Environmental Defense Institute
Troy, Idaho 83871-0220

November 3, 2006

Toni Hardesty, Director (sent email)
Idaho Department of Environmental Quality
1410 North Hilton
Boise, ID 83706-1255

Robert Bullock (sent via email)
Hazardous Waste Permitting Manager
Idaho Department of Environmental Quality
1410 North Hilton
Boise, ID 83706-1255

Brian English (sent via email)
Idaho Department of Environmental Quality
1410 North Hilton
Boise, ID 83706-1255

John Medema (sent via email)
Department of Energy, Idaho Operations Office
1955 Fremont Ave.
Idaho Falls, ID 83415-1222

RE: Preliminary Comments on Department of Energy Class 3 Draft Modified Permit to the Volume 14 for the Idaho Nuclear Technology and Engineering Center (INTEC) at the Idaho National Laboratory, Permit Number EPA ID No. ID4890008952I
INTEC Liquid Waste Management System and the Integrated Waste Treatment Unit

Section I: Summary

The Department of Energy (DOE) Idaho National Laboratory (INL) contractor CH2M-WG issued a public notice mailing (August 21, 2006) on a PMR modification request ("PMR") that offered inadequate discussion on this project and no "on-line" access to the PMR documentation.

The DOE quickly posted a "Draft Modified Permit" in August 2006 that has no official public comment provisions. [1] Apparently, Idaho Department of Environmental Quality (IDEQ)

[1] Department of Energy Draft Modified Permit of the current "INEEL: ILWMS Partial Permit, signed by Toni Hardesty, Director IDEQ, 9/16/04, hereinafter called "Draft Permit." Available on IDEQ's website below; http://www.deq.idaho.gov/waste/permits_forms/permitting/haz_waste/ilwms_permit/overview.cfm

22E
will eventually issue a semi-final "Revised Draft Permit" for public comment. The below Environmental Defense Institute (EDI) preliminary comments are on the DOE's "Draft Modified Permit." EDI appreciates IDEQ's willingness to post these pre-decisional documents on its website. EDI's final comments will be submitted when IDEQ issues the semi-final "Revised Draft Permit."

The 60-day comment period is inadequate given the importance of this major new operation and the potential for significant environmental impact. Therefore, EDI requests that the comment period be extended to 90 days to IDEQ "Revised Draft Permit" of the more than 550+ pages of documentation. Hopefully, IDEQ will not again bury the Revised Draft Permit in some obscure location on its website as it did previously with other drafts.

EDI has always supported the safe conversion/treatment of INTEC high-level tank waste inventory into a waste form that would not pose a continued threat to the underlying Snake River Aquifer. EDI, however, protests DOE's attempt to circumvent applicable Resource Conservation Recovery Act (RCRA), Hazardous Waste Management Act, and Clean Air Act regulations.

One of the numerous and crucial deficiencies of this Draft Permit is that it only addresses hazardous materials and totally ignores radioactive materials released to the atmosphere. The Permit must address compliance with all applicable regulations. [2] This is a crucial issue because during 2003, INTEC released 6,002 curies of radioactive emissions to the atmosphere. [3] By any standards, this is an enormous amount of radiation to the environment! [4] Since the new Integrated Waste Treatment Unit (IWTU) is part of the multi-process INTEC Liquid Waste Management System (ILWMS) that is treating the most radioactive waste on earth, this is an unacceptable exclusion. This Permit belatedly includes the main ILWMS component units that include:

- Integrated Waste Treatment Unit (IWTU) treating formerly classified high-level waste
- Evaporator Tank System (ETS) formerly called the High-level Liquid Waste Evaporator
- Process Equipment Waste Evaporator (PEWE)
- Liquid Effluent Treatment and Disposal (LET&D)

No one outside DOE will challenge the Department's creative moves to change the names of processes in a blatant attempt to obfuscate the legal definitions in the regulations. This Draft Permit is no exception! Even the most pedestrian observer of this Permit will conclude that DOE's "bait and switch" is illegitimate and continues to compromise public health and safety.

Although the Integrated Waste Treatment Unit (IWTU) does not meet the legal definition of incinerator (open flame combustion) that DOE calls "Steam Reformer," it meets every other regulatory definition of a "combustion unit," "high-temperature thermal treatment," and controlled pyroforic high-temperature burn (1,150 degree C), using induced fuel in the form of combustible carbon (coal) and oxygen as a means of maintaining the high temperature for reducing the waste in a fluidized bed to a granular calcine like waste product.

---

[2] 40 CFR 191.27 (notes 5 and 6) as well as 40 CFR 61 Subpart I.

[3] Draft Environmental Impact Statement for the Proposed Consolidation of Nuclear Operations Related to Production of Radioisotope Power Systems, DOE/EIS-0373D, page 3-26.

[4] By comparison, the Three Mile Island reactor meltdown released between 13 and 23 curies.

33E

Regardless what DOE calls this new IWTU and other ILWMS operations they must be independently defined by a independent characterization of the treatment process implemented.

"A temperature of 1,150 C is the same as the operating temperature in the turbine (hot end, in the direct blast of the burning fuel/air mixture) of a jet engine. This is bright red heat, enough to melt copper & incinerate almost anything, but the mere idea of burning previously classified high level waste & not monitoring or controlling the resulting emissions seems to me to be beyond stupid & without regard to public safety," notes a University of Idaho Engineering Materials Science professor.

DOE's PMR claims the new IWTU will process "approximately 836,000 gallons of mixed liquid waste, containing both hazardous and radioactive components stored in three 300,000-gallon tanks." [5] However the Permit claims; "Permitted/Prohibited Waste to be Treated: Treatment of hazardous only (no radioactive waste component) waste is not authorized." [6] The purpose of the IWTU is to treat the Sodium Bearing Waste currently in the INTEC high-level waste tank farm and even DOE acknowledges this waste is remote-handled mixed hazardous and radioactive Transuranic waste for disposal at the Waste Isolation Pilot Plant (WIPP).

Therefore, DOE is violating the Permit by treating radioactive waste.

These are only current liquid waste inventories and do not include DOE plans to restart spent nuclear fuel reprocessing that will generate significant volumes of "newly-generated" high-level liquid waste. This is an enormous amount of extremely deadly waste to treat and the potential for significant emissions that could affect the public and the environment must be recognized.

DOE states: "The units that comprise the [INTEC Liquid Waste Management System] ILWMS are capable of handling high-level, transuranic, and low-level radioactive wastes. Activities of typical wastes range from<20 nCi/g to 50,000 nCi/g. The exposure rates associated with these process solutions routinely exceed 100 mrem/hr and can pose a potentially serious hazard to workers at the INL if appropriate protective measures such as time, distance and shielding are not applied." [7]

DOE's reported intent to restart reprocessing of spent nuclear fuel (SNF) at INL lends credence to public concerns that the IWTU is not just dedicated to treating existing high-level waste tank inventories, but also facilitating managing "newly-generated-waste" from reprocessing of SNF. [8]

1. DOE Draft Permit Discussion of Process Vents

"Process Vent" is a broad Resource Conservation Recovery Act (RCRA) regulatory category for a major source of hazardous air pollutants that must comply with more restrictive EPA emission regulations. DOE has been and continues to side-step compliance with these emission regulations with bogus assertions that their hazardous and radioactive waste treatment

[5] PMR, Attachment 1, page 1-D-134
[6] IDEQ Draft Permit, page74
[7] PMR, Attachment 2, Section C, pg. 2-6. (nCi/g = nano Curies per gram) (mrem/hr = millirem per hour)
[8] PMR, Attachment 2, Section C, pg. 12

44E
operations are NOT Process Vents. IDEQ is complicitous in this charade by allowing DOE's obfuscation of the law. [9]

DOE claims: "The IWTU does not involve distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operations. As such, the IWTU stack does not meet the definition of a process vent in IDAPA 58.01.05.008 (40 CFR § 264.1031) and the requirements specified in 40 CFR 264 Subpart AA do not apply." [10] Yet, the Draft Permit approves and states; "Treatment by Distillation, Evaporation or Steam Reforming." [11]

Moreover, 40 CFR 264.1031 states: "Process vent means any open-ended pipe or stack that is vented to the atmosphere either directly, through a vacuum-producing system, or through a tank (e.g., distillate receiver, condenser, bottoms receiver, surge control tank, separator tank, or hot well) associated with hazardous waste distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operations.

"Distillation operation means an operation, either batch or continuous, separating one or more feed stream(s) into two or more exit streams, each exit stream having component concentrations different from those in the feed stream(s). The separation is achieved by the redistribution of the components between the liquid and vapor phase as they approach equilibrium within the distillation unit.

"Fractionation operation means a distillation operation or method used to separate a mixture of several volatile components of different boiling points in successive stages, each stage removing from the mixture some proportion of one of the components.

"Distillate receiver means a container or tank used to receive and collect liquid material (condensed) from the overhead condenser of a distillation unit and from which the condensed liquid is pumped to larger storage tanks or other process units."

Clearly, the IWTU meets two or more of the above definitions of a "process vent" under 40 CFR 264.1031. DOE cannot credibly claim exemption of this crucial RCRA emission control regulation. Moreover, IDEQ fails to ensure that DOE is in violation and challenge this unfounded exemption.

DOE's PMR includes other liquid waste treatment units and claims: "The [Process Equipment Waste Evaporator] PEWE and [Evaporator Tank System] ETS off-gas is processed through vessel off-gas systems in Buildings CPP-604 and CPP-659 respectively and then sent to the APS in Building 649, prior to discharge to the main stack. Therefore, the PEWE and ETS vents do not meet the definition of a process vent and IDAPA 58.01.05.008 [40 CFR § 264.1031] does not apply." [12]

Again, the PEWE and ETS meet one or more of the above definitions of a "process vent" under 40 CFR 264.1031. DOE cannot credibly claim exemption of this crucial RCRA emission control regulation. IDEQ must change its position and force DOE to comply with RCRA and ensure (for the sake of public health and safety) that DOE is not allowed to use this unfounded exemption.

The above DOE PMR does not implement new: "EPA (2005) recommendations that organics and metal emissions be increased by factors of 2.8 and 1.45 respectively, to account for

[9] IDEQ Draft Permit, page 32. Also IDEQ 10/3/06 Notice of Deficiency for the Integrated Waste Treatment PMR Modification Request contains no mention of Process Vent regulation applicability.
[10] PMR, Attachment 2, Section C, page 2-52
[11] IDEQ Draft Permit, page 76.
[12] Draft Permit page 32, and PMR, Attachment 2, page 2-52

55E
potential increases in emissions due to process upset conditions." [13] Also, there is no apparent cumulative hazardous/radioactive emissions data for all the INTEC operations using the same Main Stack, other co-located stacks, and the new IWTU stack as required in the regulations. This is a crucial issue because during 2003, INTEC released 6,002 curies of radioactive emissions to the atmosphere. [14] By any standards, this is an enormous amount of radiation to the environment!

2. INTEC Liquid Waste Management System (ILWMS) PMR Tank Issues

DOE plans to continue using RCRA non-compliant tanks and ancillary service lines and equipment. DOE's Draft Permit only lists about 53 tanks and fails to provide crucial information about each tank. [15] Apparently, all of the functioning tanks are not listed in the Draft Permit.

Twelve of the tanks (listed in the PMR) date back to 1951, and nine tanks date back to the 1970s and 1980s, long beyond their 20-year design life. An additional 18 tanks have no "certification stamp." That is a total of 39 tanks that are non-compliant. **The ASME design standards [16] for the other tanks are only relevant if the tanks have not already exceeded their design life. DOE must stipulate the ASME design life and age for each of the tanks listed in the PMR along with the anticipated years of future operational use.**

RCRA secondary containment requirement in tank vaults is compromised by DOE's use of "gerry-rigged" Hypalon liners with dubious joint sealants that are not compliant or certified for waste contained in tanks. Extensive use of old non-compliant "drip troughs" in ancillary service lines instead of the required welded stainless steel secondary containment with continuous monitoring, are grounds for denying the Permit under 40 CFR 270.42. [17]

ILWMS "Bottoms Tanks" do not meet required secondary containment under RCRA. DOE's Permit states: "The secondary containment is constructed of concrete floor lined with a Hypalon® membrane (registered trademark of DuPont), which extends three feet up the walls.[18] All seams in the secondary containment are heat-welded or adhesive 14 bonded to avoid any cracks or gaps. The membrane is sealed around the tank saddles by silicone rubber 15 sealant that is capable of withstanding the expected waste solutions for extended periods of time. " [19]

The above DOE disclosure of use of non-certified "silicone sealant" that is "capable of withstanding the expected waste" for some vague undocumented "extended period of time" is grounds for denial of the Permit under 40 CFR 270.42 because it does meet regulatory requirements for secondary containment.

Twelve of the CPP-641 listed tanks date back to the early 1950s, 45 years beyond their 20-year design life. Nine of the above tanks put into service in the 1960s and 1980s are also long beyond their design life. An additional four tanks have no certification stamp.

So a total of 26 tanks (just in CPP-641) are not in compliance. The ASME design standards for the other tanks are only relevant if the tanks have not exceeded their design

---

[13] PMR, Attachment 1, page 1-D-138

[14] Draft Environmental Impact Statement for the Proposed Consolidation of Nuclear Operations Related to Production of Radioisotope Power Systems, DOE/EIS-0373D, page 3-26.

[15] DOE Draft Modified Permit, pages 42 through 64.

[16] American Society of Mechanical Engineers (ASME)

[17] USDOE Idaho Operations Office RCRA PMR Modification Request for Idaho National Laboratory, August 2006, herein after referred to as PMR. Attachment 1-D-Process pg. 99

[18] Draft Permit, page 42, 47, and 48.

[19] PMR, Attachment 1, page 1-B-10

66E
life. DOE must provide documentation on each tanks design life and age to validate their continued use through the operational life of the ILWMS.

The PMR tank table states: "No code stamp required??" The code stamp is a RCRA requirement and is the only legitimate verification that the tank does in fact meet the standard. Again, these tanks are likely beyond their 20-year design life. Therefore, DOE must provide documentation on each tank design life.

Again, the ASME design standards for the tanks are only relevant if the tanks have not exceeded their design life and future operational planed use. DOE must provide documentation on each tanks design life to validate their continued use through the operational life of the ILWMS.

DOE's PMR acknowledges secondary containment in waste service piping: "Concrete-embedded transfer lines have been identified at the ILWMS." [20] This is a violation of compliance with 40 CFR § 264.193(f) that requires monitored leak collection and welded stainless steel secondary containment. Although DOE claims its intent to upgrade or reroute these service lines, there is no apparent confirmation that all of these upgrades has occurred.

RCRA does not provide for the above DOE claimed exemptions. Therefore, the Permit is deficient. Extensive use of old non-compliant "drip troughs" in four other buildings' ancillary service lines instead of the required welded stainless steel secondary containment with continuous monitoring, are grounds for denying the Permit [21]

DOE's PMR states that; "No viable pathway exists for migration of hazardous waste or hazardous constituents from the waste treated in the PEWE, LET&D, ETS, or IWTU to the soil, ground water, and/or surface waters." [22]

DOE's above statement is not true because of the extensive soil and groundwater monitoring data under INTEC showing massive contaminate migration to the soil and groundwater. As these comments articulate the ILWMS process off-gas systems are inadequate, and DOE's attempt to exempt these process vents from regulatory compliance, is clear evidence that they would not meet critical scrutiny on compliance.

According to IDEQ, major portions of the Permit have been redacted (censored) as "proprietary information." [23] This redaction/censorship of pertinent information is unacceptable in EDI's view because it shows the flow charts outlining the inter-connection of the various operations as well as other crucial information! IDEQ must force DOE to fully disclose all process information.

DOE acknowledges that; "The INTEC was designed and built using a variety of Architectural Engineers (AE) over the past 50 years. Those AE's used different line identifier, instrumentation identifiers, etc. As buildings were designed and constructed, the current architectural engineering standards for the time period were used. The diagrams of the processes submitted to the IDEQ span more than 50 years." [24]

What confidence can the public attribute to this grossly out-dated documentation and standards even if it were made public?

Finally, IDEQ must take a more critical review of this Draft Permit than it has taken with

[20] PMR, Attachment 1-D, page 1-D-87
[21] PMR, Attachment 1-D-Process pg. 99
[22] PMR, Attachment 1-D, page 1-D-104
[23] IDEQ email 9/6/06 to Broscious
[24] PMR, Attachment 1, page 1-D-72

77E
previous INL Liquid Waste Management System RCRA PMR and DOE's Draft Modified Permit because of the extreme hazard this remote handled mixed transuranic waste treatment poses to the public. [25] Moreover, there is no "path-forward" for the final waste form, so IDEQ must ensure that DOE develop a credible regulatory compliant interim storage for this waste until the final geologic repository is designated.

The Idaho Department of Environmental Quality has taken a position supporting the Current Permit deficiencies and appears ready to issue similar findings for the new proposed permit. In the past, IDEQ chose to put the politically expedient ruling of Idaho's single largest employer ahead of public health and safety. Public comment is crucial to reversing this miss-guided priority.

Section II: DOE Draft Permit Discussion of Process Vents

1. Process Vents

DOE claims in its PMR "SUBPART AA, SUBPART BB AND SUBPART CC APPLICABILITY [IDAPA 58.01.05.008; 40 CFR §§ 264.1030, 264.1050, AND 264.1080]; 40 CFR 264 Subpart AA requires owners or operators of facilities with process vents associated with distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operations managing hazardous wastes with organic concentrations of at least 10 ppmw to either: 1) reduce total organic emissions from all affected process vents at the facility below 1.4 kg/hr (3 lb/hr) and 42.8 Mg/yr (3.1 tons/yr); or 2) reduce, by use of a control device, total organic emissions from all affected process vents at the facility by 95 weight percent. A process vent is defined in 40 CFR 264.1031 as any 6 open-ended pipe or stack that is vented to the atmosphere either directly, through a vacuum-producing system, or through a tank associated with hazardous waste distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operations. "

DOE's Draft Permit illegally adopts [26] previous DOE claims that; "The IWTU does not involve distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operations. As such, the IWTU stack does not meet the definition of a process vent in IDAPA 58.01.05.008 (40 CFR § 264.1031) and the requirements specified in 40 CFR 264 Subpart AA do not apply." [27]

DOE PMR claims: "Wastes in the process condensate collection tanks (VES-WL-106, -107, and -163) are sampled for [total organic compounds] TOC before being transferred to the LET&D facility. Historical sample results of the LET&D feed have been in the range of 30 to 200 ppm for TOC. Therefore 40 CFR Subpart AA is applicable to the LET&D facility." [28]

"The LET&D facility off-gas system [total organic compounds] TOC emissions are controlled per the following calculations 22 and methodology: 23 3 lbs/hr (454 g/lb) = 1362 g/hr = 1,362,000 mg/hr; maximum feed rate = 550 gal/hour; 25 (550 gal/hr) (3.785 liters/gal) = 2,079 L/hr 1 (1,362,000 mg/hr) / (2,079 L/hr) = 655.1 milligrams/L = 655.1 ppm."

It is uncertain that 40 CFR 264 Subpart AA and/or new EPA standards are met that requires owners or operators of facilities with process vents associated with distillation,

---

[25] PMR, Attachment 2 Section C, page 17
[26] Draft Permit, page32 and 33.
[27] PMR, Attachment 2, Section C, page 2-52
[28] INL HWMA/RCRA INTEC Liquid Waste Management System Part B PMR Attachment 2, Section C, Waste Characteristics Volume 14 Revision Date: January 23,August 2006 2-53

88E
fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operations managing hazardous wastes with organic concentrations of at least 10 ppmw to either: 1) reduce total organic emissions from all affected process vents at the facility below 1.4 kg/hr (3 lb/hr) and 42.8 Mg/yr (3.1 tons/yr); or 2) reduce, by use of a control device, total organic emissions from all affected process vents at the facility by 95 weight percent.

Again, IDEQ's Draft Permit misguidedly adopts [29] DOE claims "40 CFR 264 Subpart BB Applicability IDAPA 58.01.05.008 (40 CFR 264 Subpart BB) applies to equipment that contains or contacts hazardous wastes with organic concentrations of at least 10% by weight. Sampling of the PEWE, system and ETS, and IWTU inputs have shown the maximum TOC contained in the waste to be less than 800 ppm. Since the TOC is less than 10 percent by weight, the requirements of 40 CFR 264 Subpart BB do not apply**."**

The above DOE Permit does not implement new: "EPA (2005) recommendations that organics and metal emissions be increased by factors of 2.8 and 1.45 respectively, to account for potential increases in emissions due to process upset conditions." [30] [emphasis added]

DOE further claims "40 CFR 264 Subpart CC Applicability; 40 CFR 264.1080(b)(6) exempts from applicability a waste management unit that is used solely for the management of radioactive mixed waste in accordance with all applicable regulations under the authority of the Atomic Energy Act and the Nuclear Waste Policy Act. Process liquids associated with the ILWMS are radioactive mixed waste and are exempt from regulation under Subpart CC."

This is not a valid exemption claim because 40 CFR 264.1080(b) states:

"(b) The requirements of this subpart do not apply to the following waste management units at the facility: (1) A waste management unit that holds hazardous waste placed in the unit before December 6, 1996, and in which no hazardous waste is added to the unit on or after December 6, 1996. … (6) A waste management unit that is used solely for the management of radioactive mixed waste in accordance with all applicable regulations under the authority of the Atomic Energy Act and the Nuclear Waste Policy Act."

DOE routinely, as of this date and future acknowledged operations, adds newly generated waste to the ILWMS so the above exemption does not apply. Also, as these EDI comment articulate, DOE is not managing its "radioactive mixed waste in accordance with all applicable regulations under the Atomic Energy Act and the Nuclear Waste Policy Act" or other applicable statutes/regulations. **Therefore, DOE cannot claim this exemption.**

2. IWTU PMR Process Information

DOE claims this "The IWTU utilizes a steam reforming process for treating INTEC Sodium Bearing Waste (SBW) and newly generated liquid wastes. IWTU site preparation is scheduled to begin in Spring 2007 and start of operations is scheduled in December 2009.

"This action is consistent with existing language in the PMR, which describes the current ILWMS treatment units as part of an overall treatment train for wastes stored at INTEC. The IWTU is the final unit in the overall ILWMS treatment system and will be used to convert the remaining stored liquid waste into a solid treatment product that is suitable for ultimate

[29] Draft Permit, page32 and 33.
[30] PMR page 1-D-138

99E
disposal." [31] **Again, current and previous ILWMS Permitting is deficient.**

3. IWTU Facility Description

"Bottoms Tank (VES-WL-101) and Feed Collection Tank (VES-WL-102) Vault
The vault contains VES-WL-101 and VES-WL-102 and is constructed of reinforced concrete that ranges in thickness from 2 to 4 feet. This vault is 30 ft wide, 43 ft long, and 16 ft high. The secondary containment is constructed of concrete floor lined with a Hypalon® membrane (registered trademark of DuPont), which extends three feet up the walls. The main body of the membrane 9 has a 45-mil nominal thickness and is reinforced with denier polyester fabric scrim. Un-reinforced 10 membrane that is used for corner reinforcement and around the sump liner insert, which must be molded 11 to fit, is 60-mil nominal thickness. The Hypalon® membrane conforms to the requirements of the 12 National Sanitation Foundation Standard 54 (revised May 1991) Type 3-45, (industrial grade 13 chlorosulfonated polyethylene). All seams in the secondary containment are heat-welded or adhesive 14 bonded to avoid any cracks or gaps. The membrane is sealed around the tank saddles by silicone rubber 15 sealant that is capable of withstanding the expected waste solutions for extended periods of time. " [32]

The above DOE disclosure of use of non-certified "silicone sealant" that is "capable of withstanding the expected waste" for some vague undocumented "extended period of time" is grounds for denial of the PMR under 40 CFR 270.42 because it does meet regulatory requirements for secondary containment.

4. Building CPP-641

"The Westside Waste Holdup System (VES-WL-103, VES-WL-104, and VES-WL-105) is housed in CPP-641, which is a cinderblock building 22 ft long and 15 ft wide. CPP-641 contains the instrumentation, motor control center, sample station, and jet valves for the tanks. The three tanks are located in two underground vaults north of CPP-641. The vault complex is 39 ft 8 in. long and 20 ft wide (outside dimensions). The east vault is 18 ft by 22 ft by 12 ft 6 in. high. "

"The west vault measures 18 ft by 12 ft 2 in. by 12 ft 6 in. high. VES-WL-104 and VES-WL-105 share the east vault; VES-WL-103 is located in the west vault. **The VES-WL-103 vault floor and lower 4 ft 9 in. of the walls are lined with Hypalon®** with a stainless steel insert in the sump. **The remainder of the** walls and ceiling are coated with an epoxy coating. The VES-WL-104 and VES-WL-105 vault floors and 21lower 2 ft 6 in. of the walls are lined with Hypalon® with a stainless steel insert in the sump. The 22 remainder of the walls and ceilings are coated with epoxy coating."

With the exception of the above, the PMR fails to disclose if the required stainless steel secondary containment extends to the tank sumps.

---

[31] INL HWMA/RCRA INTEC Liquid Waste Management System Part B PMR Attachment 2, Section C, Waste Characteristics Volume 14 Revision Date: January 23,August 2006 2-54.
[32] PMR Attachment B page 1-B-10

1010E
Table D-1 PEWE Tanks [33]

Tank Number/ Description	Year of Operation	Materials of Construction	Design Standards
VES-WL-132 Evaporator Feed Sediment	1983	Nitronic 50	ASME Section VIII Stamped
VES-WL-133 Evaporator Feed Collection	1983	Nitronic 50	ASME Section VIII Stamped
VES-WL-102 Surge Tank For VES-WL-133	1951	Type 347 SS	See Note *
VES-WL-109 Evaporator Head	1953	Type 347 SS	See Note *
VES-WL-129 Evaporator	1985	Nitronic 50	ASME Section VIII Stamped
VES-WL-161 Evaporator	1984	Nitronic 50	ASME Section VIII Stamped
VES-WL-131 Condensate Surge	1975	Type 304L SS	Unknown
VES-WL-134 Condensate Surge	1984	Type 304L SS	ASME Section VIII Stamped
VES-WL-111 Bottoms Collection	2001	Type 304L SS	ASME Section VIII Stamped
VES-WL-101 Bottoms Collection	1951	Type 347 SS	See Note *
VES-WH-100, Deep tanks	1953	Type 347 SS	See Note *
VES-WH-101, Deep tanks	1953	Type 347 SS	See Note *
VES-WG-100, Deep tanks	1953	Type 347 SS	See Note *
VES-WG-101, Deep tanks	1953	Type 347 SS	See Note *
VES-WL-103 WWH tank	1961	Type 304L SS	Not Stamped See Note **
VES-WL-104 WWH tank	1961	Type 304L SS	Not Stamped See Note **
VES-WL-105 WWH tank	1961	Type 304L SS	Not Stamped See Note **
VES-WM-100 CPP-604 TFT	1953	Type 347 SS	See Note *
VES-WM-101 CPP-604 TFT	1953	Type 347 SS	See Note *
VES-WM-102 CPP-604 TFT	1953	Type 347 SS	See Note *

[33] PMR Attachment D pg. 1-D-45

1111E

VES-WL-106 Process Condensate Collection Tank	1953	Type 347 SS	See Note *

Note *: Due to the age of these tanks, no documentation exists to confirm standards. Conversation with the vendor indicates the tanks were built to API or to ASME Standards. It is common practice for the vendor to maintain the documentation for 20 years.
Note **: Not Stamped – Built to ASME Section VIII. No code stamp required.

Twelve of the above listed tanks date back to the early 1950s, 45 years beyond their 20-year design life. Nine of the above tanks put into service in the 1960s and 1980s are also long beyond their design life. An additional four tanks have no certification stamp. **So a total of 26 tanks (just in this above table) are not in compliance. The ASME design standards for the other tanks are only relevant if the tanks have not exceeded their design life. DOE must provide documentation on each tanks design life and age to validate their continued use through the operational life of the ILWMS.**

Table D-2. LET&D Tanks [34]

Tank Number/ Description	Year of Operation	Materials of Construction	Design Standards
VES-WLK-197	1993	Type 304L SS	ASME Section VIII Division 1
VES-WLL-170	1993	Hastelloy G-30	ASME Section VIII Division 1
VES-WLK-171	1993	Hastelloy G-30	ASME Section VIII Division 1
VES-WLL-195	1993	Type 304L SS	ASME Section VIII Division 1
VES-NCR-171	1995	Type 304 SS	ASME Section VIII Division 1
VES-NCR-173	1995	Type 304L SS	Fabricated per Project Drawings **(no certification)**

" No certification" equals RCRA non-compliance.

Table D-3 Evaporator Tank System (ETS) formerly called the High-Level Liquid Waste Evaporator [Attachment 1. Section D, Process Information]

ETS Tanks Number/ Description	Year of Operation	Materials of Construction	Design Standards
VES-NCC-101	1982	Nitronic 50	ASME Section VIII Division 1*
VES-NCC-102	1982	Nitronic 50	ASME Section VIII Division 1*
VES-NCC-103	1982	Nitronic 50	ASME Section VIII Division 1*
VES-NCC-119	1982	Nitronic 50	ASME Section VIII Division 1*
VES-NCC-122	1982	Nitronic 50	ASME Section VIII Division 1*

[34] PMR Attachment 1. Section D, Process Information

1212E

VES-NCC-150	1996	G-30 Hastelloy	ASME Section VIII Division 1
VES-NCC-152	1996	Nitronic 50	ASME Section VIII Division 1
VES-NCC-108	1982	Nitronic 50	ASME Section VIII Division 1*
VES-NCC-136	1982	Type 304 SS	ASME Section VIII Division 1*
VES-NCC-116	1982	Type 304 SS	ASME Section VIII Division 1*

Note *: Not Stamped - Built to ASME Section VIII. No code stamp required.

"No code stamp required??" The code stamp is a RCRA requirement and is the only legitimate verification that the tank does in fact meet the standard. Again, these tanks are likely beyond their 20-year design life. Therefore, DOE must provide documentation on each tank design life. **Again, the ASME design standards for the tanks is only relevant if the tanks have not exceeded their design life and future operational planed use. DOE must provide documentation on each tanks design life to validate their continued use through the operational life of the ILWMS.**

5. ILWMS Ancillary Equipment

ILWMS Ancillary Equipment

"Ancillary piping and equipment associated with the ILWMS are included in this PMR, **except the piping and equipment identified below: [I-D-72]**

- This PMR does not include piping and equipment associated with the TFF. The piping and equipment associated with the [tank farm facility] TFF will be operated under interim status/Consent Order and will be RCRA closed with the tank farm closure.
- This PMR does not include piping and equipment associated with CPP-666. The CPP-666 (Fluorinel Dissolution Process) lines are not included because they carry only radioactive waste.
- This PMR does not include piping and equipment associated with CPP-603. The line from CPP-603 is not included in this PMR because it will be closed with VES-SFE-106. VES-SFE-106 is currently operated under interim status and will be RCRA closed.
- This PMR does not include piping and equipment associated with CPP-640 (VES-HW-101, VES-HW-102 and VES-HW-103). The lines associated with these vessels will be operated and closed under interim status. "

DOE's PMR acknowledges secondary containment in waste service piping: **"Concrete-embedded transfer lines have been identified at the ILWMS**." [35] This is a violation of compliance with 40 CFR § 264.193(f) that requires monitored leak collection and welded stainless steel secondary containment. Although DOE claims its intent to upgrade or reroute these service lines, there is no apparent confirmation that all of these upgrades has occurred.

[35] PMR, Attachment, page 1-D-87

1313E

RCRA does not provide for the above DOE claimed exemptions. Therefore, the PMR is deficient. Extensive use of old non-compliant "drip troughs" in CPP-604, CPP-605, CPP-1618, and CPP-1696 ancillary service lines instead of the required welded stainless steel secondary containment with continuous monitoring, are grounds for denying the PMR. [36]

DOE's PMR states: The following is an explanation of the symbols the Idaho National Laboratory (INL) has chosen to identify the RCRA-regulated tank systems associated with the INTEC on the diagrams:

"R - Indicates an active RCRA-regulated liquid transport line requiring secondary containment and inspections.

E - Indicates that the lines in question are not used to routinely manage hazardous waste. They would only receive hazardous waste if an unplanned spill or release occurred. As such, the lines are not subject to secondary containment, daily inspections, or closure. Where drains are located with the secondary containment system for regulated units, they are considered an integral part of a secondary containment system and subject to applicable regulatory requirements associated with secondary containment systems."[37] **[emphasis added]**

The above disclosure is non-compliant because all the INTEC tank systems must comply because RCRA does not distinguish between "routine" and "non-routine." DOE PMR also claims:

"The offgas piping for the [INTEC Liquid Waste Management System] ILWMS, while subject to HWMA/RCRA regulations as ancillary equipment to the regulated unit, does not require secondary containment because it is not intended to manage free liquids. However, any liquid condensate from such a gas/vapor stream may be subject to RCRA requirements (December 11, 1989, 54 FR 50968). The ILWMS is designed to remove condensable liquids from offgas. These condensable liquids are collected in tanks equipped with secondary containment and leak detection devices." [38]

The above DOE claimed RCRA exemption from secondary containment is not credible because liquid "condensate" (i.e. 12-inch LET&D off-gas line) is either pumped or transferred via gravity service lines to other process units and the liquid concentrated "bottoms" are pumped back to the waste tanks. Additionally the PMR claims that no liquids are in the "over-head" or "bottoms" service lines in another effort to claim secondary containment exemptions.

DOE also claims; "Drip troughs are located beneath process transfer lines within CPP-604, CPP-605, and CPP-1618. A drip trough also extends below the pipe bridge that spans from CPP-605 to the LET&D facility. The troughs are designed to collect liquid (e.g., recovered nitric acid) in the event of a leak from the process transfer lines. These drip troughs are sloped and drain to collection bottles located within each system. The drip troughs located within the LET&D facility are **not** equipped with leak detection devices." [39] "Drip troughs" do not meet RCRA secondary containment requirement of monitored welded stainless steel enclosure for ancillary service lines.

---

[36] PMR Attachment 1-D-Process pg. 99

[37] INL HWMA/RCRA ILWMS INTEC Liquid Waste Management System PMR Attachment 1, Section D, Process Information Volume 14 Revision Date: January 23,August 2006, page 1-D-72.

[38] PMR page 1-D079

[39] PMR page 1-D-99

5. IWTU Tanks

Table D-4 [40]

Tank Number Description	Year of Operation	Materials of Construction	Design Standard(s)
VES-SRC-131 Waste Feed Tank	2009	Type 304L SS	ASME Section VIII Division 1*
VES-SRC-140 Denitration and Mineralization Reformer	2009	Haynes 556 Alloy	ASME Section VIII Division 1
VES-SRC-160 Carbon Reduction Reformer	2009	Carbon Steel and Alumina/Chrome Oxide Based Refractory Lined	ASME Section VIII Division 1
COL-SRC-170A, B, & C Product Receivers/Coolers	2009	Type 316H SS	ASME Section VIII Division 1
TK-SRH-196	2009	Fiberglass-Reinforced Plastic (Double Wall)	N/A

Note * : Not Stamped - Built to ASME Section VIII. No Code Stamp Required.
N/A: Not Available?

"Not Stamped…No code stamp required??" Again, the code stamp is a RCRA requirement and is the only legitimate verification that the tank does in fact meet the standard. DOE must provide documentation on each tank design life. The ASME design standards for the other tanks are only relevant if the tanks have **not** exceeded their design life. DOE must provide documentation on each tanks design life to validate their continued use through the operational life of the ILWMS. Regardless if the N/A means "not available" or "not applicable" then this too is non-compliant because all tanks must meet standards for the materials contained in them.

DOE's PMR claims in Section D-8b that; "No viable pathway exists for migration of hazardous waste or hazardous constituents from the waste treated in the PEWE, LET&D, ETS, or IWTU to the soil, ground water, and/or surface waters. A potential pathway for release of waste constituents is through exhaust air either from PEWE, LET&D, ETS, or IWTU. Any release would be limited to the period during which PEWE, LET&D, ETS, or IWTU are operating. The potential for a release though the exhaust air system of hazardous constituents that could potentially have adverse effects on human health or the environment is minimized by the PEWE, LET&D, ETS, or IWTU off-gas systems." [41]

DOE's above statement is not true because of the extensive soil and groundwater monitoring data under INTEC show massive contaminate migration to the soil and groundwater. DOE further claims; "Although they are not specifically designed to trap organic constituents, HEPA filters trap any particulates that may contain hazardous constituents. The process will contain the waste constituents in the liquid and, thus only minute amounts of waste constituents can potentially escape the process. The ETS **condenses** and collects the [process off gas] POG and transfers it to the PEWE system for further treatment as discussed previously." [42] "Any

[40] PMR page 1-D-52
[41] PMR page 1-D-104
[42] PMR page 1-D-104

1515E
remaining **liquids** in the offgas enter the NWCF POG and are removed in mist eliminators, VES-NCC-136 and VES-NCC-116." [43] [emphasis added]

Yet, DOE's PMR claims no liquid condensates are transferred between treatment units requiring secondary containment of service waste piping. As these comments articulate the ILWMS process offgas systems are inadequate, and DOE's attempt to exempt these process vents from regulatory compliance, is clear evidence that they would not meet critical scrutiny on compliance.

Section III Applicable Regulations

40 CFR 270.42

"(i) PMR modification list. The Director must maintain a list of all approved PMR modifications and must publish a notice once a year in a State-wide newspaper that an updated list is available for review.

(j) **Combustion facility changes to meet part 63 MACT standards.** The following procedures apply to hazardous waste combustion facility PMR modifications requested under Appendix I of this section, section L(9).

(1) Facility owners or operators must have complied with the Notification of Intent to Comply (NIC) requirements of 40 CFR 63.1210 that were in effect prior to October 11, 2000, (See 40 CFR Part 63 Revised as of July 1, 2000) in order to request a PMR modification under this section.

(2) If the Director does not approve or deny the request within 90 days of receiving it, the request shall be deemed approved. The Director may, at his or her discretion, extend this 90 day deadline one time for up to 30 days by notifying the facility owner or operator." [emphasis added]

DOE has not met the above regulatory requirements in this PMR because the Clean Air Act National Environmental Standard for Hazardous Air Pollutants (NESHAP) Part 63 MACT standards have not been applied to the process vents. The IWT extracts nitric acid and re-circulates it back into the ILWMS process.

40 CFR 260.10 Definitions State:

"(11) Combustion devices used in the recovery of sulfur values from spent sulfuric acid.

"**(13) Such other devices as the Administrator may, after notice and comment, add to this list on the basis of one or more of the following factors:**

(i) The design and use of the device primarily to accomplish recovery of products;

(ii) The use of the device to burn or reduce raw materials to make a material product;

(iii) The use of the device to burn or reduce secondary materials as effective substitutes for raw materials, in processes using raw materials as principal feedstocks;

(iv) The use of the device to burn or reduce secondary materials as

[43] PMR page 1-D-105

ingredients in an industrial process to make a material product;
(v) The use of the device in common industrial practice to produce a material product; and
(vi) Other factors, as appropriate." [emphasis added]

40 CFR 191 states:

"**Note 4**: Treatment of Fractionated High-Level Wastes. In some cases, a high-level waste stream from reprocessing spent nuclear fuel may have been (or will be) separated into two or more high-level waste components destined for different disposal systems. In such cases, the implementing agency may allocate the Release Limit multiplier (based upon the original MTHM and the average fuel burnup of the high-level waste stream) among the various disposal systems as it chooses, provided that the total Release Limit multiplier used for that waste stream at all of its disposal systems may not exceed the Release Limit multiplier that would be used if the entire waste stream were disposed of in one disposal system.

"**Note 5:** Treatment of Wastes with Poorly Known Burnups or Original MTHM. In some cases, the records associated with particular high-level waste streams may not be adequate to accurately determine the original metric tons of heavy metal in the reactor fuel that created the waste, or to determine the average burnup that the fuel was exposed to. If the uncertainties are such that the original amount of heavy metal or the average fuel burnup for particular high-level waste streams cannot be quantified, the units of waste derived from (a) and (b) of Note 1 shall no longer be used. Instead, the units of waste defined in (c) and (d) of Note 1 shall be used for such high-level waste streams. If the uncertainties in such information allow a range of values to be associated with the original amount of heavy metal or the average fuel burnup, then the calculations described in previous Notes will be conducted using the values that result in the smallest Release Limits, except that the Release Limits need not be smaller than those that would be calculated using the units of waste defined in (c) and (d) of Note 1.

"**Note 6:** Uses of Release Limits to Determine Compliance with Sec. 191.13. Once release limits for a particular disposal system have been determined in accordance with Notes 1 through 5, these release limits shall be used to determine compliance with the requirements of Sec. 191.13 as follows. In cases where a mixture of radionuclides is projected to be released to the accessible environment, the limiting values shall be determined as follows: For each radionuclide in the mixture, determine the ratio between the cumulative release quantity projected over 10,000 years and the limit for that radionuclide as determined from Table 1 and Notes 1 through 5. The sum of such ratios for all the radionuclides in the mixture may not exceed one with regard to Sec. 191.13(a)(1) and may not exceed ten with regard to Sec. 191.13(a)(2). For example, if radionuclides A, B, and C are projected to be released in amounts Q<INF>a</INF>, Q<INF>b</INF>, and Q<INF>c</INF>, and if the applicable Release Limits are RL<INF>a</INF>, RL<INF>b</INF>, and RL<INF>c</INF>, then the cumulative releases over 10,000 years shall be limited so that the following relationship exists:"

Section IV: Regulatory Definitions

40 CFR 260.10

"Infrared incinerator means any enclosed device that uses electric powered resistance heaters as a source of radiant heat followed by an afterburner using controlled flame combustion and

which is not listed as an industrial furnace."

"Miscellaneous unit means a hazardous waste management unit where hazardous waste is treated, stored, or disposed of and that is not a container, tank, surface impoundment, pile, land treatment unit, landfill, incinerator, boiler, industrial furnace, underground injection well with appropriate technical standards under part 146 of this chapter, containment building, corrective action management unit, unit eligible for a research, development, and demonstration PMR under 40 CFR 270.65, or staging pile."

" Ancillary equipment means any device including, but not limited to, such devices as piping, fittings, flanges, valves, and pumps, that is used to distribute, meter, or control the flow of hazardous waste from
its point of generation to a storage or treatment tank(s), between hazardous waste storage and treatment tanks to a point of disposal onsite, or to a point of shipment for disposal off-site."

"Containment building means a hazardous waste management unit that is used to store or treat hazardous waste under the provisions of subpart DD of parts 264 or 265 of this chapter."

"Disposal means the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or on any land or water so that such solid waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including ground waters."

"Disposal facility means a facility or part of a facility at which hazardous waste is intentionally placed into or on any land or water, and at which waste will remain after closure. The term disposal facility does not include a corrective action management unit into which remediation wastes are placed. Drip pad is an engineered structure consisting of a curbed, free-draining base, constructed of non-earthen materials and designed to
convey preservative kick-back or drippage from treated wood, precipitation, and surface water run-on to an associated collection system at wood preserving plants."

"Drip pad is an engineered structure consisting of a curbed, free-draining base, constructed of non-earthen materials and designed to convey preservative kick-back or drippage from treated wood, precipitation, and surface water run-on to an associated collection system at wood preserving plants."

"Liner means a continuous layer of natural or man-made materials, beneath or on the sides of a surface impoundment, landfill, or landfill cell, which restricts the downward or lateral escape of hazardous waste,
hazardous waste constituents, or leachate."

"Tank means a stationary device, designed to contain an accumulation of hazardous waste which is constructed primarily of non-earthen materials (e.g., wood, concrete, steel, **plastic**) which provide
structural support."

"Thermal treatment means the treatment of hazardous waste in a device which uses elevated temperatures as the primary means to change the chemical, physical, or biological character or composition of the
hazardous waste. Examples of thermal treatment processes are incineration, molten salt, pyrolysis, calcination, wet air oxidation, and microwave discharge. (See also ``incinerator" and ``open burning".)"

"Totally enclosed treatment facility means a facility for the treatment of hazardous waste which is directly connected to an industrial production process and which is constructed and operated in a manner which prevents the release of any hazardous waste or any constituent thereof into the environment during treatment. An example is a pipe in which waste acid is neutralized."

40 CDR 264.1031 Definitions

"Process vent means any open-ended pipe or stack that is vented to the atmosphere either directly, through a vacuum-producing system, or through a tank (e.g., distillate receiver, condenser, bottoms receiver, surge control tank, separator tank, or hot well) associated with hazardous waste distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operations."

"Distillation operation means an operation, either batch or continuous, separating one or more feed stream(s) into two or more exit streams, each exit stream having component concentrations different from those in the feed stream(s). The separation is achieved by the redistribution of the components between the liquid and vapor phase as they approach equilibrium within the distillation unit."

"Fractionation operation means a distillation operation or method used to separate a mixture of several volatile components of different boiling points in successive stages, each stage removing from the mixture some proportion of one of the components."

"Distillate receiver means a container or tank used to receive and collect liquid material (condensed) from the overhead condenser of a distillation unit and from which the condensed liquid is pumped to larger storage tanks or other process units."

Respectfully submitted
on behalf of the Environmental Defense Institute

_____

Chuck Broscious, President of the Board
P O Box 220, Troy, Idaho 83871-0220 208-835-5407
edinst@cpcinternet.com
cc: Mary Woollen, Executive Director, Keep Yellowstone Nuclear Free

Attachments

1919E

Attachment A

EDI Comment Excerpts on ILWMS RCRA PMR 11/25/05

These comments are re-presented to document that IDEQ was previously fully appraised of the regulatory deficiencies and chose not to take action. It remains to be seen if IDEQ will again compromise its regulatory obligations to enforce the law with this new RCRA ILWMS/IWTU PMR Modification Request.

I. Tank Issues

Only about 47 tanks are listed in the PMR yet about 145 tanks are currently in use in the ILWMTS. See attachment B Tank list of 145 tanks connected to the ILWMS. IDEQ must either acknowledge these ~ 100 tanks as part of the PMR or provide substantive tank closure documentation. **This represents a fundamental flaw in the PMR.**

II. Tank Secondary Containment Issues

The following tanks identified in the PMR have a "gerry-rigged" retrofitted hypalon liner that have no apparent Resource Conservation Recovery Act (RCRA) certification for secondary containment (i.e., welded stainless steel liner sufficiently adequate to contain to full contents of the tank) required in IDAPA 58.01.05.008 or 40 CFR 264.193(f). [See PMR pages 39 through 66]

- VES-WM-101
- VES-WM-102
- VES-WM-105
- VES-WM-150
- VES-WL-101
- VES-WL-102
- VES-WL-108
- VES-WL-103
- VES-WL-104
- VES-WL-105

Other tanks identified in the PMR (VES-WL-108) have NO RCRA qualified secondary containment at ALL. Also see Attachment B; ILWMS Tank List that shows ~ 145 tanks that are involved in the ILWMS system and that are **not all** acknowledged in the PMR. **This non-disclosure represents a fundamental flaw in the PMR.**

III. PMR Only for Hazardous Waste and NOT for Radioactive Waste

The PMR [page 79] claims only hazardous contaminates and NO radionuclide which conflicts with other reports that show significant radionuclide throughput and emissions. DOE's arbitrary and unilateral reclassification of former high-level radioactive waste is a violation of Nuclear Waste Policy Act and is currently being litigated in U.S. Federal Court.

[44] Until the court rules on this, the waste being processed by the ILWMS must include high-level waste. **This represents a fundamental flaw in the PMR.** [See Section VI below and Attachment B]

IV. Blending is Prohibited

Dilution of the throughput is and remains common practice at the various ILWMS processing operations and is illegal under RCRA (40 CFR 268.4).

V. RCRA Process Vent Classification

The PMR claims "The Process Equipment Waste Evaporator (PEWE) off-gas is processed through both the Building 604 Vessel Off-Gas System and the Process Atmospheric Protection System (APS) in Building 649, prior to discharge to the INTEC main stack. The PEWE vent does not meet the definition of a process vent at IDAPA 58.01.008 [40 CFR.1031]. Therefore, the air emission standards for process vents do not apply." [Page 35 and 36]

The PMR also claims "The Evaporator Tank System (ETS) off-gas is processed through both Building 659 Process Off-gas System and the Process Atmospheric Protection System (APS) in Building 649, prior to discharge to the INTEC main stack. The PEWE vent does not meet the definition of a process vent at IDAPA 58.01.008 [40 CFR.1031]. Therefore, the air emission standards for process vents do not apply." [Page 36] **This represents an unsubstantiated switch from the previous ILWMS PMR that acknowledged the PEWE as being a "process vent" operation.**

The DOE HLW &FD EIS (DOE/EIS-0287D) page 1-13 (Figure 1-6) and DOE/EIS-0287 Final page 2-11 (figure 2-4) clearly shows the High-level Liquid Waste Evaporator also housed in the New Waste Calciner building, and now called the ETS, emissions go directly to the INTEC main stack. [45] See Attachment C Schematic.

40 CFR 1031 states that "Process vent means any open-ended pipe or stack that vented to the atmosphere either directly, through a vacuum producing system, or through a tank (e.g., distillate receiver, condenser, bottoms receiver, surge control tank, separator tank, or hot well) associated with hazardous waste distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operation."

40 CFR 1032(c) states "Determinations of vent emissions and emissions reductions or total organic compound concentrations achieved by **add-on control devices** may be based on engineering calculations or performance tests. If performance tests are used to determine vent emissions, emission reductions, or total organic compound concentrations achieved by add-on control devices, the performance tests must conform with the requirements of ss 264.1034(c)." [emphasis added]

Clearly, both the PEWE and the ETS meet the criteria of operations under the "process vent category in the 40 CFR 264.1031 and 1032(c) due to the specific language of "add-on control devices" that the PMR identifies above with the POG and APS units.

---

[44] United District Court for the District of Idaho, Natural Resources Defense Council, et al., v. USDOE, Case No. CV-01-413-S-BLW.

[45] Idaho High-Level Waste and Facilities Disposition, Final Environmental Impact Statement, September 2002, DOE/EIS-0287.

2121E

The PMR claims that only the Liquid Effluent Treatment and Disposal (LET&D) has a "Process vent" for emission release. [46] **Commenters believe that DOE is attempting to obfuscate the RCRA "Process Vent" regulatory requirements of the PEWE and the High-level Waste Evaporator (ETS) and therefore represents a fundamental flaw in the PMR.**

VI. No Radioactive Waste Throughput PMRted ?

The modified ILWMS PMR claims [Page 79] that the PMR is only for hazardous waste and **NOT** for radioactive waste. This is a physical impossibility given the emission data. The PMR acknowledges about 30 references to throughput of "mixed waste" that is universally understood to be mixed radioactive and hazardous mixed waste. [pg 31] The previous name of the High-level Waste Evaporator utilized to reduce the liquid volume in the eleven INTEC high-level waste tank farm that contains about one million gallons of High-Level Waste speaks for itself. Changing the name to the Evaporator Tank System does not change the plants ongoing mission.

Moreover, DOE's own 2002 EIS acknowledges that in 2000 1360.246 **curies** of radioactivity was released to the air from INTEC alone. [47] The only emission sources at that time are the ILWMS radioactive waste evaporators. This represents an enormous hazard to the public that both IDEQ and DOE are not disclosing in the proposed ILWMS PMR.

Additionally, see "Hazardous Waste Management Act/ Resource Conservation Recovery Act Work Plan for the Idaho National Engineering and Environmental Laboratory." [48] This report clearly shows mixed hazardous and radioactive liquid waste processing at the ILWMS operations.

VII. Seismic Issues

A recent INL report established design basis earthquake parameters for INTEC and the nearby Reactor Technology Center. The report found the following:

1. "The…spectral peaks of the mean soil surface spectra for Group 1 **exceed** the RTC/INTEC Performance Category (PC-4) Soil Design Basis Earthquake (DBE) spectrum by about 5% which is considered acceptable." [page 202 to 203]
2. "The RTC/INTEC PC-3 Soil DBE 5% damped spectra shows the mean soil surface 5% damped spectra for soil profiles with soil column heights of 50 feet (group 1) and 40 feet (group 3) **exceed** the PC-3 soil DBE spectrum by as much as 14%."
3. "Despite the above the PC-3 and PC-4 are recommended for the seismic analysis at the RTC/INTEC.
4. "Soil spectral amplification factors of PC-3/PC-4 spectral ratio share spectral peaks that range from 1.8 to 3.0 with majority between 2.0 and 2.5. Spectral amplification factors for [peak ground acceleration] PGA from 1.3 to 1.9." [pg.112] [49]

---

[46] Also see PMR page 11 for definition of "Process Vent" and IDAPA 58.01.05.008 and 40- CFR 264.1031.

[47] Idaho High-Level Waste and Facilities Disposition, Final Environmental Impact Statement, September 2002, DOE/EIS-0287 page 4-30.

[48] Hazardous Waste Management Act/ Resource Conservation Recovery Act Work Plan for the Idaho National Engineering and Environmental Laboratory, EPA ID No. ID4890008952; and IDR000002881, September 12, 2002, pages 19 and 27.

[49] "Data and Calculations for Development of Soil Design Basis Earthquake Parameters at RTC" (Reactor Technology Center) 9/05, S. J. Payne, INEEL/EXT-03-00943

2222E

The ILWMS PMR has no apparent requirement that DOE produce engineering analysis of all the ILWMS component systems verifying that they meet performance category (PC-4) or even the lesser PC-3. By component systems, we are referring to, but not limited to, buildings, evaporators, tanks, service line piping, and emergency power systems. These seismic issues represent a major hazard vulnerability that must be covered to meet regulatory requirements in Resource Conservation Recovery Act (40 CFR-270.30 and 270.32 Subpart B) and U.S.C. Title 42, Chapter 82, Subchapter II ss 6925(a).

In plain language, there is a major seismic hazard related to the ILWMS operations that the PMR does not address, and therefore, represents a fundamental deficiency in the proposed PMR.

VIII. Summary

The above comments identify major deficiencies in the proposed PMR modifications for the ILWMS that collectively add up to a fundamentally flawed PMR. Commenters therefore believe that the PMR in its present form is unacceptable and must be rejected by the Idaho Department of Environmental Quality.

Commenters reserve the right to submit supplemental comments to this PMR if new information becomes available that we believe must be made available to IDEQ.

Attachment D: Liquid Effluent and Disposal Project Status Report by J.W. Bryant, Staff Engineer, DOE Waste Processing Unit, JWB-14-89, 11/20/89, that also clearly shows the High-Level Liquid Waste Evaporator venting to the INTEC Main Stack.

Attachment B

INEEL INTEC Liquid Waste Management System (ILWMS)
Waste Code Summary

	ICPP Tank Farm [b]	PEWE [b]	LET&D b	HLLWE [d]	Calciner [c]	HEPA Leach [a]
Total No. RCRA Hazardous Waste Codes	128	128	127	127	128	404
Total Hazardous Air Pollutants (HAP)	86	86	86	86	86	>86
Total RCRA "F" Codes	4	4	4	4	4	22

Sources for above table:

a. RCRA Part A PMR Application, Volume 1, Book 1, Revision 13 3/95 DOE/ID-10213
b. RCRA Part A PMR Application Revision 19; 4/99
c. RCRA Part A PMR Application Revision; 11/95
d. RCRA Part A PMR Application Revision; 3/95
e. RCRA Part B PMR Application Volume 14, Book 1, Revision 0, 6/21, PEWE Feed Tank Waste Codes list only 28 codes including 4 "F" codes, page 6 (IA-1). No explanation is offered why the ~ 100 waste codes were dropped between 1999 Part A and 6/21 Part B.

Acronyms:

PEWE — Process Equipment Waste Evaporator (CPP-604)
LET&D — Liquid Effluent and Disposal (CPP-1618)
HLLWE — High-level Liquid Waste Evaporator (CPP-659)
ICPP Tank Farm — Mixed High-Level Radioactive Waste Tank Farm
Calciner — High-Level Liquid Waste Incinerator (New Waste Calcine Facility) (CPP-659)
HEPA Leach — NWCF HEPA Leach System (CPP-659)
HAP — Hazardous Air Pollutant (40 CFR 63)
RCRA — Resource Conservation Recovery Act (42 USC 7412)

2424E

List of “F” Hazardous Waste Codes for INTEC CPP-659 NWCF HEPA Filter Leaching System Processed in ILWMS

F001 - Spent Halogenated Solvents (list of six)
F002 - Spent Halogenated Solvents (list of nine)
F003 - Spent Non-Halogenated Solvents (list of six)
F004 - Spent Non-Halogenated Solvents (list of three)
F005 - Spent Non-Halogenated Solvents (list of eight)
F006 - Waste Water Treatment Sludges
F007 - Spent Cyanide
F008 - Plating Bath residues with Cyanides
F009 - Spent Striping Baths with Cyanides
F010 - Quenching Baths with Cyanides
F011 - Spent Cyanide Solutions
F012 - Quenching Water with Cyanides
F019 - Waste Water Treatment Sludges
F020 - Wastes from manufacturing tri- or tetrachlorophenol
F021 - Wastes from manufacturing of pentachlorophenol
F022 - Wastes from manufacturing of terta, penta, or hexachlorobenzenes
F023 - Wastes from manufacturing of tri, or tetrachlorophenols
F024 - Process wastes from reactor clean out
F026 - Wastes from manufacturing tetra, penta, or hexachlorobenzene
F027 - Discarded tri, tetra, or pentachlorophenol
F028 - Residues resulting from incineration or thermal treatment of soil contaminated (six codes)
F039 - Leachate liquids

References for Above Table

1. 40 CFR 261.31;
2. RCRA Part A PMR Application for INEEL Volume 1 Book 1 Revision 13 March 1995 page IO-1 through 13, DOE/ID-10213
3. 42 USC Sec. 7412 “Hazardous Air Pollutants”

2525E

ILWMS Hazardous Waste Constituents Requiring Carbon Absorption, Chemical Oxidation, Wet Air Oxidation or Combustion Treatment That Must Meet RCRA Land Disposal Restrictions in 40 CFR 268.40 Regardless of Concentration Levels

Waste Code	Common Name of Waste	Waste Code	Common Name of Waste
P005	Allyl alcohol	U113	Ethyl arylate
P027	3-Chforopropionitrile	U116	Ethylene thiourea
P028	Benzyl chloride	U122	Formaldehyde
P031	Cyanogen	U123	Formic acid
P075	Nicotine and salts	U125	Furfural
P105	Sodium azide	U133	Hydrazine
P116	Thiosemicarbazide	U135	Hydrogen Sulfide
U007	Acrylamide	U147	Maleic anhydride
U008	Acylonitrile	U154	Methanol
U014	Auramine	U171	2-Nitropropane
U020	Benzenesulfonyl	U182	Paraldchyde
U055	Cumene	U191	2-Picoline
U056	Cyclohexane	U201	Resorcinol
U103	Dimethyl sulfate	U218	Thioacetamide
U108	1,4-Dioxanc	U219	Thiourea
F001	Spent Halogenated Solvents	U328	o-Toluidine
F002	Spent Halogenated Solvents	F003&5	Non-Hallogenated Solvents

As evaporators, the HLLWE, PEWE, and LET&D feed do not meet the RCRA treatment standards specified for the above list of 29 hazardous waste throughput constituents in 40 CFR 268.40. Also of the total 128 hazardous waste evaporator throughput constituents, 86 are hazardous air pollutants listed in 42 USC 7412 list of pollutants covered under the Clean Air Act MACT emission standards that DOE has made not attempt to comply with. Additionally, discharge of the evaporator “overheads” containing these pollutants (even after illegal dilution) to INTEC percolation ponds is prohibited.

Sources of Organics to INTEC Liquid Waste Management System

ILWMS Feed

1. INTEC Spent Nuclear Fuel Reprocessing Raffinate in High-level Tank Farm
2. Analytic Laboratories
3. Radioactive Liquid Waste Management System
    a. Annual decontamination of evaporator with oxalic acid
    b. Floor and Cell washings (EDTA)
    c. NWCF Decontamination Shop and HEPA filter leachate
    d. Tank Farm valve box cleanings
    e. High-level Waste Tank Heel removal/flushes
4. CPP-666 FAST

- Spent Nuclear Fuel Pool Water Filter Back-flush Waste

5. CPP-637 Laboratories

- Trybutyl phosphate
- Dodecane
- Crown ethers
- Octanol
- Other specialized chemicals

6. Maintenance Services

- Organic based cleaning solutions

7. HEPA Filter Leachate System Effluent to ILWMS
8. Debris Treatment Effluent to ILWMS

References in Addition to Footnotes:

1. HWMA/RCRA Part A Application for INEEL Volume 1 Book 1 (EPA form 8700-23), January 2000, DOE/ID-10213.

2. Carlson Memo TLC-07-94 page 6; DOE/ID-10544, October 1996; HLLWE waste codes D001 (Ignitable) and D002 (Corrosive) require deactivation in see 40 CFR 268.40.

3. DOE/ID-1544, October 1996, pages 14 to 17 for listing of Tank Farm Waste codes, and 42 USC 7412 list of Hazardous Air Pollutants.

Attachment C: Schematic of ILWMS [Idaho HLW & FD EIS, DOE/EIS-00287

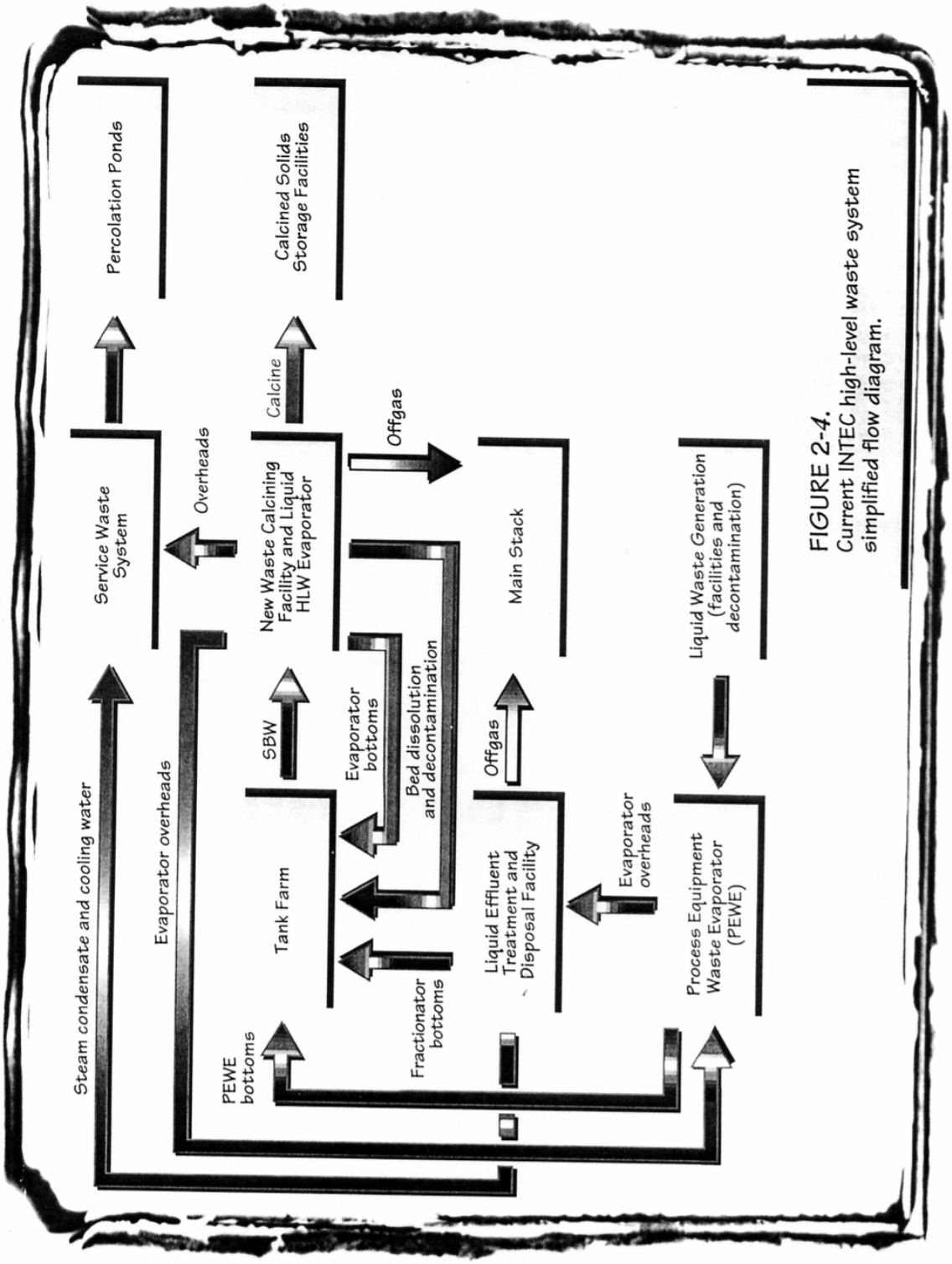

FIGURE 2-4.
Current INTEC high-level waste system simplified flow diagram.