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LINE Commission and Department of Energy Work to Preserve Radioactive Trash Compactor Facility Jobs

As the mission of the Advanced Mixed Waste Treatment Project (AMWTP) is winding down, “hundreds of high-paying local jobs are on the line” reported The Idaho Falls Post Register.¹

Department of Energy’s director of the Idaho Cleanup Project, Jack Zimmerman spoke to the Idaho Leadership in Nuclear Energy Commission (LINE) explaining that about half of 700 local jobs won’t exist after the current mission of compacting barrels of transuranic waste for shipment is completed in about one year. The remaining work would involve decommissioning the facility. But options for potential reuse of the facility are being explored and this was discussed at last year’s Idaho National Laboratory Citizens Advisory Board meetings.

The Idaho Settlement Agreement with the Department of Energy allows shipping in waste non-INL radioactive waste from other DOE facilities but it stipulates that the waste be treated within six months and then shipped out within six months following treatment. It allows DOE to request an exception to the six-month time period. Apparently, DOE thinks this is too limiting. At the February Idaho Cleanup Project Citizens Advisory Board, a DOE presentation stated **“Idaho Settlement Agreement: requires blanket exception or removal of 6-month-in/6-month-out requirement.”** Apparently, there is some law of physics that prevents consideration of limiting the shipments in to Idaho to time frames that can be treated within the existing Idaho Settlement Agreement requirement and also prevents consideration of say, extending the 1-year limit to 2 years.

I see the Department of Energy’s statement as a continuing assault on the Idaho Settlement Agreement and as an effort by DOE to blame the Idaho Settlement Agreement for the loss of these jobs.

The review of how to continue operations at the AMWTP by the DOE is not available to the public and not even to ICP Citizens Advisory Board members. But the presentation displayed that most of the potential waste that could benefit from coming to Idaho and being characterized and compacted at the AMWTP is located at Hanford and LANL in New Mexico. The LANL

¹ Bryan Clark, *The Idaho Falls Post Register*, “Mission of AMWTP coming to an end – There are hundreds of high-paying local jobs on the line if the facility shuts down,” February 3, 2018.

waste is still buried. The Hanford waste is in large “boxes” which are larger than cargo containers and they contain very large items that the AMWTP is not designed to handle.

The DOE presentation to the Citizens Advisory Board in February ² stated that alternative packaging would be needed and that they would need relief from meeting current NRC Type B packaging requirements for transporting the waste. Relaxing transportation requirements would be very unwise.

Furthermore, the DOE presentation pointed out that the funding and schedule priorities for Hanford and LANL do not line up with the rapidly approaching shutdown of the AMWTP.

Nonetheless, it seems that the impossibility of actually keeping the AMWTP running and the fact that DOE is not doing anything to make it happen were subtle points missed by the CAB and others hoping to keep AMWTP jobs.

The routine airborne emissions from this facility and the rest of the facilities at the Radioactive Waste Management Complex are estimated rather than monitored and are probably underreported. The accident risks associated with transportation and on-site storage of barrels of radioactive waste don't appear to be understood by the CAB. It took only a single barrel of transuranic waste in the 2014 accident at the Waste Isolation Pilot Plant in New Mexico to cause extensive contamination of miles of the underground mine and the contamination was detected miles away despite an operating filter system.

WIPP will not expand its outdoor above ground storage beyond what it can process in one year and it has much more emphasis on the safety of above ground storage by its State regulators than Idaho. Idaho's Department of Environmental Quality rubber stamped its approval of vastly increased RCRA mixed waste (chemical and radioactive transuranic waste) at the Idaho National Laboratory's Materials and Fuels Complex last year. ³

The ICP Citizens Advisory Board, ICP contractor Fluor, and DOE's Idaho Operations Office are sincere about wanting to prevent the job loss, but while unstated at the meeting, there are no realistic pathways to prevent closure of the AMWTP or possible interruption of employment from extended standby status.

The DOE could expand the exhumation of buried waste from the burial grounds at the Radioactive Waste Management Complex. The cleanup was limited based on the phony argument that no DOE radiation workers would be harmed but an unmonitored state employee inspecting shipments would receive an excessive but unmonitored radiation

² Idaho Cleanup Project Citizens Advisory Board (formerly the Idaho National Laboratory Citizens Advisory Board) meeting schedules and presentations at <https://energy.gov/em/icpcab/idaho-cleanup-project-citizens-advisory-board-icp-cab>

³ Tami Thatcher, Environmental Defense Institute Special Report, “Public Comment for Class 2 RCRA Permit Modification for Materials and Fuels Complex,” 2017. www.environmental-defense-institute.org/publications/EDIRCRAcomments2017.pdf

dose.⁴ This was coupled with the phony argument for limited benefit to the public based on ignoring the migration of contaminants downgradient in fast paths and after 1000 years.⁵
6 7

Any change to the Idaho Settlement Agreement from the Department of Energy's urgent prompting increases the stranded nuclear waste at the INL and welcomes disaster and now not only at the INL site but also along the transportation routes to ship more transuranic waste to Idaho. **There is no real action by the Department of Energy to prevent shutdown of the AMWTP; there is real action to put the blame on the Idaho Settlement Agreement for the shutdown.**

Possible Radioactive Operations at IWTU by the End of 2018

The Integrated Waste Treatment Unit (IWTU) might begin testing radioactive material this year if testing of the facility goes well during the next few months. Recent redesigns and small scale testing at the Hazen facility in Colorado have Department of Energy officials hopeful that that the IWTU won't require more major plant redesigns.

The Post Register reported that as of last June, the IWTU was more than \$200 million over budget.⁸ The DOE faces daily fines while it's not in operation because of missing the 2012

⁴ An often-repeated contrived excuse for limiting RWMC cleanup comes from the Record of Decision fuzzy artwork of "worker" risk per acre of waste dug up. It references administrative record report RPT-188 at ar.inel.gov. or ar.icp.doe.gov. It is used to defend digging around in only about 6 acres and not the entire 35 acres of buried waste at RWMC. Radiation worker risks are higher than DOE acknowledges, but they claim that radiation protections for DOE contractor radiation workers limit health risks. But the case was not actually based on a monitored radiation worker. It was based on an unmonitored state employee who receives an unmonitored 47 rem dose throughout his career if the cleanup extends from 6 years to 25 years. This argument, however, is immediately forgotten when discussing extending operations at the AMWTP to outside waste. There is no estimate of the number of people who will be dosed from the polluted aquifer. The gross conservatism of this unmonitored "worker" dose estimate was used to argue that cleaning up the entire mess would yield incrementally high worker doses for each additional acre cleaned up.

⁵ Tami Thatcher, Environmental Defense Institute Special Report, "The "Forever" Contamination Sites at the Idaho National Laboratory," 2017. www.environmental-defense-institute.org/publications/EarthDayINLreport.pdf

⁶ 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 and 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. Available at INL's DOE-ID Public Reading room electronic collection. (Newly released because of Environmental Defense Institute's Freedom of Information Act request.) See <https://www.inl.gov/about-inl/general-information/doe-public-reading-room/>

⁷ See the CERCLA administrative record at www.ar.icp.doe.gov (previously at ar.inel.gov) and see also Parsons, Alva M., James M. McCarthy, M. Kay Adler Flitton, Renee Y. Bowser, and Dale A. Cresap, Annual Performance Assessment and Composite Analysis Review for the Active Low-Level Waste Disposal Facility at the RWMC FY 2013, RPT-1267, 2014, Idaho Cleanup Project. And see Prepared for Department of Energy Idaho Operations Office, Phase 1 Interim Remedial Action Report for Operable Unit 7-13/14 Targeted Waste Retrievals, DOE/ID-11396, Revision 3, October 2014 <https://ar.inl.gov/images/pdf/201411/2014110300960BRU.pdf>

⁸ Bryan Clark, *The Idaho Falls Post Register*, "IWTU might begin this year – DOE gives progress report to LINE Commission," February 1, 2018.

milestones and subsequently missed renegotiated schedules for hazardous waste tanks regulated by the State of Idaho.

A detailed presentation explaining the technical difficulties that have required numerous design modifications was provided to the Idaho Cleanup Project Citizens Advisory Board at the February 21 meeting in Idaho Falls.

The IWTU is needed to treat 900,000 gallons of high level waste called “sodium bearing waste”⁹ that is currently stored in 50-year-old tanks above the Snake River Plain Aquifer. The waste is the result of spent nuclear fuel reprocessing at the Idaho National Laboratory’s INTEC facility. The Department of Energy hopes to reclassify the waste from HLW to transuranic waste. That way, the DOE hopes that the waste can be repackaged and sent to WIPP in New Mexico. Otherwise, the waste will be stranded in Idaho along with other HLW and spent nuclear fuel.

The liquid waste will be pumped into IWTU’s denitration mineralization reformer (DMR) to make solid powder. Gases from the DMR process go to the carbon reduction reformer (CRR) which operates at 953 degrees C.¹⁰ The powder had been solidifying in the DMR and clogging up. Cracks had been developing in the CRR. Additional testing using non-radioactive “simulant” is to be conducted during the upcoming months. The condition of the equipment can then be inspected after the simulant runs.

There is no published schedule for commencing radioactive operations or their completion. Instead, there is a phased approach where criteria must be met before progressing to the next phase. This is needed because of the earlier experience where there were no adults in the room as the previous contractor took shortcuts in order to attempt to meet the 2012 schedule that the DOE was putting intense pressure on meeting. The facility had numerous design flaws and the previous contractor’s initial premature attempt to start up the facility resulted in an overpressurization event that blew out various filters.

⁹ Sodium-bearing waste was previously classified as High-Level-Liquid Waste and arbitrarily reclassified as TRU despite NRDC/EDI legal challenge in the US District Court for the District of Idaho, NRDC, et al, v. USA, CV No 01-0413-C-BLW. July 3, 2003.

¹⁰ At 953 degrees, IWTU is actually an incinerator although EPA and IDEQ found a way around classifying as such.

DOE Finally Mentions to State and to Citizens Advisory Board That Decision to Hot Isostatic Press the Calcine is Up in the Air

The State of Idaho representative at the Idaho Cleanup Project Citizens Advisory Board meeting in February said it was news to the state that the Department of Energy was back to the drawing board on its former decision to use Hot Isostatic Pressing (HIPing) to make the high level waste calcine road ready.

Because of an independent review of the treatment choice, the review concluded that HIPing appears to represent the least preferable processing technology for all disposal options because of its highest operational safety risk of all the processing options.

The Department of Energy has long pursued methods of treating the calcine without having specified criteria for a repository but now is arguing that without knowing where the calcine will be disposed of, it cannot make a decision of how to proceed with the calcine disposition project to make the calcine road ready. If DOE waits for a disposal path to be better defined, the calcine could remain indefinitely as a powdered material in seismically fragile and flood-accident vulnerable partially above ground calcine solids storage facilities at the Idaho National Laboratory.

While the Calcine Retrieval Subproject is still continuing to investigate how to retrieve calcine from bin set 1 — that was not designed with any retrieval capability — even that project could be at risk of being interrupted. The retrieval of calcine from the oldest bin set 1 to move it to a more modern bin set is research that is needed no matter where the calcine is to be disposed of, and would empty to most seismically fragile bin set. The estimated cost is \$50 million and is expected to be completed in 2022.¹¹

The seismic analysis of the bin sets showed vulnerability of the bin sets and for that reason, the Department of Energy has argued that the concrete structures around the bin sets would be relied on to contain the calcine. But the degradation of the concrete over time and vulnerability to cracking has not been analyzed. The seismic studies probably did their analysis only for the current time frames with no analysis of the seismic risk in the future, say 100 years from now.

There have been a chorus of voices saying that the calcine would be fine for 300 years but they have based their conclusion on the metal corrosion resistance and not on seismic risk or flooding accidents and other events. Bin set 1, installed in 1963, was designed to a lower seismic performance category (PC-2) than the other bin sets that were designed to PC-3. And since the late 1990s, seismicity investigations have found the site more, not less, seismically challenging to plant equipment and building designs. Virtually all tanks at all INL facilities designed before around 2000 have not been seismically adequate to even PC-2 standards even when PC-4 was needed.

¹¹ Kevin Trevelyan, reporter, *The Idaho Falls Post Register*, “Calcine retrieval continues – Estimated \$50M project expected to finish in 2022,” June 27, 2017.

The Department of Energy has sought to dispose of the calcine in deep bore holes in North or South Dakota. But neither state would allow even the research to be conducted, perhaps worrying about the uncertainties they would face in terms of geological instability due to the drilling and potential entry of highly soluble radioactive calcine into their water supplies.

The powdery calcine is preferable to leaky tanks like the ones at Hanford. But, it is a high-level waste form that could blow in the wind and leach into the ground and ultimately to the aquifer.

In order to ship the calcine out of Idaho, it needs a repository to ship to. It needs to be packaged into canisters for shipping and disposal.

Calcine retrieval must be performed regardless of the choice of repository or choice of canister packaging method such as Hot Isostatic Press (HIP) (see our June 2017 newsletter). The Department of Energy had formally announced in 2009 the decision to use HIP as the method of repackaging the calcine for shipping and disposal.¹² The 2009 decision was actually amending previous decisions. Now it appears that the 2009 decision may be changed again because the Department of Energy recently issued a report by an independent review panel describing the possible treatment options for the calcine.¹³

Both the CAB and DOE-ID both agree in 2017 that calcine retrieval needed to continue uninterrupted.¹⁴ Environmental Defense Institute has previously submitted comments to the Idaho Department of Environmental Quality about the calcine.^{15 16} More background on the calcine can be found in the July 2017 EDI newsletter and in other reports listed.¹⁷

¹² Department of Energy Press Release, Amended Record of Decision: Idaho high-Level Waste Facilities Disposition Final Environmental Impact Statement REVISED BY STATE 12/21/09. http://www.id.doe.gov/NEWS/PressReleases/PR100104-HIP/Calcine%20ROD%20final_SIGNED_PDF.pdf In 2009 DOE had decided to select hot isostatic pressing (HIP) to treat the calcine.

¹³ US DOE-EM, "Independent Analysis of Alternatives for Disposition of the Idaho Calcined High-Level Waste Inventory, Volume 1 – Summary Report," April 2016. https://energy.gov/sites/prod/files/2016/05/f31/Volume%201%20Calcine%20AoA%20Final%2004-19-16%20w_signatures.pdf

¹⁴ See the Idaho National Laboratory Citizens Advisory Board meeting presentations for June 22, 2017, for the Idaho Cleanup Project at www.inlcab.energy.gov

¹⁵ Chuck Broschious and David B. McCoy, "Preliminary Comments on Calcined Solids Storage Facility," Submitted to Idaho Department of Environmental Quality, May 9, 2017. <http://www.environmental-defense-institute.org/publications/EDI-CSSF-Permit-S.pdf> and pictures at <http://www.environmental-defense-institute.org/publications/EDI-CSSF-Attach.pdf>

¹⁶ Calcined Solids Storage Comment Submittal (Docket No. 10W-1604), by Chuck Broschious and Tami Thatcher, July 11, 2016. <http://www.environmental-defense-institute.org/publications/EDICalcineComments.pdf>

¹⁷ J. V. Crum and J. D. Vienna, Pacific Northwest National Laboratory and D. K. Peeler and I. A. Reamer, Savannah River Technology Center, for the US Department of Energy, "Formulation Effects for Direct Vitrification of INEEL Blend Calcine Waste Simulate: Fiscal year 2000. http://www.pnl.gov/main/publications/external/technical_reports/PNNL-13483.pdf

92 Idaho Transuranic Waste Shipments to WIPP Since WIPP Reopened Last April

The Idaho Cleanup project continues to package and ship transuranic waste from the above ground stored transuranic waste, the 65,000 cubic meters of waste that the Department of Energy promised that it was only storing temporarily in Idaho. This waste is largely from the Rocky Flats weapons plant and also from Argonne National Laboratory, Mound and others. The waste is stored in a building and soil is used as a fire break and as shielding. Transuranic waste is also stored, along with high-level waste and spent fuel at the Radioactive Scrap and Waste Facility at the Materials and Fuels Complex (MFC).

The Idaho Cleanup project also continues Accelerated Retrieval Projects (ARPs) that involve digging up buried waste that the Department of Energy also said it was only storing temporarily in Idaho. But this waste, DOE argued, was no part of the Idaho Settlement Agreement to remove all the transuranic waste from Idaho. Idaho won the lawsuit and then capitulated, agreeing based on incomplete information, that DOE only needed to remove “targeted waste” from the burial grounds that was in designated targeted areas and was heavily chemically laden. This means that of 97 acres of buried waste, only 5.69 acres are targeted and much of the waste exhumed is reburied. Transuranic waste was buried throughout the 97 acres and they do not know how many curies was buried nor where.

The waste that they exhume from the 5.69 acres in temporary ARP structures is sorted and returned for burial if it is not “targeted waste.” Efforts were made to revise original estimates which were known to be underestimates of the transuranic waste brought to Idaho and disposed of.

Because defensible estimates of the curies of the transuranic waste exhumed from burial cannot be made, more than 90 percent of the transuranic waste that was buried is assumed to remain buried.¹⁸ ARP V continues treatment of sludge waste and ARP VII work continues. Facility preparations are being made for ARP IX to treat uranium “roaster oxides” from Rocky Flats.

Remote handled transuranic waste from the Radioactive Waste Management Complex and from MFC is conducted at INTEC. WIPP currently is not accepting remoted-handled transuranic waste but is expected to again accept it in the future.

There have been 92 shipments of transuranic waste from the Advanced Mixed Waste Treatment Facility (AMWTP) to WIPP in New Mexico between April 6, 2017 and January 6, 2018. There were no shipments January 7 through 21 due to WIPP maintenance and WIPP’s

¹⁸ See the July 2017 EDI newsletter for a timeline for the burial ground at the Radioactive Waste Management Complex and other cleanup information at <http://www.environmental-defense-institute.org/publications/News.17.July.pdf>

stringent limits on the amount of above ground storage it will allow because of the risk of a release from unfiltered above ground storage.

The Idaho Settlement Agreement¹⁹ milestone to ship a running average of 2,000 cubic meters per year out of the state and it will not meet the milestone at the end of the year for completing shipments of transuranic waste (the stored above ground transuranic waste and the targeted buried waste and MFC transuranic waste) to WIPP by December 31, 2018.

The Department of Energy Carlsbad Field Office (CBFO) continues to be in the global spotlight for the stunning breadth and depth of its multitude of safety program lapses put on display in two back-to-back accidents at the WIPP underground salt mine for transuranic waste disposal in 2014.²⁰

NuScale Seeks Tax Relief

Idaho National Laboratory Director Mark Peters, and officials for NuScale Power and Utah Associated Municipal Power Systems are seeking tax relief for two of the twelve small modular reactors they hope to build at the INL site. The two units would be used for research purposes. They are also seeking tax relief that had been meant for an Areva Fuel Enrichment facility²¹ that is no longer not expected to be built.

The Post Register reported that “NuScale CEO John Hopkins and UAMPS CEO Doug Hunter told the Idaho House Environment, Energy and Technology Committee that the NuScale reactors will be cost competitive with natural gas and the SMR market may be enormous, with applications such as the electricification of Africa.”²² Money would be far better spent on renewables in Africa.

How anyone can keep a straight face when this proposed electricification of Africa is mentioned, is beyond me. You want to saddle poor countries with stranded spent nuclear fuel? You want to saddle these countries with having to come up with a spent fuel repository? You have no non-proliferation concerns for the plutonium in the spent fuel? It is a horrible idea. But on the plus side for NuScale, Africa is unlikely to have any environmental monitoring, so the contamination of air and water from routine operation and from accidents won't be recorded.

Just how NuScale is going to monitor its radioactive emissions at the INL and distinguish its emissions from INL facility ongoing emissions and legacy radionuclides blowing in the wind and flowing in the aquifer, is beyond me. I can only imagine that annual environmental

¹⁹ See more about Idaho's Settlement Agreement at <https://www.deq.idaho.gov/inl-oversight/oversight-agreements/1995-settlement-agreement.aspx> Section D(1)(e) stipulates that naval fuel be among the early shipments to the first permanent repository or interim storage facility.

²⁰ See Carlsbad Field Office National Transuranic Program <https://www.energy.gov/em/articles/waste-isolation-pilot-plant-national-transuranic-program-have-banner-year-2013>

²¹ Bryan Clark, *The Idaho Falls Post Register*, “INL bills, a hostile work environment and climate change,” February 3, 2018.

²² Bryan Clark, *The Idaho Falls Post Register*, “INL, NuScale, UAMPS address House committee – Forthcoming bills would seek tax relief for part of SMR project,” January 31, 2018.

monitoring reports for the INL by the State Department of Environmental Quality and by the Department of Energy's tightly controlled IdahoEser.com contractor will state repeatedly that they have no idea where the radionuclides are coming from, as they now often state in their environmental monitoring reports.

Idaho Falls likes its radioactive water and its radioactive air, and has recently affirmed its support for "green" energy which by that they mean they will discourage solar energy and will encourage nuclear energy. The Idaho Falls City Council passed a resolution to continue support of the Columbia Generating Station in Washington, which provides about 7 percent of Idaho Falls energy.²³

The fact that the United States has no workable solution for a spent nuclear fuel repository is of no interest to the Idaho Falls City Council. This year's GOP charade to designate funding for reviving Yucca Mountain barely received snickers and yawns, as evidenced by the Department of Energy's excuse at the February Idaho Cleanup Project's Citizens Advisory Board meeting that there was no reason to plan for packaging high-level waste or spent nuclear fuel since there was no place to ship it to, nor are there specified requirements for waste forms. Read a recent editorial about the problems with Yucca Mountain geology at *The Nevada Independent*.²⁴

Radiation Workers and the Rest of Us Should Avoid Contaminated Water

The water we drink should be free of toxins and be rich in electrons. Our health requires clean water that helps us detoxify the body. Our water supply should not be full of toxins, but unfortunately, often it is.

Public drinking water monitoring sampling shows that water we drink from public water supplies in the lower half of the State of Idaho, from Rexburg to Idaho Falls, to Twin Falls to Boise is often relatively high in contaminants including radioactivity that does not appear to be naturally occurring.^{25 26 27}

²³ Isabella Alves, *The Idaho Falls Post Register*, "Idaho Falls affirms its support for green energy – I.F. City Council passed resolution to continue support of the Columbia Generating Station," February 24, 2018.

²⁴ *The Nevada Independent*, by Guest Contributor Robert Halstead, "Opinion – Setting the record straight on Yucca Mountain," February 23, 2018.

²⁵ Idaho Department of Environmental Quality, <http://www.deq.idaho.gov/water-quality/drinking-water/pws-monitoring-reporting/> and <http://www.deq.idaho.gov/water-quality/drinking-water/pws-switchboard/> and find sample results for all counties at <http://dww.deq.idaho.gov/IDPDWW/> where you select your county or drinking water system, select the specific water system. For the specific water system, it may be helpful to select the link at the left called "Chem/Rad Sample/Result by Analyte." Then select the analyte of interest that the well has data for by clicking on its code. This brings up the applicable lab samples that included that contaminant. Note that non-community wells typically sample fewer contaminants.

²⁶ Environmental Defense Institute newsletter for December 2017 "Where to Find Out More About Your Drinking Water." <http://www.environmental-defense-institute.org/publications/News.17.Dec.pdf>

²⁷ Environmental Defense Institute newsletter for February 2018 that contains several articles about drinking water: "What's Up With the Radionuclides in Drinking Water Around Boise, Idaho?" "Radionuclides in Drinking Water in Ammon, Idaho," "Understanding the Radionuclide MCLs in Drinking Water in Idaho," and

While some of the radioactivity is from naturally occurring uranium and thorium present in rock and soil, elevated levels of gross alpha emitters may be from elevated levels of uranium from phosphate fertilizers, from radioactive fallout from nuclear accidents and from past nuclear weapons testing, and from past waste water emissions and from air emissions from the Idaho National Laboratory. When the contributors to elevated levels are plutonium or americium, you cannot point the blame at phosphate mining or fertilizer production or use.

EDI report on the Snake River Plain aquifer “Tritium at 800 pCi/L in the Snake River Plain Aquifer in the Magic Valley at Kimama: Why This Matters” describes historical waste water contamination from the Idaho National Laboratory that flows downgradient from the INL. The report also lists known nuclear weapons tests on the continental United States.²⁸

Public drinking water is laden with disinfectants such as chlorine and also with added fluoride. Disinfectants reduce bacterial growth but also make the water more acidic. The water becomes electron stealing rather than electron donating, which our bodies need.

Public drinking water is also often contaminated with heavy metals such as lead and cadmium, agricultural chemicals, and other chemicals such as hexavalent chromium. Elevated levels of lead were found below federal limits but above levels considered healthy in Environmental Defense Institute Special Report, “Little Reason for Confidence in the Drinking Water on the Duck Valley Reservation”^{29 30}

Federal maximum contaminant levels (MCLs) for the concentration of contaminants in our drinking water have often been set at levels based more on big polluters interests than on the health of our bodies. While we are encouraged to assume that there is no negative impact from any mix of contaminants when each does not exceed federal MCLs, prolonged exposure to such water is unhealthy especially for special populations — like your child — or a radiation worker who is chronically exposed to elevated levels of ionizing radiation for months and years while on the job or acutely exposed during an accident.^{31 32}

“Understanding the Man-Made Radionuclides in Drinking Water in Idaho (with helpful decay chain information for uranium-238, thorium-232, uranium-235 and uranium-233 and the man-made actinides that can feed these decay series)” <http://www.environmental-defense-institute.org/publications/News.18.Feb.pdf>

²⁸ Tami Thatcher, Environmental Defense Institute Special Report, “Tritium at 800 pCi/L in the Snake River Plain Aquifer in the Magic Valley at Kimama: Why this Matters,” 2017. www.environmental-defense-institute.org/kimamareport.pdf

²⁹ Tami Thatcher, Environmental Defense Institute Special Report, “Little Reason for Confidence in the Drinking Water on the Duck Valley Reservation,” February 2018. <http://www.environmental-defense-institute.org/publications/DuckValleyFeb.pdf>

³⁰ Toni R. Milano, *Elko Daily Free Press*, “School district to check on quality of water at Owyhee,” February 22, 2013. http://elkodaily.com/news/local/school-district-to-check-on-quality-of-water-at-owyhee/article_ab349f3e-f95b-54ec-b35d-3b96cf1804f8.html

³¹ California State Water Resources Control Board Comparison of federal maximum contaminant (MCLs) and public health goals (PHGs) for contaminants in drinking water. https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/MCLsandPHGs.shtml

³² Environmental Working Group at www.ewg.org and see their tap water database at <https://www.ewg.org/tapwater/>

For a listing of contaminants, see the federal Environmental Protection Agencies National Primary Drinking Water Regulations table of contaminants on the EPA website.³³ Health guideline information can be found at a non-profit organization called Environmental Working Group³⁴ which examined non-tribal state drinking water records.

Toxins and ionizing radiation create excessive levels of free radicals. Free radicals are molecules that are missing electrons, so they steal electrons from cells and damage our bodies' cells.

Contaminated water only adds to the toxin burden rather than relieve the toxic burden. So, it is not hard to understand that our water needs to be free from toxic chemicals, radionuclides, and disinfectants.

When I talked to former radiation worker Ralph Stanton about the medical tests his wife made him take which showed he had liver and kidney issues, I was scared for him. Then he told me that his wife made him drink Divinia water. He had no faith that the water he drank would make any difference to his health. Then he had follow-up medical tests that showed unexpected improvements and his doctors were asking him what he had been doing. Both his liver and kidney tests were improved. He was told that the doctors had never seen iron levels decrease in the liver without conducting much more phlebotomy. When Ralph suggested to his doctors that the elevated levels may not actually be iron, they checked it out. And the doctors agreed that what they thought was iron — wasn't.

The body treats plutonium like iron. And Ralph Stanton had inhaled plutonium, americium, and uranium during the November 8, 2011 plutonium inhalation incident at the Idaho National Laboratory's Zero Power Physics Reactor (ZPPR) facility. It appears that plutonium was collecting in his liver.

Ralph Stanton and Divinia water inventor Steven R. Sedlmayr spoke recently on a radio program, describing the water and Ralph Stanton's experience.^{35 36}

I had been experimenting with various bottled waters and locally filtered waters. But I have been drinking Divinia Water available locally for several months, and I love it. It's not cheap. But I have felt that it is worth it, having had a toxic load of mercury fillings in my teeth and also having worked at the Idaho National Laboratory's ATR Complex in a high gamma radiation facility with elevated airborne radioactive contamination along with very high levels of hexavalent chromium that were under the federal drinking water limit of 100 micrograms/liter

³³ United States Environmental Protection Agency, National Primary Drinking Water Table of Contaminants at <https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations>

³⁴ Environmental Working Group at www.ewg.org and see their tap water database at <https://www.ewg.org/tapwater/>

³⁵ Steven R. Sedlmayr, Divinia Water inventor, see www.diviniawater.com

³⁶ Conspiracy Show Podcast, February 11, 2018 radio program featuring Steven Sedlmayr and Ralph Stanton. <http://www.zoomerradio.ca/show/the-conspiracy-show/podcast-the-conspiracy-show/conspiracy-show-podcast-february-11th/>

(ug/L which equates to parts-per-billion) but far above healthy guidance of 0.02 ug/L for hexavalent chromium in California health goals.³⁷

Divinia water filters out contaminants far more than other treated waters. Then the water is treated with additional processes that reduce the heavier deuterium atoms and that also have been shown to decrease the surface tension of the water. This makes for a “wetter” water that appears to allow your cells to use the water better, allowing cells to do a better job of detoxification.

Nuclear Weapons and Civilian Nuclear Power — Two Dangerous Interdependent Peas in a Pod

By Chuck Broschious

This Environmental Defense Institute special report by Chuck Broschious is available on the EDI website.³⁸

This report draws from numerous sources to show the interdependence between nuclear weapons and civilian nuclear power. The US government’s need to have nuclear power around to keep the perception of “the peaceful atom” and maintain the infrastructure (technical knowledge base, uranium mining, processing, fuel manufacturing and waste management) that are the same for both. Thus, subsidies for nuclear power also support nuclear weapons and are available to mitigate maintaining an irrationally huge nuclear bomb infrastructure. There is no shortage of credible opposition to nuclear weapons and separately civilian nuclear power but few make the connection with the two.³⁹ This connection is crucial to strengthen the argument for opposition for both nuclear weapons and commercial nuclear power because both threaten basic human existence; one by immediate annihilation or nuclear winter; and the other by accident (Fukushima) and/or by diverting resources away from sustainable renewable power sources essential to preventing the existential looming climate disaster.⁴⁰ This paper can only focus on

³⁷ Environmental Defense Institute newsletter for July 2017 at <http://www.environmental-defense-institute.org/publications/News.16.July.pdf>

³⁸ Chuck Broschious, Environmental Defense Institute Special Report, “Nuclear Weapons and Civilian Nuclear Power — Two Dangerous Interdependent Peas in an Pod,” Summary, February 2018, For the full report see: <http://www.environmental-defense-institute.org/publications/Nuclearweaponsandpower.pdf> and attachments at <http://www.environmental-defense-institute.org/publications/NuclearweaponsandpowerABC.pdf>

³⁹ Stephen Mihm, “Nuclear Power’s Original Mistake: Trying to Domesticate the Bomb,” April 8, 2017. Mihm writes: “While Americans had generally supported the use of nuclear weapons on Japan, the growing specter of thermonuclear war in the 1950s sparked a growing desire to find peaceful applications for the new technology that would compensate for its destructive powers.” <https://www.bloomberg.com/view/articles/2017-04-08/nuclear-power-s-original-mistake-trying-to-domesticate-the-bomb> Also see the link between nuclear energy and nuclear weapons, *Nuclear Monitor* Issue: #509-510, November 5, 1999.

⁴⁰ [Karl Grossman](http://www.karl-grossman.com), Nuclear Power/Nuclear Weapons and a Precarious Future May 11, 2013. “The only real way to end the threat of nuclear weapons spreading throughout the world is to abolish nuclear weaponry and eliminate nuclear power. Consider the alternative: trying to keep using carrots and sticks, juggling on the road to inevitable nuclear catastrophe.” https://www.huffingtonpost.com/karl-grossman/nuclear-power-nuclear-weapon_b_2851985.html

Idaho's involvement within this larger national process and will leave the bigger picture to others.

The government recognized from the very beginning of the nuclear age the need to convince the public about the "atoms for peace" via promoting commercial nuclear power. This government promotion uses numerous means at the local level that include charitable giving, community outreach ⁴¹, university grants, transfer of nuclear technology ⁴² and subsidies to the private sector nuclear power generators that make an otherwise uneconomic power program marginally feasible. To top this deal, the government will limit accident liability ⁴³ and also take ownership of the radioactive waste generated by commercial power. This also helps camouflage the radioactive waste generated by the bomb makers. ⁴⁴ From the beginning of the nuclear age, Idaho has played and continues to play a significant role in the nuclear weapons complex, civilian nuclear power programs and nuclear waste management. ^{45 46 47}

Articles by Tami Thatcher and Chuck Broschious for March 2018.

⁴¹ See Attachment B and www.inl.gov/partner

⁴² See Attachment A and https://factsheets.inl.gov/FactSheets/Community_Outreach.pdf

⁴³ See Attachment C, The Price-Anderson Nuclear Industries Indemnity Act (commonly called the Price-Anderson Act) is a United States federal law, first passed in 1957 and since renewed several times, which governs liability-related issues for all non-military nuclear facilities constructed in the United States before 2026.

⁴⁴ See Nuclear Waste Policy Act discussed below

⁴⁵ Final Programmatic Environmental Impact Statement for Accomplishing Expanded Civilian Nuclear Energy Research and Development and Isotope Production Missions in the US, Including the Role of the Fast Flux Test Facility, DOE/EIS-0310, December 2000. This PEIS outlines INL role in producing plutonium-238 used in space power sources for military space control/command applications. This plutonium is for use in advanced radioisotope power systems (RPS) for military surveillance satellites, National Aeronautics and Space Administration (NASA) space exploration missions, and support of the nation's civilian nuclear energy research and development needs."

⁴⁶ See EDI Citizens Guide to INL for the operating history of the site. <http://environmental-defense-institute.org/inlguide.html>

⁴⁷ Final Environmental Impact Statement for the Recapitalization of Infrastructure Supporting Naval Spent Nuclear Fuel Handling, October 2016, DOE/EIS-0453-F. "The NNPP has made over 820 container shipments of naval spent nuclear fuel to INL since 1957." [Vol.1, pg. 1-16] , www.ecfrecapitalization.us