INEEL NEWS

Environmental Defense Institute

News and Information on

Idaho National Engineering and Environmental Laboratory

December 2001 **Volume 12 Number 5**

EPA Inspector General Requests Formal Response from EPA Region 10 on Environmentalists' Petition to Withdraw Idaho State Authority

The San Francisco based Environmental Protection Agency Office of the Inspector General has ordered EPA Region 10 in Seattle to make a detailed response to a petition filed by nuclear watchdog groups, the Environmental Defense Institute, Keep Yellowstone Nuclear Free and David McCoy. EPA's Inspector General's 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." The Petitioners have also requested that the EPA Office of Inspector General investigate their allegations.

"This is heartening news for us as Petitioners to know that at least one section within EPA is taking our concerns seriously. Our concerns have been thoroughly documented with technical analyses as well as the administrative record of the IDEQ and the DOE," notes Chuck Broscious, Executive Director of the Environmental Defense Institute.

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 such 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.

Charles McCollum, Director of Environmental Protection Agency (EPA) Divisional Inspector General (IG) Western Audit Division delivered the formal request to EPA's Region 10 Administrator, John Iani on October 23rd.

Director McCollum stated: "In order to fully evaluate the Petitioners' allegations, we need the Agency's position on each allegation made by the Petitioners. For each allegation in the Petition, explain whether or not the Agency agrees or disagrees with the issue raised by the Petitioner. If the Agency disagrees, we also need the reason for the disagreement. For technical disagreements, provide the supporting documentation for the Agency's position. For disagreements based on interpretation of law or regulation, provide the basis for the interpretation. Please provide me this evaluation by November 30, 2001."

An earlier request for an EPA Inspector General investigation of IDEQ management of hazardous wastes was made by EDI, KYNF and McCoy in August, 2000. The Withdrawal Petition was filed in September, 2001 in response to the Region 10 EPA proposal to issue a final ruling to approve Idaho's enforcement authority. The filing of the September petition by the groups caused an automatic withdrawal by EPA of a ruling, which would have approved IDEQ to manage the hazardous waste program in Idaho. The IDEQ continues to manage the hazardous waste program during the period of review of the petition.

In October, the IDEQ filed a response with EPA Region 10 to our Petition that outlined the State of Idaho's position opposing our legal arguments. IDEQ states that our "Petition focuses on speculation, half-truths, inaccurate analyses and quotes from documents taken out of context. The Petition does not show any basis within the framework.... for

withdrawal of IDEQ's authorization nor presents any compelling reason for the EPA to initiate formal withdrawal proceedings."

The withdrawal Petition filed by EDI, KYNF, and McCoy focuses on the history up to the present of the noncompliant and lax regulatory environment and operations at INEEL during which IDEQ has allowed facilities such as the 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.

The Petitioners critically question how long the State of Idaho 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 where the units are allowed to continue to operate for lengthy periods of extended interim status, consent orders or submission of Part B applications which remain pending for years without approval or denial.

The high-level radioactive/hazardous waste Calciner incinerator operated since 1982 without satisfying requirements for a RCRA Part B permit. The Calciner is currently in stand-down pending the INEEL High-level Waste Environmental Impact Statement. It is not operating because the Petitioners filed a Notice of Intent to Sue (NOI) on May 5, 2000. The WERF nuclear waste incinerator (also the subject of Petitioners' NOI) operated from 1986 without obtaining or satisfying requirements for a Part B permit and, like the Calciner, never passed a single trial burn required to demonstrate compliance with emission standards.

The fact that closure proceedings have recently been proposed for the New Waste Calciner Facility incinerator is irrelevant to the historical fact that IDEQ allowed the NWCF to operate for over a decade without the prior characterization of the high-level radioactive wastes. Additionally, it operated as a less regulated thermal treatment unit instead of as an incinerator, and was used to process heavy metals (inorganic materials) as well as volatile organic compounds, which go out the stack, and jeopardize the public's health and safety.

No classification decision exists for the Process Equipment Waste Evaporator (PEWE) even though the PEWE has operated for five decades. The Liquid Effluent Treatment and Disposal (LET&D) evaporator has operated since 1993 and did not qualify for interim status and did not obtain a RCRA permit as a new facility. Contrary to IDEQ's assertion, a notice of noncompliance/consent order is not a RCRA permit.

The High-Level Liquid Waste Evaporator (HLLWE) has operated since 1996 without a permit as a means to concentrate high-level radioactive and hazardous waste in the INTEC tank farm waste. The HLLWE capacity was expanded by over 12 percent without meeting any modification requirements.

IDEQ currently fails to enforce the RCRA Expanded Public Participation Rule with respect to the HLLWE. In fact, the State acknowledges that IDEQ plans to slip the HLLWE into an indeterminate "later" modification to the PEWE permit. IDEQ fails to address the fact that the HLLWE has had no Part B Application submitted by DOE although the HLLWE evaporator has operated since 1996. Discussions have been underway regarding a Part B permit since 1996. Why has DOE or IDEQ not held a pre-application public meeting?

Operations at the above facilities continued under interim status because the IDEQ and DOE both knew that numerous facilities could not obtain permits for technical reasons. In 1996, DOE referred to all of the above facilities as "unpermittable." Additionally, because these hazardous waste operations were never RCRA permitted, they will not undergo the more stringent RCRA closure process if an when they are eventually shutdown.

IDEQ saw no RCRA problem with dangerous nuclear incinerators, which cannot obtain permits, operating for 15 or more years under interim status. IDEQ is certainly also correct that no Part B Permit

exists for the high-level radioactive waste evaporators at the INEEL, the Process Equipment Waste Evaporator, the Liquid Effluent and Disposal, and the High-Level Liquid Waste Evaporator.

IDEQ ignores the permitting issues raised by the withdrawal Petition surrounding the Tank Farm Facility and the failure of IDEQ to apply the Clean Air Act's MACT (Maximum Achievable Control Technology) standards to INEEL as an offsite waste processor. Petitioners acknowledge that IDEQ is not authorized to enforce MACT standards, however, violation of MACT standards by INEEL operations constitutes grounds for denial of RCRA permits because the statutes that established MACT intended a merger with the RCRA requirements.

The Environmental Defense Institute (EDI), and Dave McCoy filed a separate Petition with EPA Office of Enforcement and Compliance Assurance (OECA) in July 2001 requesting a formal determination on the applicability of new Clean Air Act (MACT) standards to INEEL radioactive and hazardous waste processing operations. OECA claims the Petition got "lost" but after persistent demands and refilling of the Petition, OECA now is formally processing the request.

Considerable credit for starting the agency process wheels turning goes to the independently funded EPA Office of Inspector General in Sacramento that, although belatedly, recognized the credibility of the issues extensively detailed in our Petitions. It is uncertain if the other regulatory agencies would have dumped our Petitions in the floor circular file without the involvement of the EPA Inspector General. Indeed, that is what occurred with a parallel Petition to DOE's Inspector General. Given that all things government are political, the extensive media coverage of the issue demonstrates that the public concern is broader than a few outraged environmentalists.

As Petitioners, we prefer a thorough investigative process by EPA's Inspector General, as opposed to a quick and dirty review. This is an extremely complex issue that deserves due process and so far the EPA/IG appears prepared to conduct a credible investigation. The courts also demand that all administrative remedies be exhausted before filing litigation. In other words, the various agencies have this opportunity to correct the problems now. ⊗

DOE Starts Construction on New Radioactive Hazardous Waste Dump in a Flood Zone above Snake River Aquifer

Despite protests from the public and environmental organizations, DOE started construction this summer on its new dump for 510,000 cubic yards of mixed radioactive and hazardous chemical waste. Translated into understandable numbers, that is a football field stacked 102 feet high with waste that could eventually percolate down into the aquifer.

This misguided decision to locate the dump, called the INEEL CERCLA Disposal Facility (ICDF), over the aquifer and in the Big Lost River 100-year flood zone, was made with the approval of the Idaho Department of Environmental Quality and EPA under a Superfund (CERCLA) cleanup 1999 Record of Decision.

CERCLA was intended as a process of remediating contaminated sites, not as a process of approving major hazardous waste treatment and disposal operations. The Resource Conservation Recovery Act (RCRA) and the National Environmental Policy Act are the legitimate legal processes established by law, because of the extensive operational standards and public involvement requirements. CERCLA does not have comparable "equivalency" standards to RCRA and NEPA, which is why the agencies chose to ram this project through CERCLA.

The ICDF simply could not meet the stringent requirements in RCRA, and indeed the agencies have no intention of applying for a RCRA permit. The ICDF could also not survive the NEPA process because DOE would be forced to consider credible alternatives to their preferred location in a flood zone, over the Snake River sole source aquifer.

This arrogant repetition of past disastrous waste management practices with the collusion of the State of Idaho and EPA Region 10 is why the public's only recourse is to file Notices of Intent to sue in federal court to ensure compliance with environmental law.

The article below discusses the reality Idahoans face with respect to contamination of the region's sole source aquifer from past mismanagement of

radioactive and hazardous waste at INEEL. In the interest of public health and future generations we must collectively challenge these illegal operations.

DOE, again with the State and EPA Region 10's blessing, is also constructing a series of new unlined waste-water percolation ponds. These ponds are intended to replace the current percolation ponds at INTEC which are responsible for much of the perched ground water and aquifer contamination under the site. DOE will pump over **three million gallons of waste-water per day** into about 4 ½ acres of these seepage pits, which adds to the existing contaminated "perched water" and thus drive the pollution further into the aquifer. See the table at the end that shows the severity of this perched water contamination at the Test Reactor Area immediately north of these new percolation ponds.

DOE's own reports show an overlap of perched water contaminate plumes between the Test Reactor Area, INTEC (formerly called Chem Plant or ICPP), and the new percolation ponds. Lateral movement of pollution between the porous inter-beds of perched water is documented. There is no scientific doubt that continued recharge of more pollution via the percolation ponds will hydraulically flush contaminates into the aquifer.

Uniquely egregious is the decision by the State and EPA Region 10 to allow DOE to dump this waste and not meet discharge compliance regulations ("point of compliance") **until after it** reaches the perched ground water zone. A literal translation is that the State and EPA will not take an interest until **after** the groundwater is contaminated and no remedial cleanup is possible, even assuming the regulators take any action at all. In the past, regulators have demonstrated little political will for action.

Apparently, one of the ways DOE is meeting even these lax "requirements" is through extensive dilution of the waste with "clean" water pumped from the INTEC production wells. Internal DOE documents acknowledge that INTEC production wells (501 & 502) for drinking water themselves are not "clean" and fail standards. Dilution is specifically prohibited by RCRA hazardous waste laws for the obvious reason that waste generators could otherwise circumvent the law and avoid properly treating their hazardous waste discharges to the environment. ⊗

Radioactive and Chemical Pollution from Nuclear Waste Dumping Endangers Snake River Plain Aquifer

A recent 132-page study published by a nationally recognized environmental research group identifies major long-term problems looming for Idaho's ground water supply.

"Nuclear waste dumped at the Idaho National Engineering and Environmental Laboratory (INEEL) is polluting the Snake River Plain aquifer, the primary source of drinking water for 200,000 people, according to a new report. *Poison in the Vadose Zone: An examination of the threats to the Snake River Plain aquifer from the Idaho National Engineering and Environmental Laboratory*, by the Institute for Energy and Environmental Research (IEER), warns that this important water resource faces further contamination from the migration of long-lived radionuclides and hazardous chemicals from nuclear weapons production wastes buried at the site. The Snake River Plain aquifer is the second largest unified aquifer in North America and the most important underground water resource in the northwestern U.S. *Poison in the Vadose Zone* is the first report to comprehensively compile and analyze the available data on the threat posed by plutonium and other transuranic materials to the Snake River Plain aquifer."

"For fifty years, nuclear weapons production has resulted in large quantities of radioactive and hazardous chemical waste being injected directly into the aquifer, discharged into surface ponds, or dumped into shallow pits and trenches," said Dr. Arjun Makhijani, principal author of the report and president of IEER. "These contaminants pose a serious threat to the lifeblood of the region, the Snake River Plain aquifer."

"According to the report, official US government data indicate that more than one metric ton of plutonium, packaged in nothing more than cardboard boxes, wooden boxes, or 55 gallon drums, was dumped into shallow trenches on the site in the 1950s and 1960s. Rain, snow, and occasional flooding of the trenches have already caused migration of some

radioactive and hazardous materials towards, and in some cases into, the aquifer. Evidence has existed for more than 25 years that these long-lived radionuclides are migrating through the vadose zone to the aquifer much faster than anticipated."

"Sound scientific work indicating threats to the Snake River Plain aquifer has long been ignored by the U.S. Department of Energy (DOE)," stated Michele Boyd, co-author of the report and IEER's global outreach coordinator. "Plutonium and americium have been detected in the vadose zone, which is the unsaturated area between the ground surface and the aquifer, and in the aquifer since the 1970s. Plutonium is moving through the vadose zone to the aquifer thousands of times faster than assumed by a wait-and-see policy that dominates DOE's approach to clean-up of these dumps."

"While the threat to the Snake River Plain aquifer from the buried wastes increases, the DOE has focused on transporting "stored" transuranic wastes, which are kept in relatively secure conditions indoors at INEEL, to the Waste Isolation Pilot Plant (WIPP) in New Mexico."

"Paul Schwartz, Director for Water Policy of Clean Water Action, in welcoming the report said, "Activists and policy-makers should pay far more attention to the threat posed to the purity of critical water supplies in the United States by past radioactive dumping. Clean Water Action is certainly going to do so. There is no room for complacency when it comes to plutonium and americium."

"The DOE buried more plutonium containing waste at INEEL than at any other nuclear weapons site. Direct injection of radioactive and hazardous substances into the Snake River Plain aquifer and dumping of wastes into percolation ponds resulted in plumes of pollutants like strontium-90, iodine-129, and TCE in the aquifer. Some areas under the site are contaminated at levels far above the Safe Drinking Water standards set by the U.S. Environmental Protection Agency. [T]hese standards...indicate the severity of the problem of water pollution due to past waste dumping and the need for clean-up. The IEER report recommends that:

- buried wastes be recovered from the dumps and processed in order to stabilize them for storage,
- all shallow land burial of radioactive wastes be stopped,
- the vadose zone be remediated to the extent possible, and
- a more vigorous groundwater monitoring program be implemented."

"This will not be a simple project and will need to be carried out carefully, with due regard for worker safety," said Dr. Makhijani. "But it is a project that is essential for protecting the health of the Snake River Plain aquifer and also for security. If site control is lost, the dumps would be a potential nuclear weapons mine since they contain more than 200 nuclear bombs worth of plutonium." Also see http://www.ieer.org for more information.

The IEER study also determined: 1.) "The total radioactivity with half-lives greater than 100 years would require 10 times the volume of the Snake River Plain aquifer to achieve allowable drinking water levels." 2.) "The highest concentration of the [toxic volatile organic compound] TCE plume is 640,000 % greater than the drinking water standard." 3.) "[T]he Safe Drinking Water standard of 15 picocuries per liter for alpha emitting transuranics like plutonium-238, or americium-241 allows doses on the order of a hundred times higher than the 4 millirem annual limit specified for most beta emitters. A concentration of plutonium of only about 0.08 picocuries per liter (pCi/L) in drinking water is required to produce a dose of 4 millirem per year to the bone surface (critical organ for plutonium)." DOE documents show amercium-241 in concentrations of 1.97 pCi/L 4.) "While each single pollutant as well as the sum of the [INEEL RWMC dump] radionuclide pollution percentages are currently less than allowable drinking water limits, the cumulative burden is [146%] greater than the allowable drinking water limits in the RWMC well if TCE and carbon tetrachloride are added." 5.) "In particular, strontium-90 and cesium-137 have half-lives (roughly 30 years) that are long enough to have a potentially significant impact offsite because groundwater in the Snake River Plain aquifer flows an average of about one kilometer per year." 6.) "Measurements of plutonium in the groundwater have long shown that its migration rates in the vadose zones at various U.S. nuclear weapons sites in a variety of climatic and

geologic settings have been orders of magnitude faster that those presumed by a policy of shallow-land dumping." 7.) "The early estimates were tens of thousands of years; the most recent ones are tens of years." 8.) "While there is need for further research on the mechanisms and speed of transport, there is sufficient evidence to conclude that the buried wastes at INEEL present an urgent threat to the Snake River Plain Aquifer and all the people who depend on it." 9.) "Since the prevailing scientific opinion, on which radiation regulations are based, is that every increment of dose produces a proportional increment of cancer risk – i.e., there is no threshold of exposure below which radiation can be deemed harmless, - the contamination levels should be kept as close to zero as possible..."

This IEER study of ground water under the INEEL substantially advances the public knowledge of the issues, unfortunately the study did not include the most serious vadose zone contamination at INEEL. The 1992 Record of Decision (ROD) for the Test Reactor Area Perched Water System co-published by DOE, State of Idaho, and EPA document that the contaminate levels are much worse than what the above discussed IEER study identified. See the following table derived from the DOE published ROD data.

Although the IEER study covered vadose zone contamination under INTEC (formerly called ICPP), the report missed well (MW-2) sample data in the 1995 ICPP Remedial Investigation/Feasibility Study that shows strontium-90 concentrations at 516,000 pico curies per liter (pCi/L) which is 7,000 times over the 8 pCi/L federal maximum concentration level for drinking water.

IEER mistakenly restates the DOE claim that: "As of February 1998, all of the liquid high level waste derived from first cycle uranium extraction had been converted to calcine." Even the normally muted State of Idaho challenges this DOE claim in the forward to the Draft INEEL High-level Waste Environmental Impact Statement. The State rightly stipulates from a regulatory perspective, all waste in the INTEC High-level Tank Farm is "high-level" regardless of DOE's attempt to reclassify it as a lesser hazardous waste and thus circumvent regulatory requirements for high-level waste disposal. This classification distinction includes what is called "sodium-bearing waste." The State of "Idaho maintains that sodium-bearing waste in the INTEC Tank Farm is high-level waste (HLW)." "DOE, however, maintains that only the liquid from the first reprocessing cycle is HLW. This difference of interpretation does not change the environmental impacts of this EIS's alternatives." [HLW/EIS@F-3]

IEER incorrectly states, "The Calciner was operated with only an interim Part A Resource Conservation and Recovery Act (RCRA) permit for 15 years." As the first article in this newsletter points out, there is no such thing in the statutes. RCRA applications, interim status, or consent orders are **NOT permits**. The Calciner incinerator along with other INEEL radioactive/hazardous waste processing operations function outside of the RCRA and Clean Air Act laws and emission regulations.

The above critique is intended as constructive commentary and in no way challenges the fundamental IEER finding that there is a serious problem related to migration of INEEL radioactive and chemical pollution into Idaho's Snake River Aquifer. The comments offered here document that the problem is substantially more severe. IEER in the past and in current publications has substantially advanced the public's knowledge about nuclear issues. ⊗

What is Wrong with this Picture?

Every year, American taxpayers fund federal and state environmental and public health agencies with hundreds of millions of dollars. What do we get with our tax dollars? Do these government agencies have protection of the public and the environment for future generations at the top of their collective agenda?

Non-governmental organizations (NGO) function with paltry funding from small progressive foundations and individual public contributions. It is categorically impossible given such limited resources that NGO's can provide a comprehensive oversight of federal and state government regulatory actions. Analysis of the sheer volume of information, the bulk of which is just irreverent fluff, requires enormous time and resources that NGO's simply do not have. In a perfect world, the taxpayer-funded regulators are presumably covering these bases. Clearly, that is not happening. ☮

Test Reactor Area Perched Ground Water Sample Data

Nuclide	Concentration pCi/L	EPA 1976 Standard pCi/L	Number Times over EPA Standard.
Cobalt-60	12,200,000	100.00	122,000.0
Zinc-65	105,000	300.00	350.0
Cesium-134	62,400	8.13*	7,675.0
Cesium-137	21,000,000	119.0*	176,470.0
Europium-152	108,000	60.00	1,800.0
Europium-154	130,000	200.00	650.0
Europium-155	20,400	600.00	34.0
Americium-241	16,700	6.34	2,634.0
Chromium-51	2,540,000	6,000.00	423.0
Iron-59	2,600	200.00	13.0
Zirconium-95	11,500	200.00	57.5
Niobium-95	12,000	300.00	40.0
Ruthenium-103	3,970	200.00	19.8
Rhodium-106	4,980	30.00	166.0
Silver-108	14,400	90.00	160.0
Cerium-141	6,140	300.00	20.4
Ytterbium-175	3,500	300.00	11.6
Hafnium-181	136,000	200.00	680.0
Tantalum-182	3,180	100.00	31.8
Plutonium-239	12	15.00	0
Uranium-234	520	13.9*	37.0
Strontium-90	18,000	8.00	2,250.0
Tritium	3,940,000	20,000.00	197.0

[DOE/IDEQ/EPA Record of Decision, 12/92 Test Reactor Area Perched Water System] [Administrative Record, TRA Summary Tables of Chemical and Radiological Analysis, Appendix G-484 and 485, Analytica-ID-12782-1 @ D-615 to D-632] [EPA-570/9-76-003][1976 EPA Standard MCL is the current rule, a new proposed rule has not been promulgated because it has been found not to be protective] *[FR-7/18/91 Proposed MCL] Expressed in Pico Curies per liter (pCi/L)