

## **DOE's Own Internal Audit Finds Major Safety Problems at the Advanced Test Reactor**

**A**n audit conducted by the Department of Energy's Office of Independent Oversight and Performance Assurance (DOE/OA) raised concerns that design conditions at the ATR were not adequately analyzed in the safety analysis and that legacy design basis management practices had the potential to further impact safe operation of the facility. The concerns identified by the audit team, and issues raised during additional reviews performed by ATR safety analysts, were evaluated through the un-reviewed safety question process resulting in shutdown of the ATR for more than three months while these concerns were resolved.

"Past management of the ATR safety basis, relative to facility design basis management and change control, led to concerns that discrepancies in the safety basis may have developed. Although not required by DOE orders or regulations, not performing design basis verification in conjunction with development of the 10 CFR 830 Subpart B upgraded safety basis allowed these potential weaknesses to be carried forward. Configuration management and a clear definition of the existing facility design basis have a direct relation to developing and maintaining a high quality safety basis which properly identifies and mitigates all hazards and postulated accident conditions. These relations and the impact of past safety basis management practices have been reviewed in order to identify lessons learned from the safety basis upgrade process and appropriate actions to resolve possible concerns with respect to the current ATR safety basis. The need for a design basis reconstitution program for the ATR has been identified along with the use of sound configuration management principles in order to support safe and efficient facility operation.

"The DOE OA team raised questions with respect to the ATR safety basis upgrade in that the requirements and scope may have allowed legacy weaknesses in the safety basis to be carried forward.

"The audit included an in-depth review of the ATR Emergency Firewater Injection System and the Firewater Supply System. Concerns identified by the DOE OA audit team and issues raised during additional evaluations performed by ATR safety analysts resulted in multiple positive un-reviewed safety question determinations and shutdown of the ATR while the specific concerns identified were resolved. The issues included:

1. Potential emergency firewater injection system time delay increase,
2. Firewater supply system modeling issues,
3. Potential deficiencies identified during system interaction walk-downs, and
4. Potentially inadequate component supports identified during seismic walk-downs.

"However, the audit team reported that the ATR had 'several design deficiencies that were not adequately analyzed in the safety analysis' and that 'weaknesses in configuration management, surveillance testing, and maintenance have the potential to further reduce the margin of safety.' The audit team recognized that resource allocations in past years (e.g., not previously funding a design reconstitution) may have contributed to these conditions and that this possibility would be reexamined. The team concluded that the "identified design analysis weaknesses warrant a detailed evaluation of the specific concerns and a management review to determine why these concerns were not previously identified, including the underlying factors that may reduce the effectiveness of engineering evaluations and safety analyses." "Hence, the ATR lacks a clearly defined and controlled design basis and supporting design information baseline and is not in department order compliance." <sup>1</sup>

It must be noted that DOE has implemented some "Band-Aid" efforts to keep this 40-yr-old reactor operating to 2040 long past its initial design basis of 20 years – that would have otherwise expired in 1999. A 2007 ATR internal report documents significant aging/corrosion deficiencies and non-compliance that exceed regulatory allowances. <sup>2</sup>

The ATR is one of the most complex reactor designs in the world –with its serpentine fuel configuration - as opposed to typical power reactors that have straight vertical fuel configuration. Also the ATR has 4 (clover-leaf) lobes

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<sup>1</sup> Advanced Test Reactor Safety Basis Upgrade Lessons Learned Relative to Design Basis Verification and Safety Basis Management, Gregg L. Sharp, Richard T. McCracken, EFCOG/SAWG 2004 Workshop, Idaho National Laboratory, INEEL/CON-04-01551

<sup>2</sup> Advanced Test Reactor Material Condition Assessment Report for Primary Coolant System and Reactor Vessel, NISYS Corp. 12/07, NISYS-1255-TR009/RO.

that allow for varying radiation exposure tests for each of the four lobes. As DOE states; “It’s like having five reactors (including the primary) in one.”

This ATR design complexity is fundamentally why it is significantly more vulnerable (due to aging malfunctions of basic systems) not safe and why the ATR has at least 12 scrams (emergency shutdowns) between 2000 and 2008. Moreover, the test fuels in ATR’s lobes habitually leak and cause power surges (“excursions”). A regulated commercial nuclear power reactor would not be allowed to operate with this operational record.

Despite these safety problems, DOE allows parts of the ATR reactor core power level to increase between 362 and 379 mega-watts (MW) which is significantly higher (~44% and 51% respectively) than the 250 MW overall reactor power limit. DOE also admits that these increased power levels were not factored in the ATR “Safety Analysis Report Reflector Aging [that] did not analyze for a failure of the reflector block during a seismic [loss-of-coolant-accident] LOCA.”<sup>3</sup>

An April 2008 declassified ATR report puts the “Effective Point Power Limit” at 428 MW, which is 71% over the 250 MW operational power limit.<sup>4</sup> This wide variation in effective power levels within different sections of the ATR test lobes can result in “hot-spots” and exacerbate an already deficient reactor coolant system during an accident. Two 2008 ATR shutdowns (“scrams”) are attributed to “a sharp increase in dedicated center lobe power” and coolant system “degradation.”<sup>5</sup> Thirteen ATR scrams were reported between 2000 and 2009.<sup>6</sup>

### **Internal DOE documents show significant ATR radioactive Iodine releases**

One of the missions of the Advanced Test Reactor (ATR) is to irradiate new reactor fuels to test the fuel cladding’s ability to provide a barrier to fission product release in a high radiation condition. A recent fuel test program on “uranium oxo-carbide in a graphite matrix” found that the fuel coatings failed - releasing radio-iodides and cesium into the reactor and released to atmosphere.

DOE conducted a 12/06 interim analysis of radioactive Iodine-135 releases after the first six week fuel testing program ended when the ATR was “scrammed” (emergency

shutdown) likely due to fuel failure. According to DOE’s report, this program continued for an additional 30 weeks (2.5 yrs) to around June 2009. It must be noted that numerous species of longer-lived radioactive iodine (I-129 and I-133) as well as many other radionuclides (i.e., cesium) were also released in significant quantities.<sup>7</sup>

In a related internal ATR report, DOE’s analysis states the following radiation releases; “Condition 1 (Normal operation) – Radiation exposure limits of: 1.00 mSv/year [100 mrem/yr] effective dose equivalent (EDE) and 0.10 mSv/year [10 mrem] EDE from airborne release to off-site public and 0.05 Sv/year total effective dose equivalent (TEDE) to workers. Reactor fuel source term protection limit: The integrity of the reactor fuel cladding is not challenged except for limited clad defects. **EPA and State of Idaho regulatory limits on radiation exposure to the public from all sources are 3 mrem/yr (0.003 rem).**

“Condition 4 [fuel failure as described above] – Radiation exposure limits of: 0.25 Sv [25 rem] whole body and 3.00 Sv [300 rem] thyroid dose to off-site public and evacuating workers (excluding personnel considered directly at the location of the accident). Reactor fuel source term limit: The reactor primary coolant pressure boundary must be maintained (unless this failure is the initiator) and the reactor confinement must not be damaged. The predominant risk associated with the ATR is the radiological source term [release to the environment] contained within the reactor fuel.”<sup>8</sup>

Table 6 in this document shows total Iodine-135 release of 1,724 becquerels ( 465,480 pico-curies) over 6 weeks. Legitimate extension of the above 6 week monitoring to the stated 30 week program through June 2009 = 2,327,400 pico curies. Again, EPA and State of Idaho regulatory limits on radiation exposure to the public from all sources is 3 mrem (0.003 rem). Although apparently technically accurate, DOE consistently uses units of radiation exposure that makes their reports appear innocuous. EDI offers a translation of the data into radiation units used in federal/state regulations. As DOE’s own data shows above, the ATR is apparently in violation of regulatory limits – just for this single of numerous concurrent ATR programs.

Tragically, the above discussion of test fuel failure is more normal as opposed to abnormal, based on many DOE

<sup>3</sup> Idaho National Laboratory, Doc. No. CCN-214175, June 30, 2008, Advanced Test Reactor Cycle 142B-1 Core Safety Assurance Package, pages 8, 9 and 14.

<sup>4</sup> Idaho National Laboratory, Doc. No. CCN-213422, April 22, 2008, Advanced Test Reactor Cycle 142A-1 Core Safety Assurance Package, page 20. Also see ATR power at 428 MW, January 31, 2008, CCN-212539, page 20.

<sup>5</sup> Occurrence Report, NE-ID-BEA-ATR-2008-0001, ATR N-16 System Degradation Results in Manual Shutdown.

<sup>6</sup> Occurrence Report, NE-ID-BEA-ATR-2006-0019 and Occurrence Report, NE-ID-BEA-ATR-2007-0021. And DOE-Operations Summary 3/18/09

<sup>7</sup> “Determination of the Quantity of Iodine-135 Released from the AGR-1 Test Fuels at the End of ATR Operating Cycle 138B,” J.K. Hartwell et...al., May 2007, Idaho National Laboratory, INL/EXT-07-12455.

<sup>8</sup> “Safety Assurance for Irradiating Experiments in the Advanced Test Reactor,” T.A. Tombererlin, at.al., Idaho National Laboratory, 11/14/04, INEEL/CON-04-02244. Severt (Sv) is the international unit of radiation exposure (one severt = 100 rem); REM is a unit of radiation exposure used in the US. 1.0 mSv = 0.01 rem. EPA and State of Idaho regulatory limit is 3 mrem for all exposures = 0.003 rem. One becquerel = 27 pico-curies.

internal documents acknowledging fuel failure.<sup>9</sup> DOE steadfastly refuses to release current ATR radiation data.

DOE's own previous Environmental Impact Statement states: the ATR released 1,802 curies in 2000 and 1,180 curies in 2003 to the atmosphere.<sup>10</sup> On average that is about 1,491 curies/year; so over an eight year period 2000 through 2008 (given ATR's continuous operation) about 11,928 curies may have been released to the air. These high emissions from ATR suggest liquid waste is first sent to the ATR cooling towers w/o treatment and the precipitates are then pumped to INTEC evaporators or the percolation ponds. This represents a significant hazard to INL workers and the downwind public.

By any standards, these are significant releases that have a major health impact on the downwind uninformed public! **None of the ATR missions are so crucial to the national interest that it justifies the enormous risk to the public in the event that this antiquated reactor has a meltdown via system failure and/or an earthquake initiating cascading reactor system failures.**

## Rise in Thyroid Cancer May be Tied to Radiation

Kim Painter reports in *USA Today*, 8/17/09 that; "A medical mystery: As overall cancer rates fall, why are thyroid cancer rates rising? Diagnoses of cancer in this gland in the neck are increasing about 6 percent a year, faster than cancers found anywhere else, according to one National Cancer Institute analysis.

Researchers know one big reason: The many medical scans Americans have, for everything from neck pain to artery plaque, are turning up thousands of tiny thyroid tumors that otherwise might go undetected and often would do no harm.

"We call them 'incidentalomas,'" says Amy Chen, a head and neck surgeon at Emory University in Atlanta and American Cancer Society researcher.

But that's not the whole story. Two recent studies, including one co-written by Chen, show larger thyroid tumors are being found at an increasing rate, too. And those can't be explained by more aggressive diagnosis alone, researchers say. "There is something else going on" to contribute to the 37,000 cases of thyroid cancer expected this year, Chen says. That's up from 18,000 in 2000. What is that "something else"? In-depth research on that is just starting, says Elaine Ron, a senior investigator at the cancer

<sup>9</sup> Occurrence Report, After 2003 Redesign, ATR N-16 System Degradation Results in Manual Reactor Shutdown, NE-ID-BEA-ATR-2008-0001, 1/9/08

<sup>10</sup> DOE/EIS-0287 pg. 4-30; DOE/DEIS-0373D, pg 3-26.

institute. The good news, she says, is that 98 percent of those with the most common forms of the cancer live at least five years. Overall death rates are not rising. But it's important to study the rise in cases, she says: "This is a large increase, and it's been going on for a long time. If there's a biological reason, we can try to prevent it."

### Among factors researchers are considering:

**Radiation:** Researchers know radiation exposure, especially in childhood, can increase thyroid cancer risk. They don't know whether increased radiation exposure from medical scans and other sources is contributing to the overall increase.

**Watching the research:** Caroline Stetler of Washington, D.C. Stetler, 28, had thyroid cancer at 16. As a grad student at American University's Investigative Reporting Workshop, she researched the cancer and was shocked by the numbers. "When I was diagnosed, the only question the doctor asked was, 'Were you ever exposed to head or neck radiation?' And the answer to that was no," she says. If environmental or lifestyle changes are contributing to the increase in thyroid cancer cases, "we have an obligation to find out," says Stetler, who contributed to a report on the mystery.

Researchers also need to learn which small thyroid cancers could safely be left untreated, says Louise Davies, a researcher at the Department of Veterans Affairs Medical Center in White River Junction, Vt. She says there's no question some patients are undergoing unneeded biopsies, thyroid removal surgeries and radiation.

But which patients? Right now, doctors don't have good ways to tell. And they know even tiny tumors sometimes spread and cause serious problems, says Kenneth Burman, president of the American Thyroid Association and chief of endocrinology at Washington Hospital Center. The association says doctors may monitor some tumors less than 1 centimeter wide but should immediately treat anything bigger."

## The Mystery of Chernobyl A bitter dispute is raging over whether the fallout zone is a wasteland or wonderland.

Sanjida O'Connell reports in *The Telegraph/UK* 9/9/09; "We walked out into a wasteland, grey and desolate. The buildings had deteriorated, windows had been smashed. Trees and weeds had grown over everything: it was a ghost town." It reads like a passage from a post-apocalyptic novel, such as Cormac McCarthy's *The Road*; in fact, it's how Tim Mousseau describes his first visit to Chernobyl.

In 1999, this Professor of Biological Sciences from the University of South Carolina travelled to the site of the world's most horrific nuclear accident, alongside Professor

Anders Møller, an ornithologist and evolutionary biologist from the Pierre and Marie Curie University in Paris. Their on-site research has sparked an intense controversy over the effects of radiation on humans and animals – one which they hope their latest trip into the fallout zone, which sets out in two weeks, will help to resolve.

**The 30-mile exclusion zone around Chernobyl and the abandoned town of Pripyat is now home to animals.** The basic facts of Chernobyl are well known. At 1.23am on April 26, 1986, reactor number four at the Soviet nuclear power plant (sited in modern-day Ukraine) exploded, after an electrical test went horribly wrong. The radioactive material released was hundreds of times greater than the fallout over Hiroshima and Nagasaki, polluting about 80,000 square miles of land across Europe and spreading radioactive rain as far as north-west Ireland.

In the wake of the accident, more than 300,000 people were evacuated and an 800 square mile exclusion zone created around the reactor. Yet recently it has been reported that the abandoned town of Pripyat has become a wildlife haven. There have been sightings of wolves, bears and moose wandering through the deserted streets, and swifts swoop round abandoned office blocks.

The implication is that if wildlife can return so soon, nuclear radiation – and nuclear power – might be less dangerous than has been suggested. James Lovelock, the creator of the Gaia theory, has even written that the natural world "would welcome nuclear waste as the perfect guardian against greedy developers... the preference of wildlife for nuclear-waste sites suggests that the best sites for its disposal are the tropical forests and other habitats in need of a reliable guardian against their destruction by hungry farmers and developers".

According to a UN report in 2005, long-term cancers caused by Chernobyl will eventually kill about 4,000 people: an alarming total, but less than predicted. In fact, in an age of "dirty bombs" and nuclear proliferation, Chernobyl functions as a grim experiment into the consequences of extensive nuclear fallout. Although radiation levels have dropped significantly over the 23 years, there are still "hot" regions. Prof Mousseau says that the most contaminated areas measure 300 microSieverts per hour on the Geiger counter, the equivalent of 1,200 times normal radiation levels, or 15 times as much as a chest X-ray. "Long-term exposure would be deleterious," he adds drily.

The real problem, however, is environmental contamination of radio nucleotides, cesium, strontium, and plutonium, which have half-lives of 30,000, 29,000 and 24,000 years respectively. Since this means that over that time period, these chemicals will decay to half their previous concentrations, they will contaminate the land for years.

"What you need to worry about is eating the food, because ingestion is the main way that one becomes exposed to radiation poisoning here," says Prof Mousseau.

And despite the stories about nature thriving in the Chernobyl area, Prof Mousseau is not convinced. The first discovery that he and Prof Møller made was that birds in the fallout zone were suffering increased levels of genetic mutations. The pair examined 20,000 barn swallows and found crippled toes, deformed beaks, malformed tails, irregularly shaped eyes and tumors. Some birds had red plumage where it should have been blue or blue where it should have been red.

Thanks to the contamination of the food supply, bird species have declined by more than 50 per cent in high-radiation areas. Only a fraction of the swallows are reproducing, and of those that do lay eggs, only five per cent hatch. Fewer than a third of birds survive to become adults. Prof Mousseau and Prof Møller could confirm that these abnormalities were genetic by examining the swallows' sperm.

One of the pair's most interesting findings, outlined in a paper last year, is the connection between antioxidants, radiation and plumage color: in other words, birds with the brightest plumage are more likely to die. The explanation is simple. In humans and birds, antioxidants help to quash the effects of radiation. "Birds that migrate long distances and have bright plumage, such as swallows, have a very high metabolic rate and produce a lot of free radicals as a by-product, which damage their tissues," says Prof Mousseau.

They then use stockpiles of antioxidants in their blood and liver to offset this potential damage. Females allocate large amounts of antioxidants to their eggs, which is the reason why the yolk is bright yellow."

But at the end of the birds' migration route, their energy reserves need to be replenished. "What appears to be happening is that in highly contaminated areas, they simply can't do this." As a result, swallows and great tits are unable to maintain their bright plumage and channel sufficient antioxidants into their eggs, and few chicks hatch.

The insects that they feed on are suffering, too. In the most contaminated areas, there are fewer butterflies, bumblebees, grasshoppers, dragonflies and spiders. "The fact that insects, including pollinators, are sensitive to elevated contaminants has a significant impact on the rest of the ecosystem," says Prof Mousseau.

It seems like a portrait of an ecosystem in crisis – so how have other scientists reported the opposite? Dr Robert Baker and Dr Ronald Chesser, from Texas Tech University, conducted their own study, published in the journal *American Scientist* in 2006: "We were surprised by the diversity of mammals living in the shadow of the ruined reactor only eight years after meltdown."

Their long-term studies contradicted those of Professors Mousseau and Møller, describing the region as "thriving", with a wild boar population 10 to 15 times higher in the exclusion zone than outside. They also failed to find any type of elevated mutation rate, or evidence that survival

among animals living around Chernobyl differs from those in clean environments. "Chernobyl is not a lunar landscape," says Prof Mousseau. "You can hear birds and mammals, spot the occasional wolf and fox, there are trees and plants – so it's not a complete desert. The reason for this misunderstanding is because there is a quilt-work of contamination, so you could have lots of organisms in one area, and none in another. To a trained biologist, though, it's very obvious."

Those are fighting words – particularly as both teams will shortly publish papers about mammals in the region that have diametrically opposed results. For his part, Dr Chesser says: "I think that the discrepancy between our work and that of Møller and Mousseau stems from their inattention to details. I will go no further than that. I have no doubt that our work is accurate."

Prof Mousseau is equally forthright: "I'd rather avoid discussing specifics of their work, but no other folks apart from us have been rigorously counting organisms and measuring their distribution and the background contamination. Their work is based on anecdotes."

Regardless of who is right or wrong, there is another tragedy here. Prof Mousseau has started working with the Hospital for Radiation Biology, in Kiev, on a long-term study of humans who live in the area: more than 11,000 adults and 2,000 children in the Narodichesky region, 50 miles from Chernobyl.

Prof Mousseau says that the incidence among locals of cancer, birth defects and reduced lifespan is alarmingly high. "There is a growing mountain of information that all points to significant consequences to the human population of chronic radiation exposure," he warns. "What will be the consequences for the children of these children?"

## 'Exposed' Tells the Downwinder Story

Brian Passey reports in *The Spectrum* 9/7/09; "Mary Dickson says her play was an accident. The Salt Lake City-based journalist was working on a manuscript for a nonfiction book about the nuclear testing at the Nevada Test Site and the downwinders who attribute various health problems to those tests.

During the research she told an actress about her own personal battle against thyroid cancer. It is one of the diseases eligible for compensation under the Radiation Exposure Compensation Act of 1990 for people who lived in certain geographic areas during the Cold War-era above ground testing.

Dickson's sister, Ann, also passed away from complications of lupus. Some downwinders and doctors believe there may be a connection between the testing and autoimmune diseases like lupus but there is no proof. The

actress told Dickson to write a play about her own experiences instead of a book. At first, Dickson wasn't sure. She was a journalist, not a playwright. She felt it would be too painful to write her own story. Then the actress told her: "The best writing comes from pain."

Soon Dickson had a series of monologues that eventually became the play "Exposed," which details Dickson's personal connection - both as a cancer survivor and journalist - to the nuclear testing and the aftermath. The Space Between Theatre Company will produce "Exposed" locally beginning Thursday at Green Valley Spa in St. George. Because Dickson did not live in one of the areas covered by RECA, she didn't think her own thyroid problems had any connection to the testing. But while interviewing a downwinder, the interviewee made the connection for her, showing a map that traced radioactive fallout across most of the continental United States.

Dickson says one goal of her play is to show that downwinders are not just from Southern Utah. She cites a National Cancer Institute study that found evidence of radioactive fallout in every county in the continental United States. "I wanted people to know how widespread it was and how far-reaching it was," Dickson says. "It's really an American story because it affected so many people across the country."

However, there are plenty who argue that the testing is not responsible for an increase in cancer deaths. Among them is former Dixie State College professor Daniel Miles who just released a book, "The Phantom Fallout-Induced Cancer Epidemic in Southwestern Utah: Downwinders De-luded and Waiting to Die."

Dickson includes the arguments of critics in her play, even though she doesn't agree with their assessment of the testing. Dickson argues that they should take into the account the evidence presented in stories and science. Although it may be difficult to prove conclusively that the testing caused the cancer, she feels there are too many links to be ignored.

"I think there's no way they can prove conclusively that it didn't make people sick," she says.

With her journalistic background, much of the dialogue in the play comes from the actual words of downwinders, critics, scientists and government officials. Government records and filmstrips provided additional information. "I did not make this stuff up," Dickson says.

By telling the story through the power of theater, she has the opportunity to bear witness of the events in a way should could not do as a journalist. She says it's possible to provide all the numbers and evidence but it won't have the impact of telling the story. "There's nothing like the power of the story," she says. When the Plan-B Theatre Company produces the play in Salt Lake City many patrons left sobbing, Dickson says.

In addition to that production, a variety of readings have been staged in the United States and Japan, including local readings at Dixie State College and in Springdale. The production by The Space Between Theatre Company will be the first time the full play has appeared in Southern Utah. The Space Between Dickson says she's excited to see what director Douglas Caputo does with her play. One aspect Caputo is bringing to the play is a heavy reliance on multimedia. Because "Exposed" contains scenes from both modern times and the 1950s, Caputo chose to film the older scenes as black and white, newsreel-type vignettes that will play throughout the live-action play. "I'm hoping it will give the play a certain nostalgia," Caputo says. Among the scenes shot in black and white video are those detailing the transcripts from meetings of the Atomic Energy Commission.

The play essentially covers Dickson's journey from being a journalist covering a story to being a cancer patient linked to the story to becoming an activist. Some of the last scenes are quite recent, including details of the proposed Divine Strake test at the Nevada Test Site that was cancelled only a few years ago.

Because the play contains such current events, many of the "characters" are actually living people, including local downwinder and activist Michelle Thomas. Caputo says it's an unusual opportunity to have access to the real people that became the characters in a play. Thomas even called him at one point while he was preparing the play – the first time he had ever received a call from a "character."

Access to the real people who inspired the characters and the knowledge that some of them will see the play has increased the pressure for the director and his cast. Because he believes the play tells an important story, Caputo says it will be an educational opportunity for members of the community.

However, it does have mature language that would fall somewhere between a PG-13 and R rating if it were a film, he says. The language is not pervasive, but it's there, so the play is recommend for an adult audience. Caputo says the play fits in well with the style of theater The Space Between likes to produce. "We want to provoke an honest dialogue and discussion," he says. "We want to provoke thought. ... If this awareness keeps it from happening again, great." The play will have nine showings through the month, every Thurs. Fri. and Sat. through Sept. 26.

**Health Care – Medicare for All Would Solve Most of the Problems of Public and Worker Radiation Victims Access to Health Care they Desperately Need and Currently Denied by For-Profit Insurance**

## Fallout from Nuclear Tests Leads to Health Crisis in Hawaii

Mark Niese reports from Honolulu in the *Associated Press* 9/6/09; "Pius Henry fears his adopted government will kill him, that the United States won't live up to a health-care obligation to people from Pacific islands where it tested nuclear bombs. Henry, a diabetic from the Marshall Islands, has received free dialysis treatments three times a week for years, but the cash-strapped state of Hawaii has threatened to cut off him and others to save money.

Like thousands of legal migrants to Hawaii from independent Pacific nations, Henry believes the U.S. has a responsibility to provide health care to compensate for the radioactive fallout of 67 nuclear weapons tests from 1946 to 1958. "I don't have any option. I'm asking the government to help us," Henry said. "They say we're like U.S. citizens, but then they don't treat us the same. It's really unfair."

A federal judge's ruling Sept. 1 temporarily prevented Hawaii from halting critical dialysis and chemotherapy treatments to hundreds of migrants from three nations: Micronesia, the Marshall Islands and Palau. His order lasts at least until October. Nuclear testing occurred in the Marshall Islands, carrying the explosive power of 7,200 Hiroshima bombs, said Dr. Neal Palafox, chairman of the Department of Family Medicine and Community Health at the University of Hawaii. The blasts contaminated thousands of miles across the Pacific Ocean.

The residual radioactivity led to high rates of leukemia and thyroid, lung, stomach, skin and brain cancers, Palafox said. Fallout exposure could result in about a 9 percent increase in cancer in the Marshall Islands, according to a 2004 National Cancer Institute estimate provided to a U.S. Senate committee. "It's a monster increase in cancer rates no matter how you look at it," Palafox said. "The United States cannot wash its hands clear of this responsibility because the islands will still have that nuclear testing effect for the next 2,000 years," said William Swain of the Marshallese community organization Pa Emman Kabjere, which means "don't let go of a good hand."

In Swain's family, 15 siblings on his father's side died from cancer, with the men suffering from thyroid cancer and the women from urine and breast cancer, he said. His 12-year-old niece has been diagnosed with thyroid cancer, and his older brother died from thyroid cancer two months ago.

Micronesia, the Marshall Islands and Palau are beneficiaries of the Compact of Free Association, a 1986 pact with the United States granting it the right to use defense sites in exchange for financial assistance and migration

rights. With doctors and medical facilities lacking in their own countries, many with life-threatening conditions have moved to Hawaii seeking better health care, education and quality of life.

The islanders have struggled adjusting to American culture and their new home. They fill public housing projects and a disproportionate share of homeless shelters, according to a 2007 study. Without college degrees or a command of the English language, many work in fast-food or hotel jobs, which still pay far better than they could earn in their home countries. "We're the last immigrants," said Innocenta Sound-Kikku, a Micronesian whose father, Manuel Sound, suffers from diabetes. "We come here for the same thing everyone else came here for — the chance for the American dream. The U.S. has an obligation after what they've done to us."

Palafox said that while the high rate of diabetes isn't directly connected to the nuclear tests, fast foods and processed meats introduced by the U.S. led to worsening diets in a culture that was dependent on fishing. The migrants also widely believe the United States owes them for their various illnesses because of the destruction to their homelands and the displacement and agony they have suffered.

While living with diabetes and high blood pressure, Manuel Sound takes about 11 pills daily and said he feels wary of death. If he missed any of his 3 1/2-hour, thrice-weekly dialysis treatments, his health would be in danger. "One day you miss, and the poison begins to circulate in your bloodstream. I could die if I'm not careful," said Sound, who has lived in Hawaii for seven years after migrating from Micronesia. "With these budget cuts, I really thought I was going to go."

The state of Hawaii sought to save \$15 million by cutting health services to more than 7,000 migrants, who are treated as legal residents lacking citizenship. Their ambiguous status, as well as their cost to taxpayers, led to the states proposed health reductions.

Both the Hawaii government and the migrants argue that the U.S. government should take responsibility for their health treatments. But federal Medicaid funding to the migrant islanders was slashed when welfare reform passed in 1996, resulting in Hawaii picking up the tab. U.S. Rep. Neil Abercrombie, D-Hawaii, said he is trying to reinstate Medicaid benefits for compact migrants as part of the pending health care legislation."

## **Former Mound Employees, Advocates Question Destruction of Records**

Tom Beyerlein reports in Dayton Daily News 1/7/07 that; "An Energy Department laboratory in 2005 disposed of enough classified documents from Miamisburg's Mound Plant to fill two tractor trailers by burying them in a New Mexico landfill for radioactive waste.

Now some are wondering if the 400 boxes of records ordered destroyed by officials at Los Alamos (N.M.) National Laboratory contained clues about whether some former Mound employees got cancer from on-the-job radiation exposures. The records disposal puts a cloud over the ability of federal health officials to accurately assess claims for compensation by sick atomic workers and their survivors.

"I find it stunning," worker advocate Richard Miller said of the records burial, which was made public in December when the Energy Department released a memo to the advisory board for an atomic worker compensation program.

Mound shipped 458 boxes of records to Los Alamos in 1993. Before they left Mound, the records tested positive for radioactive contamination. They were stored outdoors at Los Alamos in large "transportainers." About 40 were returned to Mound to be scanned for decontaminated copies in 2003. After determining it would cost millions of dollars to decontaminate the remaining boxes, Los Alamos officials declared them a health threat and buried them, saying they had "low to zero value."

But a federal contractor has told the advisory board that the records buried at Los Alamos "were considered particularly important" in compiling a Mound site profile. That's a reference book used by health officials in determining whether workers were sickened by on-the-job toxic exposures and thus qualify for federal compensation and medical benefits. Joseph Fitzgerald of Sanford Cohen and Associates wrote the board in April that existing information "was found to be lacking in the unclassified files in Dayton."

Fitzgerald also said "given the implications of the destruction of such a large amount of potentially relevant worker radiological information, it will be important to determine how the disposal of these historic records occurred in light of the relevant moratorium on records destruction." Under an Energy Department moratorium, records that may be useful in health and epidemiological studies are not to be destroyed without a review by DOE's Office of Health, Safety and Security.

The Advisory Board on Radiation and Worker Health is expected to consider the records destruction issue as part of its deliberations on whether to approve a draft site profile for Mound later this year, said the board's senior science adviser, Lewis Wade. The board is an arm of the Centers for Disease Control and Prevention's National Institute of Occupational Safety and Health.

Energy Department spokeswoman Megan Barnett said

the destroyed records didn't fall under the moratorium and were not pertinent to worker health. She said documentation shows the records were lab notebooks, scientific records, non-personnel X-ray film, accounting files and records of weapons components and production assembly.

But Miller, of the watchdog Government Accountability Project, said some of these types of documents can contain information vital to creating a site profile defining areas at the plant where workers may have been exposed to radiation and chemical hazards.

And even Los Alamos officials acknowledged in a May 2003 document that "it is difficult to evaluate the value of the records in an exact manner." Nonetheless, the lab said, "the general conclusion is the records are of no value to Los Alamos." The contaminated records were to be buried because they were "a continuing menace to human health or life or to property," lab officials wrote.

Mike Gibson, a 22-year Mound employee and former union president who now sits on the advisory board, said there are many unanswered questions surrounding the records.

## Idaho National Laboratory Document Destruction

As EDI reported previously, DOE/INL implemented a massive document destruction of relevant documents to radiation exposure to workers and the public. The Centers for Disease Control and Prevention (CDC) disclosed that over 62 boxes of documents relevant to their INEEL Dose Reconstruction Health Study had been destroyed by the Department of Energy (DOE) or their contractor. The 62 boxes represent approximately 310,000 pages of information. In addition to document destruction, CDC is finding that the original "owners" of documents were recalling the items from the archive without leaving a copy or a record of where the document went.

CDC gave DOE a list of all the documents in 1994 that the health agency wanted preserved for later analysis, however, that notification was not enough to save the information. Some of the destroyed documents included radiation emission records that are essential to determine what kind of radioactive isotopes were released, when they were released, and how much as released. This is called establishing the source term.

Lockheed Martin's INEEL employee newspaper "Star" ran an article on November 24, 1998 describing a two year campaign to clean-out files. The article titled "Site-wide files clean-out a big success" notes that 13,231 cubic feet of documents were destroyed in 1997 and 14,859 cubic feet were destroyed in 1998 for a total of 28,090 cubic feet over the two year campaign. Lockheed Martin believes that "it

costs approximately \$2,150 annually to maintain a single five-drawer filing cabinet in a local government office. Based on this last statistic alone, nearly \$3 million in soft dollar savings may be realized by eliminating a total equivalent of 1,426 file cabinets worth of records and non-records." It is uncertain if there is a connection between the Lockheed Martin file clean-out initiative and the documents CDC wanted preserved, but the coincidence is telling.

CDC has appealed to DOE Headquarters and DOE's Idaho Operations Office in an attempt to stop the hemorrhaging. Jim Smith, Director of CDC's Radiation Studies Branch sent a letter to Elly Melamed at DOE/HQ expressing his concern over their lack of a process for tagging boxes that CDC has identified as relevant and preserving it in the archive. Smith also requested that if document "owners" attempt to pull items out of an archive, that a copy of the document is retained at the archive.

In May 1998, CDC's INEEL Health Effects Advisory Committee sent a letter to Paul Seligman at DOE Headquarters asking that the previous administration's (Hazel O'Leary) moratorium on document destruction be reaffirmed and expanded to include documents identified by CDC. Two quarterly reports (October-December 1993 and January-March 1994) by CDC researchers acknowledge DOE document destruction as a major problem.

Seligman's response to INEEL Health Effects advisory committee chairman Dr. Roy Ellsworth in October said that DOE's moratorium on the destruction of records was still in force at INEEL and throughout the Department and headquarters staff was working with the staff at INEEL to prevent the further destruction of any documents. CDC critics have noted that the agency did not adequately label the documents or boxes with bright "do not destroy or remove" stickers. With the incentive to remove potentially libelous information, it is not likely a label would provide a deterrent.

CDC started its INEEL document review and retrieval in 1992 and to date has yet to complete this phase of the dose reconstruction health study. The longer the process drags out the more likely that the only paper trail left will be the public relations reports. INEEL is the most challenging to audit because it had more different programs, agencies, and contractors than any other facility in the national DOE Complex. Consequently, documentation on these varied projects is literally spread all over the country in different government and contractor archives.

DOE resisted a Freedom of Information Act request for an index of its classified documents, using the excuse that an index did not exist. After an exhaustive appeal of the initial denial, DOE grudgingly released the existing index to the Environmental Defense Institute.



## State Health Studies Also Indicate Problem Near INEEL

Idaho's Division of Health is conducting a cancer survey in counties around INEEL and the agency is finding higher rates than national averages. A 1995 study analyzed a 17 county area comparison of cancer incidence rates (1971 to 1992) and compared it to the other 27 Idaho counties. This 17 county study is similar to Jay Gould's 16 county (100 mile radius around INEEL). The state study counties include Bannock, Bingham, Blaine, Bonneville, Butte, Caribou, Cassia, Clark, Custer, Fremont, Jefferson, Jerome, Lincoln, Madison, Minidoka, Power, and Twin Falls. The aggregate 17 county study found cancer incidents (observed) compared to the other 27 county control group (expected). The results include: stomach cancer (observed 390 with 383 expected); brain cancer (observed 385 with 378 expected); and leukemia (observed 461 with 438.7 expected). This comparison may be understating the problem because the counties in northern Idaho have high cancer rates possibly due to Hanford radioactivity.

In 1996 the state narrowed the previous study down to six counties south and east of INEEL including, Bingham, Bonneville, Butte, Clark, Jefferson, and Madison. The age-adjusted incidence rate for central nervous system cancers in the six county area was 8.1 per 100,000. The rest of Idaho had a rate of 7.0 per 100,000 compared with national rate of 6.3 per 100,000. This means that there is considerably more cancer occurring in these six counties than is occurring in the state or the United States. The observed number of central nervous system cancers for the six-county area was 110 (89 expected, based on the rest of Idaho). The analysis was then confined to brain cancer (other central nervous system cancers such as chordoma and optic tumors were excluded). The state report notes that "a significantly higher number of cases of brain cancer 182 were observed when 151 would be statistically expected in the six county area for the years 1975 to 1994." Another 1996 state analysis of a reported cluster area around the town of Moreland in Bingham County revealed an increased rate of brain cancers, 4 observed with 1 expected between 1980 and 1995.

In Blaine county, a state survey requested by a local physician found that the female population younger than 70 had statistically significant elevated rates of breast cancer. Epidemiologist is studying the same factors as in the ongoing eastern Idaho brain cancer study. In Clark County, the agency found statistically significant increase of radiogenic cancers (25 observed, 16 expected) including eight cases of female breast cancer when only 3.2 cases were expected. In Minidoka County, the agency found 20 cases of stomach cancer when only 11.6 were expected.

The American Cancer Institute (ACI) Idaho Division

also acknowledges breast and prostate cancer at the top of the most common in Idaho. ACI ranks Clark County at the northern end of INEEL as nearly double all other eastern Idaho counties as well as national rates for breast and prostate cancers.

The state reports reiterate that "considering the number of statistical tests that were done, the results did not indicate any unusual findings." Unless there is a statistically significant difference between a local cancer rate compared to a state or national rate, than the state health department is unconcerned. A more sensible attitude from a public health perspective is: if there are radical increases in radiogenic diseases over a long period of time, then the agency is obliged to make every effort to determine the cause and notify the effected public. To wait until there is a statistical significance is like waiting until the tornado hits before heading for the storm cellar. Copies of Jay Gould's INEEL related findings were sent to the Idaho Division of Health. The agency declined to comment but requested a copy of the entire book. To date, the National Cancer Institute has yet to respond to Gould or the other authors of *Enemy Within* or to notify the public of the increased rates of breast and prostate cancer near nuclear facilities. These health agencies have a mandate to protect the public health. Our tax dollars support their programs, yet there seems to be a disconnect in the realm of accountability.

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