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Worth the Risk?

Tami Thatcher's guest column in the Idaho Falls Post Register (7/12/13) states: "A new Nuclear Regulatory Commission environmental impact statement should give nuclear power advocates reason for concern, writes Tami Thatcher.

Currently in the U.S., four nuclear plants are being constructed: two in South Carolina and two in Georgia. But this year, of 104 operating reactors, there have been four closures: no buyer for unprofitable Kewaunee, delaminating containment concrete at Crystal River, and "regulatory uncertainty" regarding the botched steam generator replacements for two reactors at San Onofre.

The U.S. Nuclear Regulatory Commission is currently posting draft documents on its website (nrc.gov) in response to the 2010 court ruling that some aspects of its Waste Confidence rulemaking did not satisfy NEPA in facility licensing and license extensions.

The NRC had for years stated that it was confident that permanent disposal would be available "when necessary." The court held that the NRC needed to evaluate the environmental effects of failing to secure permanent disposal and also needed to adequately examine the risk of spent fuel pool leaks and spent fuel pool fires.

Despite the common description of the volume of spent fuel from the entire U.S. commercial nuclear fleet fitting on a football field, 30 feet high (already enough to fill one Yucca Mountain repository and growing), spent fuel storage poses high costs, severe accident risks and technical challenges both above and below ground.

It is often suggested that the U.S. should reprocess spent fuel like the French, who supply 70 percent of their energy by nuclear power. The French reprocess their spent fuel despite the high cost and the fact that this multiplies the volume of waste that requires storage in a geologic repository by six times.

The French have narrowed their focus to one potential geologic repository site in Bure, population 97. Two recent attempts to hold public meetings there have failed due to strong public opposition.

In geologic repository designs such as Yucca Mountain, where the waste containers are expected to corrode over time, the prediction of how much and how fast radionuclides are transported is necessary to estimate the level of groundwater contamination. It came as a surprise that low-solubility radionuclides such as plutonium could mobilize and move long distances underground. Predicting with any confidence the behavior of a geologic repository for hundreds

of thousands of years is not easy.

So, the NRC's new Waste Confidence Generic Environmental Impact Statement will be addressing the possibility of prolonged above-ground storage. The draft discusses a multitude of issues, including ground water contamination from spent fuel pools, severe accident consequences and terrorism. The NRC considers "reasonably foreseeable" events including a severe accident that may result in evacuating millions of people, vacating thousands of square miles, rendering expansive areas of land unsuitable for agriculture and costing more than $50 billion, not including replacement power costs.

But, with evacuation, the NRC stresses, radiological doses to the public should be low. The NRC determines that the impact of indefinitely continued spent fuel storage is "SMALL" with a probability-weighted determination that almost sounds reasonable until you consider multi-year operation of multiple plants, which makes a severe accident pretty likely.

Is it time to look for safer, more economical ways of obtaining electrical power?

Thatcher is a former nuclear safety analyst at the INL and is on the Technical Advisory Board of "Keep Yellowstone Nuclear Free" that is funded in part by a grant from the Department of Energy's Office of Environmental Management.

INL's Highly Radioactive Liquid Waste Treatment Plant Having Major Startup Problems

The INL Integrated Waste Treatment Unit (IWTU) is designed to convert ~900,000 gallons of previously classified high-level liquid waste generated over decades of nuclear fuel reprocessing to a solid form suitable for final disposal in a geologic repository. It is crucial to remember that this is the most deadly material on the planet. A dixy cup of it on the table in front of you would give you a fatal dose of radiation before you could get up and leave the room.

DOE has been trying for decades to convert this liquid waste into a stable form that can be put into a permanent waste repository. This more recent DOE treatment – IWTU - from construction to startup has taken over 7 years.

EDI conducted an assessment of relevant DOE reports related to the IWTU, and offer them below. The documented evidence below will give a reasonable person pause before endorsing DOE's choice of radioactive waste treatment technology and the State of Idaho's ability to oversee the operation.

DOE's Occurrence Reports document serious malfunctions of the IWTU that state:

"On Saturday, June 16, 2012, the Integrated Waste Treatment Unit (IWTU) was performing startup and testing activities when an unexpected pressure transient caused a loss of vacuum in the Carbon Reduction Reformer (CRR) vessel activating the Rapid Shutdown System (RSS). IWTU Operations were in the process of performing the system lineup to transfer Off-Gas Filter

(OGF) material to the Product Receiver Filter/Product Receiver Cooler-1 (PRF/PRC-1) when the CRR began losing vacuum needed to maintain established operating parameters and to continue heat-up of the steam reforming process. Control room operators backed out of the product transfer lineup, exited the transfer procedure and continued to operate the plant under the IWTU startup procedure. IWTU Operations personnel, with engineering support, continued to monitor the system and make adjustments throughout the evening attempting to restore CRR heat up and to maintain vacuum. During the adjustments, the pressure in the CRR rose to approximately 14 inches of water column. The RSS trip point is 14.0 inches of water column. Downstream temperature and differential pressure problems became evident in the HEPA filters, 260 and 240 blower systems. A pressure increase in the Off-Gas Cooler (OGC) caused a rupture of the rupture disk on the OGC and an increase in the OGC outlet temperature which tripped Safety Instrumented Function (SIF)-2. The failure of the rupture disk and the tripping of SIF-2 are the initiating events for this ORPS occurrence. Timeline: 11:57 - A Hi CRR pressure alarm was received. Operators responded per procedure by raising the Off-Gas Blower speed. CRR pressure responded as expected and pressure returned to normal. 12:08 CRR pressure began to rise. Operators responded per procedure and pressure became erratic. 12:20 - CRR pressure began to rapidly rise passing through the Hi and Hi-Hi alarm set-points. 12:24 - A Hi-Hi-Hi CRR pressure alarm was received along with the corresponding Distributed Control System (DCS) - RSS activation. 13:05 - The shift supervisor commenced plant shutdown per procedure. During shutdown a dark plume was noted coming from the stack. 13:35 - The OGC rupture disc pressure alarm was received indicating Rupture Disc PSE-SRC-160-003, a design feature SSC, had ruptured. 13:59 - Following rising temperatures at the outlet of the OGC, SIF-2 High-Temperature Protection System (a Safety Significant System) activated.

"Immediate Action(s): All applicable Emergency Action Response procedure steps were verified completed and a plant shutdown/cool-down was initiated. Notifications were made to DOE-ID and CWI Corporate." [1]

An on-site employee at INTEC during the IWTU startup "incident;" states the "he was not sure whether or not that there had actually been an explosion (of coal dust) but it's pretty darn certain that ALL of the IWTU's off-gas filters had failed resulting in 'stuff' being blown up the stack. These filters include the sintered ceramic blow back filters at the tops of the cyclones situated downstream of both the fluidized bed reactors (DMR & CRR) and the main bank of HEPA filters situated immediately upstream of the main stack." [2]

"On March 13, 2012, a Hot Work Permit was authorized and a Fire Safety Watch was present for workers to weld and grind brackets in Room 109 South Corridor at IWTU. At 1430 hours MST, the Fire Safety Watch observed smoke coming out of the fume extractor unit, disconnected the unit and took it outside of the facility. After taking the smoking unit outside the Fire Safety Watch removed the spark trap cover and observed a small flame in the pre-filter which self-extinguished.

[1] DOE Occurrence Report; EM-ID-CWI-IWTU-2012-0008
[2] Darryl Siemer 6/22/12 email to Chuck Broscious

"The workers were performing hot work (welding and grinding) installing supports on an electrical cable tray. The workers were in compliance with the hot work permit. Due to the restricted work area the intake funnel on the fume extractor hose was located below the hot work area, pointed up and positioned close to the welding location, but not directly under. The cable tray is approximately 10 feet above the ground with the fume extractor, ACE Industrial Products, Model No 73-200 M, located on a cart below. It appears that a hot spark was sucked into the funnel and down the hose into the spark trap portion of the fume extractor. The spark was drawn onto the surface of the pre-filter where it caused the pre-filter media to smolder generating the smoke observed by the fire watch." [3]

"Waste Treatment: Startup testing was suspended on June 16, 2012, at the Integrated Waste Treatment Unit (IWTU), which is designed to treat about 900,000 gallons of liquid radioactive waste stored at the Idaho Nuclear Technology and Engineering Center. Testing was suspended and plant heat-up was terminated to allow detailed evaluation of the process temperature, pressure and flow excursion observed on June 16. Facility startup testing has been ongoing for the past month, evaluating system and component operation and response during operating conditions. Radioactive waste has not been introduced into the facility, pending successful completion of startup testing." [4]

"July 17, 2012: A potential inadequate safety analysis was declared as part of the investigation into the pressure event that occurred during start-up of the Integrated Waste Treatment Facility. It was determined that the potential for "blinding" filter systems in the facility with unburned charcoal had not been adequately analyzed in the current safety documents. The facility was shut down after the June 16 pressure event, and an investigative team was commissioned to determine the root causes of the event and how to correct them. (EM-ID—CWI-IWTU-2012-0009)."

"Waste Treatment Progress: Progress continues in the effort to resume start-up activities for the Integrated Waste Treatment Unit, after the "pressure event" halted start-up activities last summer. **The IWTU** is designed to treat the remaining 900,000 gallons of liquid waste stored at the Idaho Nuclear Technology and Engineering Center tank farm. With the completion of the IWTU main process piping flush, the project can now start reassembling the process gas filter, off gas filter and the carbon reduction reformer. Restart activities are anticipated to resume this summer. [5]

"Dec. 17, 2013: An investigation was initiated into the adequacy of controls for relief valves and a rupture disk at the Integrated Waste Treatment Unit (IWTU). If the valves are not properly controlled, pressure could increase downstream of the rupture disks during process heat-up. This increase could cause a condition where the rupture disks would not rupture at the required pressure to protect the process off-gas system. IWTU operations have been shut down and will

[3] DOE Occurrence Report; EM-ID-CWI-IWTU-2012-0004

[4] DOE-ID Operations Summary; For the Period June 5 to June 18, 2012

[5] DOE-ID Operations Summary -13 4-1; For the Period Feb. 12 to Feb. 25, 2013

not resume until the necessary changes have been made to the facility or procedures. (EM-ID—CWI-IWTU-2012-0013)." [6]

"June 19, 2012: Operators at the Integrated Waste Treatment Unit were performing start-up testing when an unexpected pressure transient caused a loss of vacuum in the Carbon Reduction Reformer vessel, activating the Rapid Shutdown System. All applicable emergency action procedures were followed, and a plant shutdown was initiated. A team has been formed to evaluate the cause of the incident and recommend corrective actions. (EM-ID—CWI-IWTU-2012-0008)." [7]

"July 17, 2012: A potential inadequate safety analysis was declared as part of the investigation into the pressure event that occurred during start-up of the Integrated Waste Treatment Facility. It was determined that the potential for "blinding" filter systems in the facility with unburned charcoal had not been adequately analyzed in the current safety documents. The facility was shut down after the June 16 pressure event, and an investigative team was commissioned to determine the root causes of the event and how to correct them. (EM-ID—CWI-IWTU-2012-0009)." [8]

Defense Nuclear Facility Safety Board report to Congress

Idaho National Laboratory

"**Integrated Waste Treatment Unit**. During 2012, the Board's staff evaluated preparations to commence operations of the Integrated Waste Treatment Unit project at Idaho National Laboratory. This facility is designed to convert approximately 900,000 gallons of radioactive liquid waste stored in tanks at the Idaho Nuclear Technology and Engineering Center to a solid form in preparation for permanent disposal. On June 16, 2012, the process system over-pressurized during pre-operational testing using nonradioactive materials. The system's off-gas filters were breached, creating an unimpeded path from the process vessels to the environment. The staff reviewed the operating contractor's corrective action plan and found several weaknesses. Among the staff's concerns was the potential for improper operation of bypass valves in the pressure relief system to impact the function of safety-significant rupture disks that protect other portions of the process system from over-pressurizing. The staff's communication of this concern prompted the contractor to declare a Potential Inadequacy of the Safety Analysis to ensure the issue was formally tracked and resolved. The Board continues to monitor the project's progress as DOE prepares to resume startup activities." [9]

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[6] DOE-ID Operations Summary 13.01; For the Period Dec. 11, 2012-Jan. 2, 2013

[7] DOE-ID Operations Summary; For the Period June 19 to July 12, 2012

[8] DOE-ID Operations Summary; For the Period July 13 to Aug. 2, 2012

[9] http://www.dnfsb.gov/sites/default/files/Board%20Activities/Reports/Reports%20to%20Congress/2013/ar_2013228_21831_0.pdf

U.S. Nuclear Waste Technical Review Board

"The NWTRB is an independent agency of the U.S. Federal Government. Its sole purpose is to provide independent scientific and technical oversight of the Department of Energy's program for managing and disposing of high-level radioactive waste and spent nuclear fuel." [10]

According to Dr. Darryl Siemer, former INL scientist, "the people on the NWTRB Board are supposed to serve as totally independent advisors/counselors to DOE on its "technical' issues – kind of like what the folks at the National Academy of Sciences and Defense Nuclear Facility Safety Board are also supposed to be doing for it (us?). Frankly, I think that DOE has made captives of all of its "advisors" because 1) it's both fun & lucrative (about $165K/yr for part time work) to be one of DOE's pet independent experts, and 2) they don't really have to do all much for it (their support staff does all the scud work). The main problem is that DOE usually dictates what its independent experts are supposed to "think" about and provides them with carefully rehearsed dog and pony shows/selected documents to "bring them up to speed" on each such issue. Most of these experts don't seem to question what they're being told and therefore usually end up not spotting/fixing the real problem(s)."

Additional Occurrence Reports on IWTU Problems

7/30/12; ITWU – Failure to Follow Confined Space Entry Process; [11]

5/2/12; ITWU Potential Inadequacy of Safety Analysis (PISA) – Inadequacy of Technical Safety Requirements TSR-level Controls for Fire Detection in Granular Activated Carbon Beds; [12]

4/25/12; ITWU Hazardous Energy Control Process Violation; [13]

2/27/12; IWTU – Safety Significant Pressure Safety Disk PSE- SRH-141-001A Discovered Ruptured; [14]

[10] http://NWTRB.gov

[11] DOE Occurrence Report; EM-ID-CWI-IWTU-2012-0011

[12] DOE Occurrence Report; EM-ID-CWI-IWTU-2012-0007

[13] DOE Occurrence Report; EM-ID-CWI-IWTU-2012-0006

[14] DOE Occurrence Report; EM-ID-CWI-IWTU-2012-0002

Idaho Seeks Public Comment on INL Radioactive Hazardous Waste Permit

Idaho Department of Environmental Quality (IDEQ) is once again asking for public comment on INL's Draft Modified Hazardous Waste Permit for the Integrated Waste Treatment Unit (IWTU). This IWTU is slated to treat the nearly one million gallons of highly radioactive sodium-bearing liquid waste in non-compliant underground tanks at INL's Idaho Nuclear and Environmental Center (INTEC). [15]

According to IDEQ, "Construction of the IWTU was completed in the Fall of 2011. A significant process upset occurred during the initial efforts to start the steam reforming process. At the time of the upset neither hazardous nor radioactive waste had been place in the unit. This Class 3 Permit Modification Request represents the physical and operational changes deemed necessary for the IWTU to recover from the process upset." [16]

It's procedurally unacceptable for IDEQ to allow DOE/INL, after major IWTU process failures, to ram through a limited focused modified permit that has major process changes. There are many changes to the original 2007 IWTU air/hazardous waste permit, but the DOE assessment of the release of hazardous waste has not changed. But the combined hazard of hazardous waste and radiological emissions are not evaluated nor are the accident risks posed by the facility described. The DOE's safety basis to address nuclear facility safety is likely still undergoing significant revision and will not be a mature analysis when the facility begins operation. Meaningful information about the complete set of expected releases and potential accident releases have not been provided by IDEQ or the DOE. The hazardous waste permit is not the ideal place to obtain information but it is the only forum for public comment for the IWTU at this time.

Retired INL Consulting Scientist and long term critic of INL and Hanford contractor multi-billion dollar "boondoggles" to treat legacy high-level radioactive liquid tank waste, Darryl Siemer, PhD. 7/15/13 letter to IDEQ states in part; "The permit process which nominally describes the system which IDEQ is apparently choosing to relicense again was generated in April 2011 & therefore doesn't address those changes inspiring this particular public relations exercise - even that/your giant paper dump doesn't seem to include a useful description (i.e., figures with dimensions & projected flow-rates) of the IWTU's "reformers'" ancillary off gas cleanup ("environmental protection") equipment - the parts that plugged up with coal dust & then "blew up" along with the HEPA filters when CWI tried to start your/INL's "steam reformer" last year - don't you remember "partnering up" with DOE when the decision to go with that

[15] The INTEC underground high level waste (from reprocessing nuclear reactor fuel) do not meet Resource Conservation Recovery Act (RCRA) compliance standards and thus are a significant risk to the underlying Snake River Aquifer.

[16] Idaho Department of Environmental Quality, Letter and Fact sheet from Robert Bullock, 6/28/13. http://www.deq.idaho.gov/media/1002766-inl_intec_lwms_idaho_falls_modified_permit_attachments.pdf

technology was being made?" [17]

"Rumor has it that the modifications made since last year's "incident" have eliminated backup sintered metal filters which were in the original system's filter "candles". Is that true? Those rumors also suggest that those candles have now been welded down so that they can't "lift" if/when another "pressurization event" (explosion) happens to occur."

"In view of the facts that 1) both of CWI's fluidized bed "reformers" (DMR & CMMR) are heated by burning powdered coal and/or activated charcoal dust with oxygen (not with "steam") and 2) dust-oxygen combustion reactions tend to be rather explosive (that's why grain elevators occasionally blow up), this equipment/process is inherently much more dangerous than is/was the already-paid for New Waste Calcination Facility which could & should have been applied to INL's remaining liquid "sodium bearing" reprocessing waste 15 years ago."

"We are all lucky that last's year's "event" occurred before INL's clean up contractor managed to pump "real" (radioactive & toxic) waste into its $600 million boondoggle. That system would be both much "cleaner" and safer to operate if it were to be retrofitted to and operated as a "sugar calciner". IDEQ should not issue a permit to operate until INL and its contractor has made this change (implementing such changes is not 'rocket science')." [18]

INL never learned from the misguided DOE Hanford nuclear site tank waste treatment plan that after billions spent and nearly 50% completed is now "on-the-ropes" because the "science" was never there. DOE again relied on contractors who did not have a clue about what they were doing.

The deadline for public comments is August 12, 2013. For more information go to IDEQ's website; www.deq.idaho.gov

More Plutonium in Hanford Tanks than Previously Thought

Hanford Challenge reports 12-12; "RICHLAND, Wash. – Waste in underground tanks at the Hanford Nuclear Reservation may have much more plutonium than previously thought. That's according to a report by a Hanford contractor that's just been leaked to public radio. It's also according to the latest high profile whistleblower to raise serious concerns about a waste treatment plant being built at the Nuclear Reservation in southeast Washington.

Here is why you should care about what Donna Busche says. She told me she's the manager for environmental and nuclear safety at Hanford's waste treatment plant. "I'm where the nuclear safety buck stops," Busche says. And Busche wants a well-working plant. "I believe the waste

[17] IDEQ is only permitting for hazardous waste and those amounts have not changed. To IDEQ's credit, it appears that they are trying to ask DOE questions and follow the progress of future operational testing closely.

[18] Darryl Siemer, Ph.D. 7/15/13 open letter to Susan Burke, Robert Bullock on the INL Integrated Waste Treatment Draft Modified Permit. Forwarded to Chuck Broscious.

treatment plant is needed. We need to get the waste out of the tanks, we have to. Right? They are in degraded state they are long past their life cycle," Busche says.

What that means is that those tanks near the Columbia River are in danger of leaking more radioactive sludge into the ground, or worse, one could rupture.

The waste treatment plant is a massive complex of buildings all meant to separate, mix and ready that radioactive sludge before it's turned into glass logs for long term storage.

But here's the thing: Busche says there are serious engineering problems with that process that haven't been figured out yet. And the longer those sticky issues go unsolved, the more expensive it will be to fix them. "We continue to build it even with these big, huge lingering issues", say says. "Like:

*Is criticality safety a concern?

*Do I have fire protection programs that will actually make sure my systems perform as they're intended?

*Do I have a control strategy to make sure my pipes don't blow up from a hydrogen explosion?"

"Those are big issues," she continued. "And there are even good people working on that. But not a lot of people are willing to stand up and say, 'No, time out, we don't have enough information.'" Here are some of Busche's main concerns:

Hanford engineers have recently revised their estimates for how much plutonium is in the nuclear site's sludge. Listen to these numbers: Hanford engineers used to think they had 10 kilograms of plutonium in the tanks. They now believe they've got between 30 and 130 kilograms. Let's put that in perspective: The nuclear bomb at Nagasaki had about 6 kilograms of plutonium. In the worst case scenario Busche says Hanford could have 13 times more plutonium than previously thought.

"Since day one of the project, many years before I got here, the project has designed the plant assuming criticality was incredible. Which means criticality it would never happen, never," Busche says. A criticality is when radioactive atoms release a burst of energy. "So this new information that we have received, that was prepared by very smart people, looking through old records, has given us new information meaning criticality could be probable in the plant. We don't know what the design solutions are, but they could be significant," Busche says.

Here's another of Busche's concerns: That radioactive sludge can create hydrogen gas. If it builds up in a closed space it can blow up. And Busche worries the plant's complex system of pipes isn't robust enough to withstand hydrogen explosions. And once the plant starts working, it's not like you can go in and fix those pipes. "You have to remember that in this plant we are building vessels in black cells. Which means once we shut that door, we are never going back in there," Busche says.

The plant's black cells are where the waste is pretreated and processed, and they will be so radioactively hot that they're impossible to enter. Imagine fixing a leaky kitchen sink without opening the kitchen cabinets.

Busche raised her concerns to her supervisors, and to their supervisors. She even testified at a major two-day hearing of the national Defense Nuclear Facilities Safety Board in 2010.

During her testimony to the board she gave different answers than top-level officials with the Department of Energy and contractors Bechtel National and URS. Afterward, she says her managers asked her to change her answers. Busche said "No." She says she was ... "Raised by a very good mother, that said, 'Just don't lie. 'Cause once you tell your first one it's real hard to ... they just continue to grow.'"

In her formal complaint she tells this other story: In June of 2010, she was at a managers meeting with an engineer who went on to become a high-profile Hanford whistleblower. Walt Tamosiatis laid out about a 50-item list of technical concerns with the plant.

Before he did, he asked another manager if he could have some of the fresh cherries she had brought. She said, "Sure, maybe you'll choke on them."

Afterward, a top manager with contractor Bechtel National told Busche she didn't have to look into Tamosiatis' list of worries.

She says her response was that, in fact, she's obligated to look into those concerns. "You don't need to do it," her boss told her, according to the testimony. "I have to do it," Busche said before leaving his office. Busche says she just wants an environment where she can do her job, but lately it's become uncomfortable at work. "I'm not invited to the meeting because they don't like my answer. Or, I'm not invited to the meeting because they are uncomfortable with my physical presence. Okay. So yeah, it is difficult. And you find out quickly who your friends are not," Busche says. Busche is 48. And her career is on the line. I saw no other choice for myself. I got to look at me in the mirror," Busche says.

The Department of Energy said in a written statement that the agency has "... been clear that it will not tolerate any retaliation for workers raising safety or technical concerns."

Busche's company URS declined to comment because of pending litigation. And Todd Nelson with contractor Bechtel National says, "We have a process where employees can raise issues and they are formally captured and she has confirmed that all the issues that she has raised are well documented and are being worked by the project."

Donna Busche has a whistleblower retaliation case against Bechtel and URS. It's now being investigated by the federal Department of Labor. There's another detail about Busche's experience that we haven't talked about. It has little to do with nuclear safety. She also alleges a direct manager at contractor URS subjected her to sexual harassment and discrimination. That claim is also part of the complaint with the Department of Labor." [19]

[19] Hanford Challenge is a non-profit public interest organization that tracks DOE/Hanford environmental, health and safety issues. www.hanfordchallenge.org

More Hanford Radioactive Waste Tanks Are Leaking

The news reports about Hanford are grim. The U.S. Department of Energy (DOE) has announced that six of Hanford's single-shell high-level nuclear waste tanks are actively leaking, another 14 may be leaking, and this is in addition to the leaking double-shell tank announced back in August 2012. The new leaks – and Governor Jay Inslee's very public reaction to them – have thrown a much needed national spotlight on Hanford.

Most of Hanford's tanks were built when Harry Truman was President. Sixty-seven of the single-shell tanks have *already leaked* an estimated one million gallons of deadly radioactive stew into the soil and groundwater beneath the tanks. Now add to that a game-changing leaking double-shell tank, six new leaking single-shell tanks, the likelihood that this is just the beginning of more yet to be discovered leaks, and risks of tank explosions. It is clear that Han-ford's tanks are in trouble.

This is a huge problem. The only active strategy for dealing with a leaking tank is to move its contents to a tank that is not leaking. Unfortunately Hanford is running out of tank space, and the leaking double-shell tank crushes the assumption that the double-shell tanks would remain stable until the troubled Waste Treatment Plant goes on line and starts immobilizing the tank waste in glass.

One idea for fixing this problem so far include building new tanks for which Washington State, Oregon, the Hanford Advisory Board, and groups like Hanford Challenge are advocating. New double-shell tank space is needed to provide a secure place to contain waste until the Waste Treatment Plant gets its ducks in a row and is able to start immobilizing the high-level nuclear waste.

Another plan, announced as a preferred alternative by DOE on March 11, 2013 is to characterize some of the tank waste as Transuranic (TRU waste), treat it, and ship it to the Waste Isolation Pilot Plant (WIPP) in New Mexico. The number of tanks that actually meet the criteria to be considered TRU waste is unknown (some say only 2-11 tanks are possible to characterize as TRU), though DOE has said it is looking at up to 20 tanks. The prospect of getting rid of Hanford tank waste is appealing. Unfortunately, the "preferred alter-native" to retrieve, treat, package, characterize, and certify certain Hanford tank wastes for disposal at WIPP is unlawful, time consuming, fraught with technical problems, and directs money away from more practical solutions like building new tanks and fixing the Waste Treatment Plant. Hanford Challenge, in coalition with other environmental groups sent a letter to the Secretary of Energy outlining problems with shipping tank waste to WIPP.

An interim measure that does have promise includes building barriers over some of the tank farms to slow down the spread of contaminants through the soil and groundwater until the contents of those tanks can be removed and immobilized. We must do all we can to slow the flow of radioactive waste to the Columbia River.

Apart from moving the waste around, there are no commitments to clean up the waste that has leaked into the soil and groundwater un-der the tanks, despite regional stakeholders calling for this waste to be remediated. With inevitable future delays to the startup of the WTP, budget cuts in place from sequestration, questionable tank integrity, and no contingency plan in place in the event of multiple tank failures, it is critical that the tank leaks be controlled and stabilized as soon as possible to ensure no further harm to the environment. Looked at one way, there are still 56 million gallons of high-level radioactive wastes in the 177 decaying Hanford tanks left to leak.

The leaking tanks may be releasing up to 1,000 gallons/year of high-level nuclear waste into the environment. The leaking single-shell tanks include T-111, T-203, T-204, TY-105, B-203, and B-204. In late Feb 2013, Senator Wyden asked the Government Accountability Office to investigate when DOE knew of leaks at Hanford, whether the issue was immediately reported, and if changes need to be made to the tank monitoring program. Assumptions about tank integrity have been tested and found to be incorrect. More rigor needs to be introduced into the monitoring program.

The leaks add additional pressure to the troubled Waste Treatment Plant which may be unworkable, unsafe and is certainly over-budget and behind-schedule. The original cost estimate of $4.6 billion seems reasonable compared to the most recent estimate of $13.4 billion. Nobody believes the price tag or delays will stop there." [20]

[20] Hanford Challenge, Winter 2013, Volume IV, Issue III. http://www.hanfordchallenge.org/wp-content/uploads/2013/03/2013-03.26-NRDC-et-al-Letter-to-Chu-re-HLW-to-WIPP-FINAL.pdf