Jack Lessenberry writes “I don't really feel strongly one way or the other about Ontario Power Generation burying some old gloves and filters in Kincardine.” I think if he understood more about the hazards of so-called “low” and “intermediate” level radioactive wastes, he would.

He also writes “if you incline to go picket your hearts out against it, you might spend a little time thinking about the bigger problem.”

He should know that many of us have done plenty of thinking about the bigger problem of high-level radioactive wastes (HLRW), not to mention nuclear power in general, without dismissing or downplaying the still very real risks of so-called “low” and “intermediate” level radioactive wastes (L&ILRW), as he has done.

Lessenberry should take care not to drink Ontario Power Generation’s (OPG) Kool-Aid on L&ILRWs. It’s but a slightly different flavor, but essentially the same, as the snake oil OPG – and, I should hasten to add, their U.S. nuclear utility cousins -- are selling on HLRWs.

Given that the Great Lakes – the drinking water supply for 40 million people in eight U.S. states, two Canadian provinces, and a large number of Native American First Nations – would be put at risk by the OPG “Deep Geologic Repository” (DGR) for radioactive waste burial on the Lake Huron shore, it’s well worth setting the record straight.

By the way, Dave Martin of Greenpeace Canada dubbed the DGR the Deep Underground Dump, or DUD, instead. I prefer it, because DUD says it all, so I’ll use it below.

About the “Stop Nuclear Waste by Our Lakes Act of 2015,” to be introduced by U.S. Senators Debbie Stabenow and Gary Peters, and U.S. Representative Dan Kildee, Lessenberry writes “Sounds sensible — but since they are all Democrats, their bills are likely to end up in the majority leader's circular file.”
But Sens. Stabenow and Peter’s earlier resolution, S. Res. 134, along the very same lines, picked up not only fellow Great Lakes States Democratic Senators, but also Mark Kirk of Illinois, a Republican. Sen. Kirk is a long-time champion of Great Lakes protection.

Rep. Kildee’s (D-MI’s 5th District) U.S. House resolution (H. Res. 194) picked up 11 Democrats and 11 Republicans, including the following from Michigan: John Conyers (D-MI-13); Sander Levin (D-MI-9); Brenda Lawrence (D-MI-14); Debbie Dingell (D-MI-12); Candice Miller (R-MI-10); Mike Bishop (R-MI-8); John Moolenaar (R-MI-4); Dan Benishek (R-MI-1); and James David Trott (R-MI-11). Republicans from Illinois, New York, Ohio, and Wisconsin have also co-sponsored it.

Lessenberry may be right about the significance of the October 19th Canadian federal elections on this issue. If Prime Minister Harper is defeated, we hope his replacement will simply nip this DUD in the bud!

And he is also right, even if Harper is re-elected, and his Environment Minister, Leona Aglukkaq, approves the DUD on December 2, “we will then see more bitter protests.” You better believe it! We just held a powerful protest rally in Port Huron on August 16. We’ll be in the streets at the Detroit March for Justice on this issue on October 3 – after all, Detroit draws its drinking water from the Great Lakes, downstream of this proposed dump. If necessary, we’ll take the protests to Canadian consulates and trade missions throughout the Great Lakes States, as well as to the Canadian Embassy in Washington, D.C. If the Obama administration continues to fail in its duty to protect the American people from the DUD’s radioactive risks, we’ll extend our protests to the U.S. State Department, the Environmental Protection Agency, even the White House. The Great Lakes are worth that effort.

Our broad and growing coalition isn’t just waiting around for Prime Minister Harper and Environment Minister Aglukkaq to do the wrong thing. Already, the local Kincardine-area group Save Our Saugeen Shores has filed a lawsuit against the DUD.

More legal actions may be in the offing, if necessary.

Our bi-national coalition has plenty of fight left in it, no matter what Canadian federal and provincial decision makers do in the near future. After all, we’ve been resisting the dump ever since we first learned of it a decade and a half ago, so we’re not about to stop now. And we’ve been joined by many others since, including: a combined 141,550 petition signatories, and counting, at Stop the Great Lakes Nuclear Dump and Sum of Us; 170 municipalities across the Great Lakes Basin, where 22.6 million people reside; the National Association of Counties, representing 3,069 counties across the U.S., where 255 million people live.

We supposedly live in a democracy. Whether it’s the 141,550 petition signers, the 22.6 million Great Lakes residents represented by resolutions, or the 255 million Americans represented by the NACo resolution, opponents to the DUD have overwhelmingly “outvoted” the just over 11,000 Kincardine residents, the supposedly “willing hosts” of
this DUD. (Even that “willing host” status is another very dubious can of worms, discussed further below.)

The long list of resolutions includes an oh-so-rare bipartisan policy statement passed by the State of Michigan Senate. It was introduced by State Senator Hoon-Yung Hopgood, a Democrat from Michigan’s 6th District, but it was supported unanimously in both the Republican-majority committee and full State Senate.

All of the counties in northeast Illinois, and the City of Chicago, have passed resolutions against the DUD. This, despite the fact that Exelon, the biggest U.S. nuclear utility, with two-dozen reactors in its fleet, is headquartered there, and the entirety of Chicagoland is supplied with around 80% nuclear generated electricity. Likewise, Port Clinton, Ohio passed an anti-DUD resolution, even though it’s the company town of FirstEnergy’s Davis-Besse atomic reactor. Why would they do this? Because American nuclear utilities may be crazy enough to generate and store radioactive waste on the Great Lakes shore, but they aren’t crazy enough to bury it there!

It’s not just Americans who think the DUD is a crazy idea, Toronto – the largest city in Canada, where OPG is headquartered – has also passed a resolution opposing the DGR.

Shortly after the Canadian federal Joint Review Panel (JRP), overseeing the DUD’s environmental assessment, ignored thousands of public comments and scores of comprehensive technical critiques – submitted over the course of many years -- and recommended Environment Minister Aglukkaq approve the DGR, 100 environmental and public interest groups wrote Ontario Premier Wynne, demanding the province, as sole shareholder in OPG, cancel the DUD. The more than 50 Canadian signatory groups included Canadian Coalition for Nuclear Responsibility, Canadian Environmental Law Association, Citizens Environment Alliance of Southwestern Ontario, Durham Nuclear Awareness, Friends of Bruce, Greenpeace Canada, Inverhuron District Ratepayers Association, Northwatch, Sierra Club (its Ontario Chapter, Canada Foundation, and Bi-national Great Lakes Committee), the Council of Canadians, and the National Council of Women of Canada.

U.S. groups included many from Michigan – Alliance to Halt Fermi 3, Citizens for Alternatives to Chemical Contamination, Don’t Waste MI, MI Safe Energy Future, Saginaw Home for Peace and Justice, Sierra Club MI Chapter, etc. – as well as dozens more from other Great Lakes states, and beyond.

The resistance is deeply grassroots, and bi-national.

Lessenberry goes on to say: “To be fair to Ontario Power Generation, they do have some reasonable arguments.” What reasonable arguments?

He writes that OPG’s “spokesman, Neal Kelly, notes that they are not talking about burying highly radioactive fuel rods at the site, but low- and intermediate-level nuclear waste.”
That’s actually a hotly contested question. The Saugeen Ojibwe Nation (SON), on whose traditional land the DUD would be built and operated, demanded that the JRP address whether, or not, high-level radioactive waste (HLRW) would be buried there. The JRP refused to, simply taking OPG’s word on the matter.

Speaking of OPG’s word, it has acknowledged it needs SON’s consent to proceed with the DUD. But SON, rightfully fearing radioactive stigma impacts on its fisheries, tourism industry, etc., has withheld its consent. So why is this project even moving forward at this point? SON has been joined by the Anishinabek Nation and the United Tribes of Michigan in its opposition to the DUD. So too has the Oglala Sioux Tribe Cultural Affairs and Historic Preservation Office expressed opposition to the DUD. For OPG, and Canadian decision makers, to go forward regardless, is an environmental justice violation, as well as a violation of the legal and sovereignty rights of the SON.

OPG is not legally bound to not pursue HLRW disposal at the DUD. Through a simple, one-day, perfunctory license amendment hearing, conducted by the Canadian Nuclear Safety Commission (CNSC), a rubber-stamp agency perhaps worse than our own infamous U.S. Nuclear Regulatory Commission, OPG could easily acquire the permit it needs to expand a L&ILRW dump into a high-level one.

Like SON, we’ve feared the “low- and intermediate-” has been but a bait and switch from the start.

First, the Canadian Nuclear Waste Management Organization (NWMO), composed of Canadian radioactive waste-generating nuclear utilities (and hence dominated by OPG, which owns 20 of Canada’s 22 commercial reactors), announced a half-dozen municipalities in the general Bruce Nuclear Generating Station (NGS) neck of the woods, “volunteering” to “host” Canada’s national HLRW dump. These have included: Arran- Elderslie; Saugeen Shores; Brockton; Huron-Kinloss; South Bruce; and Central Huron.

NWMO is tasked with finding a “willing host” for that dump, for forever deadly irradiated nuclear fuel (of which Canada has nearly as much as we do, ironically; even though Canada has “only” 22 reactors, compared to 100 still operating -- and two- or three-dozen more permanently shutdown -- in the U.S., the Canadian CANDU (Canada Deuterium Uranium) reactor design, with its natural, un-enriched uranium fuel, produces a significantly larger volume of HLRW than do U.S. reactors.) These communities are disproportionately populated, as is Kincardine itself, with Bruce NGS workers, and otherwise under the sway of the almighty tax revenues the world’s largest operating nuclear power plant generates. Although a few of the municipalities have since been disqualified, the rest are still very much in the running.

Which begs the question, why would they build two DUDs, for supposedly different purposes, in the same area? OPG claimed in the course of the JRP proceeding that the DGR for L&ILRW would cost $2.65 billion. This price tag sounded suspiciously low, actually. After all, the rupture of a single barrel of so-called LLRW, resulting contamination of the underground, and radioactive release to the surface environment, at
the only DGR operating in the U.S., the Waste Isolation Pilot Plant (WIPP) in New Mexico, has been estimated by the U.S. Department of Energy (DOE) to cost $500 million to clean up. The *L.A. Times* puts the cost at $1 billion.

Because of the “evolving nature” of the proposal(s), however, we’ve had to refer to DGR1, DGR2, and DGR3, just to keep track of all the different versions of the dump OPG, NWMO, CNSC, JRP, etc. are talking about! DGR1 refers to OPG’s proposed L&ILRW dump at Bruce NGS in Kincardine. DGR2 refers to NWMO’s HLRW dump, potentially to be built at one of a number of sites just down the road from Bruce NGS.

But confirming our suspicions about the suspiciously low price tag, OPG was forced by opponents to admit in the course of the JRP proceeding that it hadn’t been entirely forthcoming about the radioactive inventory to be buried at DGR1. So much so, that we had to now refer to DGR3 – which is OPG’s secretive plant to dramatically expand DGR1.

You see, OPG had forgotten to mention the decommissioning wastes. Once OPG’s 20 atomic reactors retire, and need to be dismantled and cleaned up, all of that L&ILRW will also need to be disposed of.

The moving target has always moved in one direction, for more and more waste, and of “hotter” radioactive categories, to be buried at the DGR.

DGR1 began as 100,000-some cubic meters of operational low- and “lower-level” intermediate-level radioactive waste from OPG’s 20 reactors.

But then in the course of the past decade, OPG let it be known that in addition to operational wastes, refurbishment wastes would be added to DGR1 – doubling the inventory to be buried, to 200,000 cubic meters. Along the same lines, “hotter” category ILRWs would now be included, including Class III – of comparable radioactive hazard to HLRW.

OPG’s last minute, forced admission about decommissioning wastes, that it had neglected to mention before, doubled the DGR1 inventory yet again, to 400,000 cubic meters of waste. That translates to 523,000 cubic yards.

How OPG can stick by its $2.65 billion price tag projection for DGR1, when it has admitted that the waste inventory will be doubled (by DGR3), has not been explained. Does this mean OPG is now admitting DGR1/3 will cost more than $5 billion to build and operate?

Even this amount sounds suspiciously low. After all, the most recent cost estimate by DOE, for the proposed (and since canceled) Yucca Mountain, Nevada HLRW dump, was close to $100 billion.
If Canada has about as much HLRW as does the U.S., it stands to reason DGR2 will cost around the same amount, $100 billion, to build and operate.

Why would OPG build a $2.65-5 billion DGR1/3 at Kincardine, while NWMO builds a ~$100 billion DGR2 just up the road? The pressure to merge the dumps would be immense.

This absurd mess of proposals reveals that OPG is largely making it up as it goes, hoping to get away with as much as it can. Which brings up HLRW again.

Late in the DGR1/DGR3 process, OPG hired NWMO (which it largely comprises to begin with) as its primary contractor, to essentially run it. But NWMO was supposed to be focused exclusively on DGR2, with several targeted sites, just down the road from Kincardine. The specter of DGR1, 2, and 3 simply being merged into one dump seems to have grown more likely, given NWMO’s involvement in both proposals.

In addition, OPG cannot and will not tell you that the proposed Kincardine site is the best possible in all of Canada – because even they know it isn’t! No, all OPG says is that Kincardine was chosen because “it’s a willing host.” But is it?

Truth is that a $30 million bribe to a small town, and $5 million in additional bribes to other nearby small towns, buys a lot of “willingness”! And those local municipalities have fulfilled their end of the Faustian fission bargain, cheering the DUD every step of the way. But, as Upton Sinclair warned, “It is difficult to get a man to understand something when his salary depends on his not understanding it.”

A decade-old phone survey OPG has often cited as proof of Kincardine residents’ support for the DUD was fatally flawed from the start. Biased questions were asked of only “heads of households,” not entire families. Many to most summer cottagers, a large fraction of local property owners – less connected to Bruce NGS through familial employment – were not phoned at all. An official referendum has never been held.

Kincardine and other pro-DUD local municipalities’ secretive meetings, it turns out, have violated provincial transparency laws. These included inappropriate meetings with CNSC itself, including with the agency’s chairman, Michael Binder, himself, who betrayed his bias in favor of DUD approval by saying “See you at the ribbon-cutting ceremony” at the end of one such meeting!

Regarding geology, the truth is that just 25 years ago OPG had an entirely different plan for the disposal of its radioactive waste: to bury it in the granite of the Canadian Shield. And AECL (Atomic Energy of Canada, Ltd.) was preparing such a site in Manitoba. However, that plan got nixed in the late 1980s, when the government of Manitoba announced it would not become Ontario’s radioactive waste dump. (Ontario has 20 commercial reactors, way more than any U.S. state. At its worst, Illinois had 14; it now has 11, with as many as five on the brink of closure. Michigan had five reactors, but now has four, after the 1997 closure of Big Rock Point in Charlevoix. Quebec had a single
reactor, which permanently shut in 2013. New Brunswick has a single reactor still operating. Waste inventories vary according to the number of reactors in a state or province, as well as the relative sizes of the reactors, how long they operate, etc.).

As mentioned above, Bruce NGS in Kincardine –where the DUD would be built – is the largest operating nuclear power plant in the world, at least in terms of the number of atomic reactors on site. There are eight operable reactors, with a ninth, an early prototype called Douglas Point, permanently shutdown.

By the way, for all of OPG’s and other proponents’ talk of burying L&ILRW in the DUD, to better secure it than can be done with surface storage, they have never mentioned the HLRW still stored on-site from Douglas Point’s operations. That reactor belonged to AECL. Bruce NGS’s own HLRWs will also likely remain stored on the surface, with nowhere to go, for a long time to come.

This means that a large fraction of Ontario’s HLRW is already stored at Bruce, generated by the eight operable, and the one permanently shuttered prototype, reactors there. The eight reactors just east of Toronto, at OPG’s Pickering nuclear power plant, and the four OPG reactors not far to east of Pickering, at Darlington, also store all the irradiated nuclear fuel they have generated over past decades. Why not just consolidate all the HLRW in Ontario at one site – Bruce? Why not then just add the relatively small remaining fraction from Quebec and New Brunswick as well? Essentially, that is what DGR2 is all about. Several Bruce area towns are still very much in the running to serve as host for Canada’s national HLRW dump, on or near the Great Lakes shore.

Mr. Lessenberry says ILRW is made up of things like filters and pumps that were in contact with nuclear fuel. He then asks: “Worried about a bunch of gloves and mops and filters being buried in a solid rock formation”? And adds: “I don't really feel strongly one way or the other about Ontario Power Generation burying some old gloves and filters in Kincardine.”

He should care. The actual ILRW to be buried at Kincardine includes CANDU reactor core components such as highly radioactive pressure tubes, calandria tubes, end fittings and garter springs. It also includes feeder pipes and steam generators that are heavily contaminated with fission products and transuranic species such as plutonium, americium and curium.

In fact, the “hottest” category of ILRW, called Class III in Canada, but called Greater-Than-Class-C (GTCC) LLRW in the U.S., is essentially equivalent in radioactive hazard to HLRW.

One of the eight dry casks remaining at Big Rock Point (BRP) contains highly-radioactive GTCC wastes, such as reactor internals; the other seven casks hold irradiated nuclear fuel.
GTCC is likely destined for a DGR in the U.S. Although, as with HLRW, a suitable site has not been found. Thus far, the powers that be, such as DOE, have proposed simply putting it at one of the same repositories that have been targeted for HLRW, such as Yucca Mountain, NV, or other waste categories, such as WIPP, NM.

So again, why would highly radioactive ILRW, of equal hazard to HLRW, be buried at DGR1/3, while other HLRWs would be buried down the road at DGR2?

Why are supposedly LLRWs planned to be mixed in with such highly radioactive ILRWs at DGR1/3 in the first place? Why wouldn’t ILRW be mixed with HLRW, as has been suggested in the U.S.?

Why is LLRW being buried in a DGR to begin with? In the U.S., LLRW is allowed to be disposed of in shallow, unlined trenches. Not that this is a good idea. That’s where BRP’s reactor pressure vessel (RPV) ended up, in a shallow unlined trench in Barnwell, South Carolina. As that community is predominantly low-income and African American, and as that dump had already leaked off-site, a number of us protested the shipment of BRP’s RPV to SC as an environmental justice violation. Two of us were even arrested, for committing a non-violent civil disobedience direct action against the shipment.

Similarly, Citizens Awareness Network of the Northeast conducted a “Caravan of Conscience,” hauling a mock up of the Yankee Rowe RPV from western Massachusetts to SC, before the actual thing got buried in a shallow, unlined ditch there, too.

Not only the dumping, but even the transport, of radioactive wastes is risky and objectionable. A broad coalition of environmental groups, the Great Lakes and St. Lawrence Cities Initiative (GLSLCI), First Nations, and Quebec municipalities along the St. Lawrence River won a major grassroots victory a few years ago, against Bruce Nuclear’s proposal to ship 64 giant radioactive steam generators, on boats, down the Great Lakes, across the Atlantic, to Sweden. For what purpose? Incredibly, to strip off the outer metal shells, and recycle those into (albeit radioactive!) consumer products, while “returning to sender” the more highly contaminated inner tubes back to Bruce NGS for burial at DGR1/3. Bruce Nuclear had been assisted by U.S. and Canadian authorities, which, as with the DGR (at least thus far), were largely to entirely complicit in the Canadian nuclear utility’s plan, despite risks and impacts on U.S. territory and drinking water.

However, the prospect of radioactive consumer products was a bit much for the public to accept. So too was the fact that Bruce Nuclear’s CEO, Duncan Hawthorne, admitted there was no advance emergency plan on the books, in the event one of the boats sank, saying a response could be devised ad hoc, in real time, as needed. In March 2011, speaking before a Canadian parliamentary hearing about his Great Lakes radioactive waste shipping scheme, Hawthorne said of opponents “It’s as if Chernobyl just happened yesterday for these people.” Ironically enough, just a few days later, the Fukushima nuclear catastrophe began.
Another blow to the proposal was GLSLCI’s revelation that the sinking of a single boat, and release of a small fraction of the contents of a single steam generator, would cause a Canadian federal radiological emergency in such small water volume bottlenecks as the Detroit River. Canadian drinking water intakes would be ordered shut off. Hopefully the Canadian authorities would remember, and be so kind as to contact, their American counterparts on the far side of the Detroit River, as the U.S. lacks any such laws and regulations.

Toledo’s experience with toxic algae a year ago, and 2014’s West Virginia, and this summer’s Colorado, toxic spills into rivers, have shown how paralyzing the shutting down of drinking water supplies, for protecting public health and safety, can be.

The GLSLCI has spoken out repeatedly against the DUD, as well.

Dr. Gordon Edwards of Canadian Coalition for Nuclear Responsibility, a strong critic of the DUD, struck a major blow to Bruce Nuclear’s radioactive waste shipments on the Great Lakes, when he showed that all the so-called “experts” – at Bruce Nuclear, at CNSC – had left out an important isotope of plutonium from their steam generator inventories. His revelation instantly doubled the estimated radioactive content of the steam generators.

In the end, Bruce Nuclear was forced to indefinitely call off the radioactive steam generator shipments. Hundreds of Québécois municipalities, representing millions of residents, made clear that “Hell No, We Won’t Glow!”

Then the Mohawk Nation communities of Akwesasne, Kahawaike, and Tyendinaga of Quebec had let be known the shipments simply would not be allowed to pass through their territories along the St. Lawrence River. Bruce Nuclear suddenly announced it needed to further consult with First Nations, and the proposal has gone almost entirely silent now for several years.

To further show the inappropriateness of Lessenberry’s downplaying the risks of ILRWs, especially regarding highly radioactive filters, there would be tons of ion exchange resins loaded with carbon-14 (C-14) buried at DGR1/3. These resins are known to be quite unstable over long-term storage and therefore are likely to release all of their radioactivity within a few hundred years, rather than the millennia promised by OPG.

C-14 is perhaps the single most biologically harmful of all radioactive poisons, over the long term. It can be incorporated into plant and animal tissue wherever carbon goes, which is just about everywhere, and there do its harm. With a half-life of 5,700 years, it remains hazardous for 57,000 to 114,000 years.

And that "solid rock formation”? Lessenberry writes that “Ontario Power says they will bury it two football fields below the surface, in rock that hasn't moved for 450 million years.”
Unfortunately, disposing of radioactive wastes isn’t as simple as “beam-me-up-Scotty.” A wand can’t be waved, to magically deliver the radioactive wastes into that 450-million-year-old limestone formation OPG is so keen on. That solid rock, that stable geology, must be pierced with shafts, to take the wastes down, as well as horizontal tunnels and chambers in which to move and emplace it underground. A part of the reason for the 680-meter (744-yard, or 2,230-foot) depth is concern about future glaciers scraping off a significant chunk of the surface geology, digging down towards the DUD itself.

Although those shafts will be sealed, OPG promises (although it hasn’t figured out exactly how, yet, but is very confident the mystery seals will perform swimmingly), those seals will likely fail. It’s just a matter of time. And the radioactive wastes are very patient prisoners, just waiting for their chance to escape into the living environment. They will remain hazardous for a very long time. Those failed shafts will then become the pathways by which radioactive gases and volatile particles can and will escape, as well as for corrosive water to flow down. Active pumping will cease after a certain point, as will all other "institutional controls." The DUD will be "abandoned" to its fate, which could well include flooding, all the way up to potable groundwater levels, and thereby flow into the Great Lakes. Whether water-borne or air-borne, very long-lasting, hazardous radioactive substances would then flow downwind and downstream, not diluting, but rather bio-concentrating up the food chain, causing harm down the generations.

Regarding DGR1/3, Lessenberry writes “How safe that really is may be open to debate.” Indeed it is. Unfortunately, the JRP, appointed by Harper’s Environment Minister, Aglukkaq, largely to entirely disregarded the many warnings of numerous critics, including geologists and nuclear scientists.

Mr. Lessenberry notes that here in North America we are governed primarily by the philosophy of NIMBY — "Not In My Backyard", which he calls “cowardice and selfishness.” Yucca Mountain, Nevada is mentioned. But what is not mentioned is that Yucca Mountain, Nevada is Western Shoshone Indian land, as recognized by the U.S. government in the "peace and friendship" Treaty of Ruby Valley of 1863. The Western Shoshone certainly don't want our wastes buried on their sacred homeland.

Yucca is also an earthquake zone, a volcanic zone, and has a watery, highly corrosive underground. DOE documented the unsuitable geology and hydrology by the early 1980s. The scientific inappropriateness of burying HLRW at Yucca has only been further documented since.

But then raw politics trumped science. Other targeted states, with much larger populations, and hence political power -- TX, WA, and any number of states in the east, MN, WI, VT, NH, and others -- decided to "Screw Nevada" in 1987.

As Michael Keegan of Don’t Waste MI and the Coalition for a Nuclear-Free Great Lakes, a 30-year+ watchdog on the Fermi nuclear power plant, has put it, Yucca has been the illusion of a solution to the radioactive waste problem for a generation.
Lessenberry writes “Much of this stuff [HLRW] was supposed to be buried in a national repository in Yucca Mountain, Nevada, which was as safe as any such place could be. But it was killed for political reasons by then-U.S. Senate Majority Leader Harry Reid (D-Nev.) and, since Nevada is a political swing state, it is unlikely to be revived.”

He is wrong about Yucca’s safety. By the mid-1980s, it was known that rainwater falling on the site could reach the targeted repository depth within just a few decades. From there, leaking radioactive waste containers would badly contaminate groundwater used for drinking and irrigation in an agricultural area downstream, not to mention Native American communities, National Parks, and National Wildlife Refuges.

Under long-established Site Suitability Guidelines, DOE should have disqualified Yucca from any further consideration because of this fast-flow rate of corrosive water. However, former U.S. Senator Spence Abraham, a Republican from Michigan, and George W. Bush’s Energy Secretary, did the nuclear establishment a favor – he simply erased the disqualifying criteria from the rule book. This was yet another “double standard standard” at Yucca, in the words of Dr. Arjun Makhijani of Institute for Energy and Environmental Research. If Yucca couldn’t meet the standard, just weaken or remove the standard.

Abraham has since been rewarded for his "service" to the industry, with plum jobs in the industry.

Yucca’s selection in the first place, and its preservation despite failing the tests, was the political decision, not its ultimate, inevitable cancelation, given its bad geology and hydrology. Makhijani has called Yucca the worst site ever studied for HLRW disposal.

And Nevada’s successful, bipartisan resistance to the Yucca dump should have been no surprise. The many hundreds of atmospheric and underground (a large fraction of which nonetheless leaked into the environment) nuclear weapons test blasts at the Nevada Test Site meant premature deaths for countless Nevadans. They would not quietly submit to being sacrificial lambs again, this time as the national HLRW dump at Yucca Mountain.

Besides that, though, Nevadans cannot be accused of NIMBYism. Nevada has no reactors within its borders. But Michigan does. That makes Michiganders, like former U.S. Senator Carl Levin, and former U.S. Congressman John Dingell, the NIMBYs, not Nevadans.

But as with the DUD, who would have ever guessed we’d have to fend off a Yucca Mountain targeted at the heart of the Great Lakes?

But sure enough, way back in 1957, the U.S. National Academy of Sciences considered the salt caverns under Detroit for the burial of liquid HLRW. Thank God that never happened -- it could have led to a radioactive disaster. It’s long since been recognized that liquid HLRWs must be re-solidified before burial. And even the U.S. Nuclear Regulatory Commission has acknowledged, in recent years, that the high thermal heat
content of HLRW could damage salt caverns, making such disposal dangerously inadvisable.

Lessenberry mentioned WIPP. But WIPP is currently closed, after a radioactive release to the environment on Valentine's Day, 2014, that wasn't supposed to have happened in 10,000 years, or even 200,000 years. Instead, it happened in just 15 years. A couple-dozen workers at the surface were exposed to inhaled doses of alpha-emitting, transuranic radioactivity. Even a microscopic quantity of plutonium, in the human lung, can cause cancer.

Ironically enough, OPG pointed to WIPP as an example to follow, to model itself upon, at its Kincardine DGR1/3. That is, till the radioactive release happened -- then OPG couldn't backpedal fast enough. All of a sudden, the DUD had nothing whatsoever in common with WIPP. OPG can’t have it both ways.

OPG, and even CNSC, assured JRP that such mistakes, as DOE made at WIPP, could never occur at the DUD. Such false confidence is belied, however, by Bruce NGS’s own worker inhalation disaster. Just several years ago, around 500 Bruce NGS workers, grinding through radioactively contaminated pipes while not wearing respirators, inhaled plutonium -- at a nuclear power plant owned by OPG, and regulated by CNSC.

Also, dismissing LLRW as somehow “low-risk” is not appropriate. The “stuff like old mops and brooms and uniforms” actually contains many, to most, to all the same radioactive isotopes contained in ILRW and HLRW, only at lesser concentrations.

Very disturbingly, OPG has -- for four decades -- been incinerating all of the combustible LLRWs from all 20 of Ontario’s atomic reactors at Bruce NGS. It would be the radioactive ashes leftover from that incineration that would be buried at the DGR. We have more research to do, to figure out how bad the atmospheric radioactive releases from the incinerator have been, and continue to be. But we do know that tritium (radioactive hydrogen, H-3) cannot be filtered out of such releases. In fact, we have documentation that tritium simply leaks out of the building, even before the LLRWs are incinerated. And, like C-14, H-3 can go anywhere in the human body that hydrogen can go, which is everywhere, right down the DNA level, where it can do its harm.

Lessenberry writes that ILRWs “may be dangerous for maybe 10,000 years.” But the Plutonium-239 and the Iodine-129 present in LLRWs, albeit at admittedly lower concentrations, will nonetheless remain radioactively hazardous for 240,000 and 157 million years, respectively, and perhaps even twice that long.

Lessenberry writes:

“However, nobody's asking the really important question. Not the protesters, not the establishment. What they should be asking is:
Why don't we have a national policy and a national depository or depositories for nuclear waste?

Especially, material like the highly radioactive spent fuel rods, which could remain dangerous for 250,000 years. Scientific American estimated six years ago that this country alone had produced 64,000 metric tons of radioactive nuclear fuel rods. There's more now.

More is produced every year. Some is buried in places like the Waste Isolation Pilot Project in New Mexico. But most just sits there, on or close to the sites where it was produced.”

Lessenberry’s wrong about the protestors. As we speak, challenges to NRC’s absurd “Nuclear Waste Confidence” policy – allowing atomic reactors to generate HLRW, while public health, safety, and environmental risks be damned – are winding their way through the U.S. Court of Appeals for the District of Columbia Circuit. Challenges have already been filed against the proposed new Fermi 3, MI reactor construction and operations license, rubber-stamped by NRC earlier this year, as well as the 2017-2037 license extension poised to be approved by NRC at Davis-Besse, OH. A radioactive waste court challenge to the Fermi 2, MI license extension will be filed in the next two months. Grassroots groups like Beyond Nuclear and Don’t Waste MI are joined by much bigger guns, such as the State of New York Attorney General, who is worried about the Indian Point nuclear power plant near New York City. In fact, the consolidated cases are referred to as NY v. NRC II. Similar lawsuits, NY v. NRC I, prevailed three years ago. NRC has flouted the 2012 court orders, hence the need for NY v. NRC II. If we prevail again, Fermi and Davis-Besse’s plans to continue generating HLRWs ad nauseum will be dealt a well-deserved blow. After all, the only safe, sound, sane solution to radioactive waste is to not generate it in the first place. Other so-called “solutions” are but lesser-evils, or, in the case of the DUD, greater-evils. But in fact, the lawsuits, the protests, and the grassroots efforts, have been going on for decades, all across the country.

He’s got his facts wrong about WIPP though. Transuranic, plutonium-contaminated nuclear weapons wastes are buried there, not high-level radioactive waste or irradiated nuclear fuel – and certainly not commercial wastes.

Lessenberry’s right about the quantity of commercial HLRW in the U.S. 63,000 metric tons, enough to fill the proposed (long canceled) Yucca, NV dump, already existed by spring 2010. At least 2,000 additional metric tons are generated by the 100 still-operating atomic reactors in the U.S. each year. So we already need a second HLRW dump, except we don’t have the first one yet.

That old east Texas aphorism of Molly Ivins’ applies well to radioactive waste: The first rule of holes is, when you’re in one, stop digging.

Or the first rule of overflowing bath tubs: before mopping up the floor, turn off the tap.
I’m glad Lessenberry brought up Big Rock Point (BRP). The seven casks of irradiated nuclear fuel stored there – 58 metric tons worth – and the eighth cask, containing GTCC LLRW, is an ongoing risk, near the Lake Michigan shore. We worked hard in 2006, and succeeded in blocking Consumers Energy’s clever scheme to charge State of Michigan taxpayers $20 million to take the liability of the radioactively contaminated site off its hands. The idea was to build a museum glorifying atomic energy there, despite the HLRW stuck there, and the radioactive contamination of soil, groundwater, and Lake Michigan sediments still present, even after a $366 million decommissioning project. The specter of schoolchildren being bused there, brainwashed, and dosed, motivated our opposition. McMansions along that Gold Coast – another prospect – are even more objectionable, given the doses the families living there full time would suffer.

And Lessenberry’s correct about the less than ideal security on BRP’s HLRW: “They are stored in a facility off in the nearby woods, guarded, we’re told, by a few guards and dogs and a chain-link fence.”

Given BRP’s HLRW will remain deadly for at least a million years, that’s a lot of dog food. Did that cost get factored in, when nuclear power was falsely declared “too cheap to meter” six decades ago?

Lessenberry’s also right about the HLRW risks at Fermi 2 – which happens to be the biggest Fukushima Daiichi twin design in the world, a General Electric Mark I Boiling Water Reactor as big as Fukushima Daiichi Units 1 and 2 put together. But the nearly 600 metric tons of Fermi 2 HLRW, “stored in a pool of water in an old building,” is more than was stored in all four pools at the destroyed units in Japan. If a single pool at Fukushima Daiichi had drained, or boiled dry, and caught fire, ten times the radioactive Cesium-137 released at Chernobyl would have escaped into the environment. It’s sheer luck, or divine intervention, that didn’t happen, as attested to by Japanese Self Defense Forces helicopters haplessly attempting to drop water into the pools on St. Patrick’s Day, 2011.

Speaking of tsunami-spawned radioactive catastrophes, Lessenberry writes “tidal waves are unlikely in the Great Lakes.” But while attending the first round of DGR JRP hearings in Kincardine in 2013, I was invited to speak in Goderich, Ontario, less than an hour’s drive south down the Lake Huron shore. The public library there had a centennial commemoration of the White Hurricane of 1913 on display. Sure enough, a banner on the outside of the building showed the 40-foot height of the giant wave that struck Goderich. The White Hurricane, a monster blizzard, killed more people on the Great Lakes than any other natural disaster in recorded history. This is the shoreline under consideration not only for Ontario’s L&ILRW dump, but also Canada’s HLRW dump?!

But Lessenberry needn’t have stopped with BRP and Fermi 2. In southwest Michigan alone, there are also: Cook Units 1 and 2, in Bridgman, storing more than 1,600 metric tons of HLRW; and Palisades in Covert, storing around 700 metric tons of HLRW. Most of that is also stored in vulnerable pools, in old buildings, right on the edge of Lake Michigan.
But there are also atomic reactors in Wisconsin, Illinois, Ohio, upstate New York, and Ontario, both permanently shutdown, as well as still operating, all storing HLRWs, most of it in vulnerable pools, in old buildings.

Even the 25% or so of HLRW that has been transferred from full pools, in old buildings, to concrete and steel silos on-site, are held in “dry casks” of questionable structural integrity, that will eventually corrode and fail. That’s why hundreds of environmental groups, representing all 50 states – including Michigan Environmental Council – have endorsed Hardened On-Site Storage, to ensure that: vulnerable pools, in old buildings, are emptied; dry casks are designed and built to last; and on-site storage silos or bunkers are fortified against attack, and safeguarded against natural disasters, accidents, and leaks.

Lessenberry concludes by warning “accidents and disasters happen everywhere, and in all of the nation, there are vast caches of spent and still highly dangerous nuclear fuel.” This is all the more reason to stop making it, by permanently closing the atomic reactors as soon as possible. Their dirty, dangerous, and expensive electricity can be readily replaced with clean, safe, and affordable energy efficiency, and renewable sources like wind power and solar photovoltaic.

He adds “You don't have to be an expert in probability theory to know a disaster somewhere is inevitable. Everyone who knows anything about it knows we need a highly secure national storage site or sites.” Unfortunately, the likes of U.S. Representative Fred Upton (R-MI), chairman of the powerful House Energy and Commerce Committee, keeps beating the dead horse at Yucca Mountain.

To his credit, President Obama was wise enough to cancel the geologically unsuitable Yucca dump.

But he, his DOE, and his Blue Ribbon Commission on America’s Nuclear Future, have settled on an even worse, industry-friendly Plan B: consolidated interim storage. They’re targeting Native American reservations for these parking lot dumps, which is an environmental justice non-starter – they should know better. They are also targeting DOE sites like Savannah River Site, SC, and WIPP, NM – which would add more radioactive risk to already severely overburdened sites. They’re also targeting nuclear power plants, with Dresden just southwest of Chicago at the top of that list. Another front runner is Waste Control Specialists, LLC in west Texas, already threatening the Ogallala Aquifer with LLRW dumping, as well as indefinitely long, open air surface storage of a large number of barrels holding the same risky contents that burst underground at WIPP.

The real driver of centralized interim storage is not health, safety, security, or environmental protection, but rather transferring the liability for the HLRWs to the American people. This is exactly what will happen as soon as DOE takes title to the HLRWs at the exit of the atomic reactor sites.

Left unaddressed, both under Yucca dump and de facto permanent, centralized parking lot storage schemes, are the transportation risks of launching HLRW onto the roads, rails,
and waterways of most states. These shipments would be potential Mobile Chernobyts, Floating Fukushimas, and Dirty Bombs on Wheels, moving through the major population centers of our country. They are far from guaranteed to survive severe accidents, such as high-speed crashes, long-duration, high-temperature fires; or underwater submersions. They are not designed to withstand terrorist attacks.

To her credit, U.S. Sen. Stabenow (D-MI) voted against the Yucca dump in 2002, due primarily to DOE’s plan to ship HLRW on Lake Michigan, from Palisades to Muskegon, and from Wisconsin reactors to Milwaukee. A single sinking could spell unprecedented radioactive catastrophe for the Great Lakes.

Lessenberry is correct, not caring about HLRWs generated and stored on the Great Lakes shores is foolish.

But so too is not caring about the highly radioactive ILRWs to be buried at Kincardine, and the still very worrisome LLRWs to be buried there too.

Why is it that Canada, the second biggest country in the world in terms of land area, with vast regions of diverse geology, is targeting water-soluble limestone formations, on the very edge of the Great Lakes, for not only L&ILRW burial, but also HLRW disposal? Simply because it’s convenient to OPG? Because there’s so much radioactive waste stored at the surface of Bruce NGS already? To save the Province of Ontario money? The risks to the Great Lakes, the lifeblood of one of the world’s single largest regional economies, are just too great.