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Proposed Radiation Worker Cohorts for the Idaho National Laboratory Including ANL-W Being Studied by NIOSH

The headline that “Radiation, chemicals likely killed 396 INL workers” by Rocky Barker at the Idaho Statesman last December understates the historical occupational health issues at the Idaho National Laboratory. ¹ As of last November, 5,397 INL workers had applied for radiation or chemical illness compensation under the Energy Employee compensation act. Only 636 radiation claims and 926 chemical claims have so far been approved. ^{2 3}

There are now two petitions for radiation exposure cohorts being investigated by the National Institute of Occupational Safety and Health: one for INL and one for ANL-W. So far, one cohort for the Chem Plant from 1963 to 1974 has been recommended largely because of inadequate plutonium contamination monitoring. ^{4 5}

The INL including ANL-W has conducted a tremendous variety of nuclear operations over the years at various facilities. While radiation monitoring practices and nuclear operations have changed over the years, here’s one thing that hasn’t changed: the deliberate understatement and omitting of important facts by the Department of Energy concerning contamination and exposures at these facilities.

¹ Rocky Barker, Idaho Statesman, “Radiation, chemicals likely killed 396 INL workers,” Printed in the Post Register December 13, 2015.

² 42 USC 7384, [The Act--Energy Employees Occupational Illness Compensation Program Act of 2000 \(EEOICPA\), as Amended](#) and see the website for the Center for Disease Control, National Institute of Occupational Safety and Health, Division of Compensation Analysis and Support at <http://www.cdc.gov/niosh/ocas/> and U.S. Department of Labor, Office of Workers’ Compensation Programs, EEOICPA Program Statistics, <http://www.dol.gov/owcp/energy/regs/compliance/weeklystats.htm>

³ Department of Labor Presentation to NIOSH Advisory Board by F. Crawford, November 2015. <http://origin.glb.cdc.gov/niosh/ocas/pdfs/abrwh/pres/2015/dol-update-111815.pdf>

⁴ Idaho National Laboratory Special Exposure Cohort Petition Evaluation Report SEC-219, presentation by T. Taulbee, NIOSH-DCAS, March 26, 2015 <http://www.cdc.gov/niosh/ocas/pdfs/abrwh/pres/2015/dc-inlsec219-032615.pdf>

⁵ See NIOSH dose reconstruction website for the Idaho National Laboratory, including Petition 217 and 2015 written comments to NIOSH by Tami Thatcher <http://www.cdc.gov/niosh/ocas/ineel.html>

Congressional testimony when the Energy worker act was created documented how the DOE deliberately withheld information it considered to erode public confidence, increase its liability, or prompt workers to demand hazard pay.^{6 7}

As I review recent reports by the DOE which still deceptively minimize historical radiological releases to southeast Idaho, it is clear that not much has changed. A DOE report published in 2014⁸ depicts public offsite radiation doses all being below 10 mrem/yr, yet its cited source shows annual doses three times that amount.⁹ And various releases have been found by NIOSH to have been underestimated. Add to these low-balled INL releases the Department of Energy weapons testing releases, that continued from underground testing after the above-ground weapons test ban in 1963.

I stumbled across serious errors in annual reporting of radionuclide emissions for 2013 at the INL that no one at DOE, INL or IDEQ had noticed, it is clear that the illusion of environmental monitoring is far more important than the actual monitoring, evaluation of results or looking for ways to reduce emissions.¹⁰ Emissions are often estimated without verification and then downplayed. The state of Idaho should care about the accurate current and historical reporting of contamination of air and water.

While other federal agencies such as the US Nuclear Regulatory Commission post public comment as received whether or not the proposed action is pursued, the DOE has yet to post public comment regarding the Two Proposed Shipments to INL citing the reason that it has

⁶ Hearing before the 109th Congress, March 1, 2006, Serial No. 109-110. p. 9, 10.

http://commdocs.house.gov/committees/judiciary/hju26290.000/hju26290_of.htm

⁷ Jim Morris and Jamie Smith Hopkins, The Center for Public Integrity, “Unequal Risk – Ailing, angry nuclear-weapons workers fight for compensation,” December 11, 2015.

<http://www.publicintegrity.org/2015/12/11/18936/ailing-angry-nuclear-weapons-workers-fight-compensation>

⁸ US Department of Energy Idaho Operations Office, Technical Basis for Environmental Monitoring and Surveillance at the Idaho National Laboratory Site,” DOE/ID-11485, February 2014.

<https://inldigitalibrary.inl.gov/PRR/164104.pdf#search=DOE%2FID-11485> (it’s summary shows public radiation doses below 10 mrem/yr while the stated INL HDE doses reach 30 mrem/yr and have been found to be underestimates in several cases. Unacknowledged releases are evident by high levels of Iodine-131 in milk in Idaho Falls in the 1960s that analysts could not attribute to known INL releases or weapons tests.

⁹ US Department of Energy Idaho Operations Office, “Idaho National Engineering Laboratory Historical Dose Evaluation,” DOE-ID-12119, August 1991. See Table E-5 on p. E-36 for mystery milk and see Table C-21 for the public annual dose summary. Volumes 1 and 2 can be found at <https://www.iaea.org/inis/inis-collection/index.html>

¹⁰ Gonzales-Stoller Surveillance, LLC, INL Annual Site Environmental Report for 2013 (Chapter 4 and 8) at <http://www.gsseser.com/Annuals/2013/ReportIndex.htm> The original 2013 had underestimated the radiation dose from INL air emissions and given the radioactive half life of americium and other isotopes is given incorrectly. It had greatly understated the plutonium air emissions as evident from NESHAPs and CERLCA reports of RWMC Accelerated Retrieval radioactive air emissions. The errors were corrected after my bringing the errors to their attention in my comments on the Two Proposed Shipments to INL.

altered its original plan. DOE has long eluded having to post or respond to solicited public comment by making slight alterations to the NEPA action.¹¹

A recent large epidemiology study combining France, the UK and the US has provided more evidence that it is cumulative dose that matters and doses below radiation protection standards yield increased cancer risk.¹² You can count on the Department of Energy to make only muffled responses and it is unlikely that radiation worker training will discuss these results. The DOE has yet to reconcile radiation health findings from 2006 that found children were 7 times more vulnerable to radiation exposure, and women twice as vulnerable as men or the INL worker epidemiology showing elevated risk of brain tumors and blood cancers for INL workers, whether or not the workers were radiation workers.^{13 14}

NIOSH conducts radiation dose reconstruction with available dose reports. And it has yet to come to grips with serious americium-241 shallow perched water contamination at the ATR complex.¹⁵ The secrecy caused an absence of record keeping of the quantities of americium and other long-lived radionuclides flushed down the drains to open-air percolation ponds.

And the US Geological survey which wrote a report specifically about shallow and deep perched water failed to even monitor americium or gross alpha levels.¹⁶ Even tiny community wells must monitor gross alpha levels. The USGS gave as an excuse that they do not read CERCLA reports

¹¹ US Department of Energy, Idaho Operations Office, Draft Supplement Analysis, “Two Proposed Shipments of Commercial Spent Nuclear Fuel to the Idaho National Laboratory for Research and Development Purposes,” June 2015. http://energy.gov/sites/prod/files/2015/06/f22/EIS-0203-SA_01-2015.pdf And see supporting documents for the Supplement Analysis are at <http://www.id.doe.gov/insideNEID/PublicInvolvement.htm> But as of December 29, 2015, DOE has not posted any of the public comments received concerning the Two Proposed Shipments.

¹² 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] (And please note that studies of high leukemia risk in radiation workers and of ongoing studies to assess health effects of high and low-linear energy transfer internal radiation must also be studied in addition to this one on external radiation.)

¹³ BEIR-VII “Health Risks from Exposure to low levels of Ionizing Radiation: BEIR VII – Phase 2.” National Research Council of the National Academies, 2006 at http://www.nap.edu/catalog.php?record_id=11340.

¹⁴ “An Epidemiology Study of Mortality and Radiation-Related Risk of Cancer Among Workers at the Idaho National Engineering and Environmental Laboratory, a U.S. Department of Energy Facility, January 2005. <http://www.cdc.gov/niosh/docs/2005-131/pdfs/2005-131.pdf> and <http://www.cdc.gov/niosh/oerp/ineel.htm> and Savannah River Site Mortality Study, 2007. <http://www.cdc.gov/niosh/oerp/savannah-mortality/>

¹⁵ See Idaho National Laboratory Federal CERCLA Cleanup documents at ar.icp.doe.gov S.M. Lewis et al., Remedial Investigation Report for the Test Reactor Area Perched Water System (Operable unit 2-12), EGG-WM-10002, June 1992.

¹⁶ Linda C. Davis, “An Update of the Distribution of Selected Radiochemical and Chemical Constituents in Perched Ground Water, Idaho National Laboratory, Idaho, Emphasis 1999-2001. There is NO Americium monitoring at the Test Reactor Area now called the ATR Complex. There is not even gross alpha monitoring in the perched water found to have exceeded the MCL for americium in CERCLA studies conducted just a few years before this report was written although it was not released until 2006.

that reported the americium levels at 100 times the maximum contaminant levels.¹⁷ The DOE has for years avoided mentioning long-lived radionuclide contamination at INL because it knows that the truth could erode public confidence.¹⁸

NIOSH has continually been misled by the DOE about the adequacy of radiation controls at INL. NIOSH interviews are conducted but current workers cannot discuss problems without risk of retribution. Former workers need to step up and assist NIOSH in understanding past and current issues at INL that may have led to inadequate monitoring of radiation exposure as NIOSH investigates the petitions.

Historically, A Lot of Hot Air at the Idaho National Laboratory

When it comes to the winds across the southeast Idaho desert, there's really been a lot of hot air. DOE has admitted to releasing millions of curies between 1949 and 1989. This was in addition to the radioactive air blowing into Idaho from DOE nuclear weapons testing in Nevada, including fallout from below-ground weapons testing after the 1963 above-ground weapons test ban.

In the Department of Energy's 1963 Health and Safety Report, John Horan, the Director of DOE's Health and Safety Programs, explains that due to the frequent direction changes of the wind, little airborne radiation would be blown offsite during radiological releases.¹⁹

But in 2014 when the Center for Disease Controls National Institute for Occupational Safety and Health (NIOSH) explained its understanding of the worker doses at the Idaho National Laboratory from the many historical routine and non-routine radiological releases, they explained that INL workers were not exposed because the releases were timed to blow offsite.

Early information about the accident emphasized that no traffic delays or rerouting were experienced the January night of and the days following the 1961 SL-1 reactor accident. Buses ran as usual on the highway past the SL-1 accident where three crewmen died and a reactor meltdown without containment had occurred. Later when sections of the highway were found to be highly radioactively contaminated, it was no problem: Horan reported in May that fire trucks were used to hose the contamination off of the highway.²⁰

¹⁷ In various laboratory processes Americium-241 can be extracted and concentrated resulting in levels higher than typical reactor effluent waste water would have. While Am-241 has a 432.2 year half life, it decays into Neptunium-237 which has a 2.14 million year half life and the decay chain continues on. So, Americium-241 contamination is a very long-lived contaminant when dumped in the environment.

¹⁸ T. M. Beasley, P. R. Dixon, and L. J. Mann, ⁹⁹Tc, ²³⁶U, and ²³⁷Np in the Snake River Plain Aquifer at the Idaho National Engineering and Environmental Laboratory, Idaho Falls, Idaho, Environ. Sci. Technol., 1998, 32, 8375-3881.

¹⁹ *Annual Progress Report 1963*, Idaho Operations Office of the U.S. Atomic Energy Commission, primary author John R. Horan, August 1964.

<https://inldigitallibrary.inl.gov/PRR/112722.pdf#search=Annual%20Report%201963>

²⁰ Department of Energy, Human Radiation Experiments collection, John R. Horan, Director, Activity Report – Site Survey Branch, (April) dated May 9, 1961.

Later that year in September, Horan documents in DOE Health and Safety monthly reports that final decontamination of the “borrow pit” along Highway 20 was started.²¹ The SL-1 reactor silo was removed but adjoining buildings remained in use until the late 1980s when CERCLA investigations determined that these building were a radioactive nightmare and required decontamination and dismantlement. Such were the giddy days at the Idaho laboratory under Horan’s careful watch.

Hot particle problem? NIOSH has concluded there wasn’t one. Oh well.

Read EDI’s brief summary of Idaho National Laboratory radiation exposures for December 2015 on our website.

Continuing the INL Drinking Water Saga

EDI’s appeal of the Department of Energy’s failure to provide data for radionuclide monitoring of Idaho National Laboratory drinking water has landed with the Office of Governmental Information Services (OGIS). OGIS now insists that since the State of Idaho doesn’t require it, the DOE isn’t collecting radionuclide data at INL drinking water wells for the last twenty years. “Unfortunately, it appears that since DOE was no longer required to report water data as of 1995, they are unable to locate any records since that time frame.”²² Nice try OGIS. But INL’s drinking water plans require the radionuclide monitoring even though the State of Idaho doesn’t post this information online as it does the chemical monitoring data.

The INL has two main contractors: BEA’s INL and the Idaho Cleanup Project. Each contractor has its own INL drinking water plans. The ICP only covers two wells and its plan is available online. Some of its results are available in annual site environmental reports.²³

The rest of the INL (excluding NRF) is addressed by a drinking water plan that is not publically available.²⁴ None of its radionuclide monitoring data is publically available despite DOE’s assertions that the data is publically available. Calls to INL Public Affairs obtained silly answers like, “we cannot confirm or deny whether radionuclide drinking water monitoring data exist.”

²¹ Department of Energy, Human Radiation Experiments collection, John R. Horan, Director, Activity Report – Site Survey Branch, (August) dated September 11, 1961.

²² December 22, 2015 communication from Office of Governmental Information Services facilitator to EDI.

²³ PLN-730, “Idaho Cleanup Project Drinking Water Program Plan,” Idaho Cleanup Project, Environmental Monitoring Compliance Monitoring Handbook , current version. (1/29/13)
<https://www.emcbc.doe.gov/SEB/ICPCORE/Documents/Document%20Library/PLN-730%20ICP%20Drinking%20Water%20Program%20Plan.pdf>

²⁴ PLN-8530, “Idaho National Laboratory Drinking Water Program Plan,” Idaho National Laboratory, Laboratory-wide Manual 8 – Environmental Protection and Compliance,current version. (Currently not available publically)

Using the data we were able to obtain from US Geological Survey reports and data mapper and historical DOE reporting, we were able to compile highlights of the radioactively and chemically contaminated water the workers at INL were drinking.²⁵

Often water monitoring programs were not put in place until the contamination had been in the water for decades. When the US Geological Survey knew of drinking water contamination at the INL, it ignored or downplayed the results.

NIOSH epidemiology studies for INL have never addressed the reality of the drinking water contamination that some workers were drinking and showering in for decades, fooled by the absence of meaningful DOE reports on the historical contamination. A detailed study of year by year contamination levels for each facility would require a forensic study of the aquifer movement, time of dumping and belated detections of contaminants.

Articles above by Tami Thatcher, January 2016.

State, Sandia: Just Cover Up Nuke Waste at KAFB

In an ABQ Free Press article, Bob Klein writes that Sandia National Laboratories and New Mexico environmental officials have intentionally misled the public for years about the contents of a radioactive landfill at the south end of Kirtland Air Force Base, government documents show. In addition to a hodge-podge of low-level radioactive waste, the landfill also contains high-level nuclear waste, including 119 drums of plutonium- and americium-contaminated waste, plus a toxic brew of other hazardous chemicals, the documents show.

The shallow, unlined landfill also contains Thorium, Cesium-137, Strontium-90, and hundreds of tons of depleted Uranium-238 and even a radioactive fire truck. The landfill has been leaking radioactive and hazardous chemicals for decades. In 1974, there were two depleted uranium fires, record show.

Federal regulations require that high-level nuclear waste be deposited in a deep geological repository, yet in a hearing last July a hearing officer dismissed all evidence obtained under the federal Freedom of Information Act that revealed that some of the Sandia landfill waste was “high-level.”

Local environmental advocates are outraged that despite official records showing what the landfill really contains, the government is willing to rely on inaccurate and incomplete records from the 2004 hearing, throw some more dirt on the landfill, plant some native plants and move

²⁵ Tami Thatcher, “The Hidden Truth About INL Drinking Water,” available at <http://environmental-defense-institute.org/publications/INLdrinkwaterR1.pdf>

on. Misrepresentation of the moldering contents of the landfill could represent a violation of federal law.

That law, the federal Resource Conservation and Recovery Act, requires that federal and state officials, upon discovery of errors or omissions in the official record of such a landfill, correct the inventory and act accordingly to address any previously unrevealed dangers.

In 2004, Sandia officials testified the landfill contained only low-level radioactive waste. But disposal sheets made available to ABQ Free Press show that fuel pins and rods of U-235 were routinely deposited in the Mixed Waste Landfill (MWL) from Cold War-era nuclear reactor meltdown experiments, along with waste from nuclear weapons experiments and atomic bomb explosions.

The sheets were among a 5,000-document cache of records obtained by Citizen Action New Mexico under the Freedom of Information Act. They are official, signed and dated records documenting the content and location of the highly radioactive material.

A Sandia spokesman, when asked about the contents of the landfill, denied there is any high-level waste in it. He cited the definition of such waste as the materials generated during reprocessing of spent fuel. Excavating the landfill to remove the low-level nuclear waste in it would be too costly and too dangerous and that the best solution is to cover it up with dirt and vegetation and monitor it, the spokesman said.

“The NMED Hearing Officer’s Report from the 2004 public hearing, based on inventory data, concluded that the MWL does not contain waste defined as high-level, i.e., the highly radioactive material resulting from the reprocessing of spent nuclear fuel. No evidence from subsequent hearings, including a review of disposal sheets, has changed that conclusion,” lab spokesman James Danneskiold said in an email to ABQ Free Press.

That attitude, in the face of the documented presence of high-level waste, has incensed environmental advocates who – since the 2004 hearing – obtained, through FOIA, documents that show otherwise.

“Basically, all the new information regarding the existence of high-level waste in the MWL was excluded,” said Dave McCoy of Citizen Action New Mexico, which has called for a cleanup of the site. He cited fires and explosions at the Waste Isolation Pilot Plant near Carlsbad last year and, more recently, at a radiological storage facility in Beatty, Nev., in October, as evidence of the potential danger posed by the Sandia landfill.

“Putting the RCRA regulation aside for the moment, they go to great lengths to cover up and misinform. How about the truth from SNL? How about the effects of the waste on human beings?”

“Disposal sheets show that fuel elements (rods) of uranium -235 and cuttings were routinely disposed of in the MWL. The disposal sheets show MWL disposal of waste containing plutonium and other transuranics from nuclear weapons experiments and atomic bomb waste ... waste [that is] primarily from Sandia’s Technical Area I where secret military experiments were performed using nuclear material obtained from many atomic bomb tests.”

— *Testimony from hearings on the Sandia landfill held last July.*

Read the full article at the ABQ Free Press. ²⁶

²⁶ Bob Klein, ABQ Free Press, “State, Sandia Just Cover Up Nuke Waste at KAFB.” December 2, 2015.
<http://www.freeabq.com/wp-content/uploads/2015/12/Vol-II-Issue-24-December-2-2015.pdf>