INEEL NEWS

Environmental Defense Institute

News and Information on Idaho National Engineering and Environmental Laboratory

February 2002	Volume 13 Number 1

Nuclear Waste - What is at Stake for Idahoans

Revelations in recent years about radioactive and hazardous contaminates migrating into the Snake River Plain Aquifer are raising public concern because of the indisputable reliance Idahoans have on this sole source of water. There is no question that this pollution is coming from the Department of Energy (DOE) Idaho National Engineering and Environmental Laboratory (INEEL) thirty-five miles northwest of Idaho Falls directly overtop the eastern portion of the aquifer.

The Snake River Plain Aquifer is the sole source of drinking water for most of the people in southern Idaho. This aquifer contains about one billion acre-feet of groundwater, and annually supplies about 642 billion gallons of drinking water and nearly 2 million acre-feet of water for irrigation and industry. The aquifer begins near Ashton, Idaho and flows southwestward where it discharges at Thousand Springs on the Snake River near Twin Falls, Idaho. The aquifer discharge at Thousand Springs literally makes up the total flow of the Snake River due to upstream diversion for irrigation.

DOE acknowledges that INEEL operations have contaminated 27,500 acre-feet of water in the aquifer in excess of Environmental Protection Agency's (EPA) drinking water standards. This level of contamination is believed by independent analysts to be grossly understated, and fails to take into consideration the cumulative effect of dozens of radioactive and chemical pollutants. By acknowledging only individual contaminates, DOE apparently hopes to make the picture less ominous, as opposed to showing the total health and environmental impact of all the pollution in the aquifer.

The State of Idaho's INEEL Oversight Program October-December 2000 Report acknowledges plutonium 239/240 concentrations in the aquifer at 24 pico curies per liter (pCi/L). The EPA drinking water standard for plutonium is 15 pCi/L. The toxic half-life of plutonium is over 24,000 years. This represents a terrible legacy to leave future generations of Idahoans. Because the Snake River is a tributary to the Columbia River, this contamination eventually affects communities in Oregon and Washington that rely on this water for residential and irrigation as well as affecting coastal fisheries.

How is this INEEL pollution getting into the aquifer? There are a number of routes: 1.) direct injection of hundreds of billions of gallons of wastewater into the aquifer; 2.) unlined percolation ponds that allowed the waste to seep down to the aquifer over days; 3.) floods and precipitation generate a flushing process for pollution in shallow waste dumps and contaminated soil to be forced down to the aquifer. Articles below show what we as a public interest organization are doing to stop this travesty.⊗

State Reopens INEEL Hazardous Waste Permit in Response to Citizen Appeal

Given that flooding is a major contributor to the flushing of radioactive and hazardous chemicals from surface and shallow waste dump sites at INEEL, the Environmental Defense Institute (EDI), in conjunction with Keep Yellowstone Nuclear Free and environmental legal analyst David McCoy, is aggressively challenging new INEEL hazardous waste permit applications. The State of Idaho, Environmental Protection Agency, and the DOE are stonewalling these citizen challenges that question perpetuating the failed and misguided past waste management practices that created the problem in the first place.

Responding to David McCoy's appeal (provided by administrative law) to an INEEL waste processing permit, C. Stephen Allred, Director of the Idaho Department of Environmental Quality (IDEQ) reluctantly issued an Order to allow

all interested persons to review flood information related to a radioactive debris processing permit. Allred, unfortunately, limited comments to "Amicus Curiae" briefs rather than simple written comments.

Washout of radioactive debris by flooding is a potential threat to the underground water. David McCoy's appeal states that the public received no opportunity to review new flood information submitted to the IDEQ by the Department of Energy. IDEQ intended to approve the permit at the INEEL before the public had an opportunity to comment on the flood information. While the appeal is pending, a stay has been issued against any construction activities for the debris processing operation located at the INTEC, formerly called the Idaho Chemical Processing Plant.

The legal wrangling revolves around the Big Lost River's propensity for flooding the INEEL and the additional hazards to Idaho's Snake River Plain Aquifer, which is the sole ground water source for most of Idaho's drinking and farm irrigation water needs. As environmentalists, we claim that it is inappropriate to site these extremely hazardous operations over the aquifer and in a recognized flood plain. Numerous past Big Lost River floods have flushed radioactive and chemical waste into the aquifer. Even three of Idaho's Congressional Delegation (Mike Crapo, Larry Craig, and Mike Simpson) otherwise pro-nuclear, wrote a joint letter to DOE's Idaho Operations Manager questioning the wisdom of sitting a new radioactive/hazardous waste dump over the Snake River Aquifer.

IDEQ's order to reopen the waste permit public comment, narrowly limits the permit review to flooding issues not fully considered during the initial permitting process, and "whether new information submitted by the Department of Energy reflecting flood plain mapping requires changes in the permit." The permit IDEQ planned to issue would allow an operation to strip radioactive and chemical contamination from waste material destined for the INEEL burial ground.

"It was necessary to file the appeal because IDEQ was refusing to honor its earlier promise to reopen the public comment period after receiving the new flood information. The public's right to participation in the permitting process must be recognized and upheld by the IDEQ because these projects can affect the entire state for ours and future generations to come," comments David McCoy who filed the Petition to IDEQ.

"The Big Lost River flooding issue is not restricted to just the INTEC Debris processing but also the new mixed radioactive/hazardous waste dump INEEL is now constructing beside the INTEC," notes Chuck Broscious, Executive Director of the Environmental Defense Institute. "The ground water is already severely contaminated from DOE's past misguided waste management practices, and Idahoans must take a stand against these new operations that jeopardize our current and future drinking water and agriculture operations.

The Environmental Defense Institute (EDI) protested in a formal Amicus brief that IDEQ, as a regulatory agency, limits the exchange of crucial information that impacts all INEEL radioactive and hazardous waste storage, treatment, and disposal operations within the Big Lost River flood-plain. EDI protests IDEQ's denial of consideration of other vulnerable waste processing operations currently under permit review as unrelated to the facilities such as the Process Waste Equipment Evaporator, the Tank Farm, the High Level Liquid Waste Evaporator, the new INTEC waste dump and the new liquid waste Percolation Ponds which are all at INTEC. The effect of flooding at INEEL has not been considered for these other facilities, which are all linked together.

As a public interest organization, EDI finds IDEQ's intransigence to these broader issues unconscionable. Moreover, IDEQ's requirement that only "Amicus Briefs" from the public will be reviewed effectively intimidates members of the public who otherwise would offer written comments. Amicus Briefs are "friend of the court" submittals. There are no court proceedings here! This is a State of Idaho administrative procedural process, and the use of Amicus Briefs as comment criteria, is nothing less than IDEQ's effort to scare off any public comment on the permit issue. The proceeding is before the Director of the IDEQ, which has a vested interest in permit approval.

Additionally, IDEQ's unwillingness to put copies of DOE's responsive flood documents in the Administrative Record Repositories or on IDEQ's website further demonstrates the agency's desperate attempt to restrict public involvement in this permit issue. These IDEQ actions logically force the question of whose interests are actually being

protected by the agency mandated to protect the environment, health, and safety of Idahoans.

A safer process in EDI's view, and otherwise required by environmental law to consider alternatives from a public health and environmental safety perspective, would be super compaction and storage until a safe permanent waste repository is established to take the subject permit waste. DOE refuses to acknowledge this alternative and has performed no cost benefit or environmental analysis of possible alternatives to process the liquid waste in non-compliant operations and dump the solid residuals in non-compliant landfills on the INEEL site rather than present the required environmental analysis.

On February 20, 2002, IDEQ issued its final ruling on flood issues related to the INEEL hazardous waste permit. The agency in what can only be characterized as an arbitrary and capricious action, ruled that David McCoy, Environmental Defense Institute, and Keep Yellowstone Nuclear Free formal briefs "failed to identify any changes that would be necessitated as a result of new information submitted by the Department of Energy." This is yet another example that shows the only thing the DOE and the State will listen to is a court order. ⊗

DOE Says INEEL Worst Performing National Lab

This month DOE Headquarters released its 2003 Budget that calls for major cuts to INEEL cleanup funding and a dramatic speedup to the cleanup process. Now what kind of calculus is DOE employing to accomplish both goals simultaneously? It is uncertain without a full breakdown of the entire budget allocations slated for INEEL that as yet are not publicly available. Apparently DOE's cost-cutting plans involve walking away from major radioactive contamination sites like the high-level waste tanks by simply dumping concrete grout on top of the waste and calling it "cleaned up." Other cost cutting measures include not funding new regulatory compliant, and expensive waste treatment plants, and continuing to operate the old non-compliant, un-permitted waste plants. Apparently DOE plans a nuclear sacrifice zone with a fence around it, and a "do not enter," sign warning the public. It has also finally and belatedly come to Idaho Governor Dirk Kempthorne's attention that DOE intends to renege on the 1995 State/DOE Settlement Agreement by not exhuming the buried waste and preparing it for shipment to a permanent geologic repository. DOE is apparently engaged in a kind of extortion with the state by threatening major cleanup funding cuts if the state does not agree to relax cleanup standards.

According to the watchdog group Keep Yellowstone Nuclear Free (KYNF), " The DOE has named its own INEEL the worst performing national lab in the country, and recommends shutting down the INEEL Environmental Management Program. The DOE Environmental Management (EM) program was identified as the worst performing DOE program, and INEEL the worst performing laboratory of the five largest EM sites. INEEL scored last in each of the three DOE ranking criteria: meeting its cleanup mission, cost/schedule performance, and resolving problems with its performance. In light of this abysmal ranking, the DOE proposes to cut program funding, reorganize, and accelerate cleanups and closures. The EM program is charged with cleaning up radioactively contaminated areas at the nation's nuclear labs, and storing the waste in national repositories."

"The fact that INEEL is the worst of the major DOE labs doesn't come as much of a surprise to us," said Erik Ringelberg, KYNF Executive Director. "While KYNF welcomes the DOE's admission of widespread mismanagement of radioactive and hazardous waste at INEEL, it will be a hollow admission if the DOE does not follow up this self-examination with significant safety upgrades and vastly improved hazardous waste stewardship," he said. "Beyond the problems found at INEEL, the DOE found that its national programs for cleanup and research were 'ineffective.' These are the programs responsible for keeping the public and the environment safe from radioactive and hazardous waste contamination," stated Ringelberg. " If all of this money and time has merely produced ineffective results, the public clearly has cause for concern."

(See www.yellowstonenuclearfree.com for more information) ⊗

INEEL Permit Ignores Flooding Potential

By David McCoy

The DOE consistently chooses to ignore the impact of Big Lost River Floods on INEEL waste management operations. Numerous floods over the last five decades contributed to the flushing of radioactive and hazardous contamination into the Snake River Plain Aquifer below the INEEL. It is bad enough that existing waste dumps pose a significant hazard to the aquifer, but when DOE builds **NEW** waste operations in the flood-plain, it is unconscionable.

The Permit application for the INEEL Advanced Mixed Waste Treatment Facility (AMWTF) fails to comply with the floodplain requirements of two separate Code of Federal Regulations.

Rather than address the 100-year flood coupled with the failure of Mackay Dam (upstream of INEEL), the scenario which DOE utilized for INTEC, the DOE is using an outdated 1993 study for the Radioactive Waste Management Complex (RWMC), the largest INEEL dump where the AMWTF is located. Studies used by DOE fail to address U.S. Geologic Survey (USGS) reports which indicate substantially higher flood elevations which could occur at RWMC. On the basis of an internal DOE 1993 study, written by Dames and Moore, the DOE makes the spurious claim that AMWTP "is <u>not</u> located within a 100-year flood-plain."

DOE refused to consider the implications of a 1998 U.S. Geologic Survey (USGS) study for INTEC, which showed higher flood elevations at INTEC with smaller volumes of floodwaters. This is another example at INEEL of the DOE pattern of picking and choosing studies to support the end goal of lower flood elevations or being outside the floodplain thus placing public health and safety at risk. The RWMC topographic map provided on the basis of the 1993 study is wholly deficient as a true accurate and complete description for the floodplain at RWMC. The 1993 study (p. 7) only examines flood values for "the watershed area contributing surface water runoff to the RWMC is approximately four square miles (2,592 acres). This area is not affected by the INEL diversion structure on the Big Lost River." Floodwaters from the collapse of Mackay Dam are not considered.

Nobel (1980) used a two-dimensional model with cells 530 foot on a side to simulate a peak flow in the area from the western INEEL boundary to the Radioactive Waste Management Complex (RWMC). He estimated that the depth of water at the RWMC resulting from the failure of Mackay Dam would be 6 feet.

Even without considering the studies, which show major flow volumes from the 100-year flood coupled with collapse of Mackay Dam, the RWMC structures may not be able to withstand the flood from the four square miles of watershed in the 1993 study. The 1993 Dames & Moore Study itself states (p. 66): "Field inspection of the dikes, railroad embankments, and culverts indicates that these structures may not be able to withstand a severe flood event. Design details of these structures are not readily available. If any of these structures fails, then the attenuation considered in routing flood hydrographs through the site drainage system will be partially or completely lost. This will result in comparatively higher flood peaks at the downstream locations. If the breach or breaches occur during a storm event they will generate flood waves similar to a dam-break situation. ... [T] he resulting flood peak may approach or exceed the PMF [probable maximum flood] peak. ... Evaluation of the impacts of such contingencies is beyond the scope of this study."

"A new hydrologic analysis and report are needed to describe the hypothetical 100-year floodplain caused by localized run-on/runoff at RWMC."

Failure of the INEEL diversion dam and/or the diversion channel dikes would also directly impact the Radioactive Waste Management Complex (RWMC) waste burial grounds and the site of the Advanced Mixed Waste Treatment (AMWTP) that likely will receive INTEC process waste. A 1986 USGS study shows the 100-year flood in the Big Lost River flood levels (at 7,200 cfs in the Diversion Channel opposite the RWMC at 5056 feet above sea level. The AMWTP permit shows building elevations at 5,019 and ground levels at the RWMC at 5,012. That is a difference of some 37 feet between flood levels in the Diversion Channel and AMWTP buildings. In blunt

terms, 37 feet under water if the diversion channel dikes fail, which is likely given the poor construction of the diversion dam itself and the same construction applied to the diversion channel dikes.

A 1976 USGS report notes, "The burial ground is within 2 miles (3.2 km) of the Big Lost River and the surface is approximately 40 feet (12 m) **lower than the present river channel**.

Sediments in the burial ground contain grains and pebbles of limestone and quartzite, suggesting that in recent geologic past, floodwaters of the Big Lost River flowed through the burial ground basin. Two eroded notches or 'wind-gaps' in the basalt ridge bordering the west of the burial ground also suggest past Big Lost River floods." "A large diversion system on the Big Lost River was constructed by the [Atomic Energy Commission predecessor to DOE] AEC to control flood waters by diverting water into ponding Areas A, B, C, and D. The nearest of these, Area B is less than a mile [south] from and about 30 feet (9m) **higher** in elevation than the burial ground."

USGS *Arco Hills SE* and *Big Southern Butte* quadrangle topographic maps clearly show the RWMC flooding vulnerability as do other USGS reports that note, "If [diversion] dike 2 [at ponding Area B] fails, large flows will drain directly toward the solid radioactive waste burial grounds." These vulnerabilities must be taken into consideration when DOE attempts to leave the buried transuranic waste at the RWMC and not exhume and relocate it to a safe permanent geologic repository outside of Idaho.

As previously noted, the 1986 USGS report "Capacity of the Diversion Channel Below the Flood-Control Dam on the Big Lost River at INEL" puts the expected flood level of 7,200 cubic feet per second (reduced assuming the remainder went onto the INEEL site) to overtop the diversion channel dikes at a level of about 5065 (msl) feet. There is some 46 feet difference between the AMWTP building level of 5019 feet and the expected flood level of 5065 feet mean sea level (MSL). The Diversion Channel dikes are constructed with the same deficient characteristics that forced subsequent INEEL flood analysis reports to discount their usefulness at all. In common English, that is a recipe for a flood at the RWMC and the AMWTP buildings that are the subject of this permit.

A more recent 1996 USGS report estimates the upper 95% confidence level for a 100-year flood at 11,600 cfs. These increased estimated flows of a 100-year flood are ignored by the DOE as are the non-speculative concurrent cascading vent of the failure of Mackay Dam which would add an additional 54,000 cps to the flood as cited above. Also DOE ignores the estimates of other flood input from Birch Creek (21,600 acre feet) onto the INEEL site, which will add to the flood level and back up to INEEL facilities.

DOE must present floodplain studies and an environmental analysis which are consistent, reliable and in compliance with federal law. A topographic map, which represents accurate floodplain studies based on known hydrologic information, must be furnished. DOE must additionally provide public hearings, which notice note the fact that the AMWTF is a critical action, planned within the 100- and 500-year floodplain for compliance with environmental regulations in the Code of Federal Regulations and the National Environmental Policy Act type analysis. ⊗

David McCoy is an environmental legal analyst who lives in Idaho Falls, Idaho. For a complete view of McCoy's Appellate Brief, EDI, and KYNF Amicus Curiae Briefs, see Environmental Defense Institute website at www.personalpages.tds.net/~edinst

DOE Inspector General Audit Says INEEL Unsafe

A March 2001 DOE Inspector General Audit Report states that "Idaho [INEEL] has not maintained its facilities in a safe and economical manner. Serious facility-related problems occurred because management did not develop a site maintenance plan... As a result, the Idaho facility maintenance program threatens mission accomplishment, personal safety, and it is un-economical." The Audit "identified examples of problems related to Idaho's facility maintenance program that may have been avoided if a more organized preventative maintenance program had been in place. For example the reports cite: 1.) backup power system failures that caused

evacuation of INTEC; 2.) Coolant system failure that caused shut-down of Advanced Test Reactor; 3.) Furnace explosion failure; 4.)Test Reactor Area potable water treatment failure; 5.) INEEL failure to address backlog of 311,000 hours of maintenance; 5.) Failure to address $362,700 in misappropriated funding from INTEC maintenance. (See report # WR-B-01-04). ⊗

EPA Region 10 Requests Extension on Environmentalist's Petition to Withdraw Idaho State Authority

The San Francisco-based Environmental Protection Agency Office of the Inspector General ordered EPA Region 10 in Seattle to make a detailed response by November 30, 2001 to a petition filed by nuclear watchdog groups, the Environmental Defense Institute, Keep Yellowstone Nuclear Free and David McCoy. EPA Inspector General request to Region 10 states: "The subject petition provides numerous examples of the failure of the State of Idaho Department of Environmental Quality [IDEQ] to properly administer RCRA and other environmental statutes."

EPA Region 10 requested an extension to the end of March 2002 to respond to the EPA's IG request to respond to environmentalists' petition.

One possible outcome of the EPA review could be changes to the Idaho hazardous waste management program. The Petition asks the EPA to halt the illegal operation of facilities at the INEEL without proper permits. The petition also asks for the full enforcement of the nation's clean air laws to be applied to operations of the INEEL, particularly evaporators which are improperly processing high-level radioactive and hazardous wastes.

The environmentalists' petition alleges serious violations of federal and state law in that Idaho allows long-term operation of hazardous facilities, such as nuclear waste incinerators without proper permits. Dangerous facilities are allowed to operate at less than the required levels of safety giving off toxic air emissions such as plutonium, beryllium, dioxins and mercury. Idaho fails to allow adequate public participation in the decision making process. Idaho fails to require outmoded, aged facilities such as tanks to shut down knowing that the requirements for permits cannot be obtained. ⊗

EPA and DOE War Over Clean Air Act Rules

EPA Administrator Christie Todd Whitman, supports strict enforcement of the Clean Air Act legislation which requires all new pollution sources to undergo a review program to make plants restrict emissions. DOE, on the other hand, wants the White House to revise the air pollution regulations and allow higher emissions and no compliance review.

The Bush Administration and DOE Secretary Spencer Abraham, as reported in a (2/19/02) New York Times article, plan to implement what the "high-powered energy lobbyists" want, non-enforcement of the Clean Air Act statutes. The Bush/Cheney team wants to revise the new source program that currently requires factories to modernize their pollution controls when they upgrade their plants.

Katharine Seelye, author of the New York Times article, states, "The [EPA] officials criticize the [Energy] Department for recommending changes in how regulators decide what level of emissions from plants or factories would trigger controls and for allowing plants to avoid stricter controls for 15 years under some circumstances. The current [DOE] draft report is highly biased and loaded with emotionally charged code words, the environmental agency says of the [Energy] Department's recommendation. The environmental agency again and again questions the legality of many Department proposals, saying they lack a solid legal rationale and are hard to justify from a legal perspective."

If DOE is successful, EPA says it "would vitiate this nation's clean air policy." DOE also stands to save tens of billions of dollars at its own operations at INEEL and other DOE sites by continuing to circumvent current emission

regulations. Old INEEL non-compliant radioactive and hazardous waste treatment plants would be allowed to operate for another 15 years. DOE has a huge economic incentive to push for passage of less restrictive emission regulations. With a fifteen-year relaxed regulatory window, DOE could incinerate the remaining one-million gallons of high-level radioactive waste in the INEEL tanks without being forced to upgrade its operations. If these changes in the already lax regulations are implemented, it will have a significant impact on the health and safety of downwind residents. ⊗

EPA Office of Enforcement Launches INEEL Investigation

In a separate initiative, the Environmental Defense Institute, and David McCoy filed a formal Petition with EPA's Washington, DC Office of Enforcement and Compliance Assurance (OECA). The Petition requests OECA investigate INEEL radioactive and hazardous air pollutant discharges, and compliance with the Clean Air Act. The OECA announced in November 2001, that the agency will investigate the INEEL air emissions, however the findings of the investigation have been systematically moved forward many times. OECA is asking us, as Petitioners, to provide additional documentation to substantiate our Petition allegations of violation of the Clean Air Act.

On the surface that is a legitimate request, however the reality is that concurrently DOE is denying us, as Petitioners, Freedom of Information Act requests for documentation needed to quantify INEEL's Clean Air Act violations. OECA, as regulatory compliance agency, is actively trying to get DOE to release the hazardous air pollutant documentation needed for a legitimate review of the compliance issue. According to OECA investigators, "that has not happened yet."

The Petition filed by EDI and McCoy focuses on the history up to the present of the noncompliant and lax regulatory environment and operations at INEEL during which both the State of Idaho (IDEQ) and EPA have allowed facilities such as the high-level New Waste Calcining Facility incinerator, Waste Experimental Reduction Facility incinerator, Process Equipment Waste Evaporator, Liquid Effluent Treatment and Disposal Facility, High Level Liquid Waste Evaporator, NWCF Debris Processing, and the INTEC Tank Farm Facility to operate without hazardous waste permits and in violation of environmental laws.

The Petitioners critically question how long the State of Idaho (as the EPA-designated permitting agency) will allow dozens of hazardous waste facilities to operate at INEEL before IDEQ makes a determination that the facilities cannot satisfy the informational and operational requirements necessary to grant or deny the permits. Federal hazardous waste laws under the Resource Conservation Recovery Act (RCRA) require compliant permitted operations or forced closure. Petitioners reject IDEQ's legal fantasy that interim status, a consent order, or the mere submission of a Part B application is a sufficient justification under RCRA to allow indefinite operations of INEEL facilities. IDEQ and DOE have developed a strategy of continuing operations at hazardous waste units which cannot comply with RCRA permitting requirements. These un-permittable units are allowed to continue to operate for decades by submission of dozens of revised RCRA applications which remain pending without approval or denial. Since 1980, more than 24 revised RCRA applications have been submitted for the same operations.

What concerns environmentalists and the public is that DOE, the State, and EPA will continue to play this decades-old game of stalling, while the incinerators burn. With respect to the liquid high-level waste, at some point in the near-term future (assuming continued Idaho amnesia), DOE will have processed the liquid portion of the high-level radioactive waste tank farm inventory sending untold pollution into the atmosphere from un-permittable treatment plants. Then DOE moves on to a quick and dirty (and illegal) fix of grouting the tank sediments (heels) in place and prancing off to the bank with awesome savings.

This is a literal sentence for a "nuclear sacrifice zone" that will continue, as it has in the past, to contaminate Idaho's sole source aquifer and compromise future generations. Is that the legacy we want to leave our kids? ⊗