, with wind reversals at night typical. The SL-1 radionuclide plume blew south toward American Falls and Rupert, Idaho.

The SL-1 reactor fission product inventory consisted of radionuclides produced during the excursion and also radionuclides the had built up in the fuel during previous reactor operations. The operating history of the reactor consisted of 11,000 hours for a total of 932 MW-days. The reactor accident resulted in a total energy release of 133 MW-seconds. Roughly 30 percent of the core's fuel inventory was missing from the vessel, when examined after the accident. [28] [29] [30]

Risk Assessment Corporation used the computer code RSAC to calculated a fission product inventory based on operation of the reactor at a power level of 2.03 MW (mega-watts) for 458 days, followed by a shutdown period of 11 days and the excursion power level of 88,700 MW

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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?

[27] Report by Risk Assessment Corporation for Centers for Disease Control and Prevention, Department of Health and Human Services, *Final Report Identification and Prioritization of Radionuclide Releases from the Idaho National Engineering and Environmental Laboratory*, RAC Report No. 3, CDC Task Order S-2000-Final, October 2002, pages 117, 118. https://www.cdc.gov/nceh/radiation/ineel/TO5FinalReport.pdf

[28] Department of Energy, Idaho National Engineering Laboratory Historical Dose Evaluation, DOE/ID-12119, August 1991. See https://inldigitallibrary.inl.gov

[29] Atomic Energy Commission, "Final Report of the SL-1 Recovery Operation," IDO-19311, June 27, 1962. See p. III-77 regarding fuel damage. https://inldigitallibrary.inl.gov/PRR/163644.pdf

[30] Atomic Energy Commission, "Additional Analysis of the SL-1 Excursion Final Report of Progress July through October 1962," IDO-19313, November 21, 1962. See p. 27 Table I-VIII. https://inldigitallibrary.inl.gov/PRR/163644.pdf

for a period of 0.015 seconds. The Center for Disease Control did not call out what were obvious discrepancies and which meant that the SL-1 radiological consequences have been grossly understated.

Sage brush samples were collected and according to the AEC, the "gamma spectra of representative samples indicated that the activity was due to iodine-131. (IDO-12021, p. 131)

It was customary for the AEC to monitor jack rabbit thyroids and the iodine-131 levels before the SL-1 accident, for jack rabbit thyroids were typically 100 picocuries per gram. After the SL-1 accident, the levels were as high as 750,000 picocuries per gram at the SL-1, 180,000 picocuries/gram at nearby Atomic City, located south of the SL-1, and 50,000 picocuries per gram at Tabor, a farming community southeast of SL-1 and west of Blackfoot, and 11,200 picocuries at Springfield. These rabbit thyroid results reveal much higher rabbit thyroid iodine-131 levels than produced by the other large episodic and routine releases from the Idaho National Laboratory during the 1950s and 1960s. [31] [32] [33] [34]

The DOE has lied to the public about the SL-1 accident and still publishes false information about the SL-1 accident, you can read my report about the consequences of the SL-1 accident on the Environmental Defense Institute website, *The SL-1 Accident Consequences*, at http://environmental-defense-institute.org/publications/SL-1Consequences.pdf and the cause of the SL-1 accident on the Environmental Defense Institute website, *The Truth about the SL-1 Accident – Understanding the Reactor Excursion and Safety Problems at SL-1* at http://environmental-defense-institute.org/publications/SL-1Accident.pdf

The EA lists various Department of Energy regulations but fails to acknowledge that the Department of Energy is not trustworthy.

From the DOE's nuclear weapons testing at the Nevada Testing Station, in the Pacific islands, and elsewhere, the DOE told people they were safe and then covered up epidemiology that showed people had increased rates of leukemia and cancer from the fallout. The DOE claimed its releases from the INL were too low to cause harm, but when asked to state what it had released to the Idaho skies, the DOE didn't know. Then when the DOE issued a report of estimated releases through its history to 1989, reviews by the Center for Disease Control found the releases had been significantly underestimated. It is also documented that many environmental monitoring records were subsequently destroyed, which would have indicated more contamination that the DOE wanted others to know about. The DOE has lost or destroyed worker radiation dose records throughout its history when the records would show elevated doses. The DOE uses secrecy, document destruction, omission of key information during public presentations, and adherence to providing false information about its plans, and breaks its

[31] Atomic Energy Commission, "1958 Health and Safety Division Annual Report, IDO-12012, See p. 72, 73 for iodine-131 in sage brush and rabbit thyroids. https://inldigitallibrary.inl.gov/PRR/112697.pdf

[32] Atomic Energy Commission, "Annual Report of Health and Safety Division, 1959," IDO-12014, See p. 88 for iodine-131 in rabbit thyroids. https://inldigitallibrary.inl.gov/PRR/112700.pdf

[33] Atomic Energy Commission, "Health and Safety Division Annual Report, 1960," IDO-12019, See p. 91 for iodine-131 in rabbit thyroids. https://inldigitallibrary.inl.gov/PRR/90927.pdf

[34] Atomic Energy Commission, "Health and Safety Division Annual Report, 1961," IDO-12021, See p. 128, 133 for iodine-131 in jack rabbit thyroids. https://inldigitallibrary.inl.gov/PRR/163656.pdf

commitments. The DOE would not have conducted any cleanup at all if other federal agencies had not been able to say that hazardous chemical laws needed to apply to DOE sites, allowing CERCLA cleanup investigations. The DOE has systematically lied about the pervasive long-lived radionuclides at sites likes the INL, omitting what it well knew, that uranium, plutonium and americium were included in soil and perched water. It omitted this information so well that the DOE and the U.S. Geological Survey have often, without justification, omitted the reporting of extensive radiological contamination at the INL, later found by CERCLA investigations.

DOE lied about its radiological releases decades ago from nuclear weapons testing, reactor testing, and reactor accidents and other operations and it continues to misinform the public about its past and about current contamination.

The Department of Energy has a long history of telling workers they are protected from radiological hazards — but workers got illnesses. Nationwide, billions of dollars of illness compensation have been paid out under the Energy Employee Illness Compensation Program Act (EEICOPA) even with two-thirds of INL claims denied.

The Department of Energy has a long history of saying its radiological releases were too small to affect the public — but studies found that the public had higher infant mortality and certain cancers and leukemia.

The Department of Energy has rightfully earned and continues to earn the public's distrust. The Department of Energy must not be allowed to unilaterally reclassify HLW waste because the DOE cannot be trusted to comply with its own regulations should its regulations or DOE Orders be deemed inconvenient or costly.

The Idaho National Laboratory along with other Department of Energy operations at Hanford and Rocky Flats have a long tradition of falsification of lung count results. The last situation requiring lung counts, reported that lung counts were not required, despite lung counts being required. Workers are not informed that their lung count results can be manipulated in order to obtain lowered intake results.

The EA fails to acknowledge that the DOE has a record of not being transparent and usually fails to publish the public comment submittals it receives.

The DOE has also conducted numerous public comment opportunities, only to refuse to publish those public comments such as the consent-based interim spent nuclear fuel storage meetings conducted a few years ago. [35] [36]

People might eventually catch on that Idaho is getting more and more radiologically polluted — but with all the deliberate omissions and dis-information, probably not before it's too late.

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[35] Before ending the consent-based siting effort, information found about the Department of Energy's consent-based siting at www.energy.gov/consentbasedsiting and its Integrated Waste Management and Consent-based Siting booklet at http://energy.gov/ne/downloads/integrated-waste-management-and-consent-based-siting-booklet

[36] Environmental Defense Institute's comment submittal on the Consent-based Approach for Siting Storage for the nation's Nuclear Waste, July 31, 2016. http://www.environmental-defense-institute.org/publications/EDIXConsentFinal.pdf