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Representative Paul Tonko, Chair
Representative John Shimkus, Ranking Member
Environment and Climate Change Subcommittee of Energy and Commerce Committee
US House of Representatives
2125 Rayburn House Office Building
Washington, DC 20515

June 13, 2019

Dear Representatives Tonko and Shimkus:

Nuclear Information and Resource Service (NIRS) is a national organization that serves as the information and networking hub for people and organizations concerned about nuclear power, radioactive waste, radiation, and sustainable energy issues since 1978. We submit these comments and attachments for the Hearing on "Cleaning Up Communities: Ensuring Safe Storage and Disposal of Spent Nuclear Fuel."

We oppose HR 2699, Nuclear Waste Policy Amendments Act of 2019, because it restarts licensing of the Yucca Mountain site which is fatally flawed technically, politically and morally. The site is seismically active, surrounded by volcanoes and unable to isolate the waste for the million years required by federal regulation. It is on sacred Western Shoshone land and violates principles of sovereignty, environmental justice and the Ruby Valley Treaty of 1863. The regulations had to be changed at least 4 times to prevent the site from being disqualified. Reopening Yucca siting is throwing good money after bad, wasting taxpayer money and further delaying responsible long term management of the nuclear power waste in the United States.

We oppose HR 2699 and HR 3136 because they legalize Consolidated "Interim" Storage (CIS, also termed MRS Monitored Retrievable Storage) of irradiated nuclear fuel. The reason Congress deemed CIS/MRS sites illegal is that they would likely become de-facto permanent without meeting conditions for permanent waste isolation. During the few years that Congress did consider such a site, it was clearly linked to the existence of an operating permanent repository, for which neither HR 2699 nor HR 3136 provide. These bills create *additional* radioactive waste sites and spread nuclear waste across the country.

Both provisions: resuming the failed Yucca Mountain licensing and legalizing CIS will lead to thousands of high level radioactive waste shipments on roads, rails and barges across the country, regularly for 40 to 50 years, and longer in the case of CIS. The routes go through 87%--386 of the 435 Congressional districts including 44 states and the District of Columbia, right through Capitol Hill, by Union Station alongside the Metro tracks.

Reactor communities deserve better, safer storage of nuclear waste until real permanent isolation can be found. Public interest groups have been calling for hardened onsite (or near site) storage with greater local control of decommissioning and waste management until there is permanent isolation. Further, the public deserves guaranteed inspections, maintenance, monitoring and repair all nuclear waste containers, the highest standards of independent nuclear quality assurance and continuous radiation monitoring systems, including on-line, real-time radiation monitoring.

If Congress changes the existing Nuclear Waste Policy Act, it should move forward, not backwards repeating past mistakes such as forced licensing of the cancelled Yucca site and reviving the defeated, unsuccessful consolidated "interim" storage program that expired in 1990.

Please see the two attached background documents on the problems with both Yucca Mountain in Brief and Consolidated "Interim" Storage Risks.

No false solutions to nuclear waste. Do not support HR 2699 or HR 3136.

Sincerely,

Tim Judson
Executive Director
Nuclear Information and Resource Service
timj@nirs.org

Encl: 2 attachments on Yucca and CIS

Yucca Mountain in Brief

Nuclear weapons production and nuclear power reactor operation for electricity produce significant amounts of high level and other nuclear waste. To protect life on earth, as we know it, these materials must be isolated from the biosphere, essentially forever. In 2002, the plan to isolate these materials at Yucca Mountain for ten thousand years was judged to be inadequate – the D.C. District Court ruled that standards need to address a one million year time frame! In addition to being in a high risk earthquake area with volcanoes the Yucca site violates environmental justice, the Ruby Valley Treaty of 1863 and Native American sovereignty.

Nuclear waste is an issue that needs urgent attention. However, flawed, temporary and ad hoc plans endanger current and future generations. The highest scientific and technical specifications must be rigorously followed to ensure long-term protection of public health and wellbeing.

With the opening of a new session of Congress, there is yet another ill-conceived effort to revive the proposed and administratively cancelled Yucca Mountain high-level nuclear waste repository program, which has been dormant since 2010 – the site is undeveloped except for an entrance tunnel and is not appropriate for receiving nuclear waste. It is useful to review elements of the long history of the Yucca project that have led to its current state of near demise and assess whether the national interest in the safe, long term isolation of commercial and weapons related high-level nuclear waste would best be served by officially abandoning the project as irrevocably flawed and seek a fresh, consent-based and technically rigorous start at meeting the nation's need for safe management and disposal of these long-lasting, highly dangerous wastes.

Throughout this process, there have been repeated efforts to consolidate high level waste prior to having an operating permanent place to isolate it. These proposals consistently and rightly have been rejected.

It is now just over 31 years since Congress passed the 1987 Nuclear Waste Policy Amendments Act that terminated the deliberative national nuclear waste repository site screening process, and instead, made decisions based on political power rather than sound science. Thus, the Yucca Mountain, Nevada candidate site became the only site for potential repository development. Five years later, in 1992, Congress instructed the Environmental Protection Agency to craft a radiation protection standard specific to the Yucca Mountain

site *because it was generally agreed by an EPA Science Advisory Board panel that the site could not meet the "generally applicable" safety standard required by the 1982 Nuclear Waste Policy Act for judging the adequacy of any potential repository site*. The Nuclear Regulatory Commission was instructed to conform its repository licensing rules to the new EPA Yucca Mountain specific standard.

The 1987 Amendments Act retained the original Act's requirement that the Department of Energy establish Site Recommendation Guidelines that among other things define factors to qualify or disqualify potential repository sites' consideration as a candidate site. Just prior to the Secretary of Energy's 2002 Site Recommendation of Yucca Mountain to the President, the Department of Energy amended the Site Recommendation Guidelines to eliminate those factors that would qualify or disqualify a site and thus preserved Yucca Mountain as the only site to be considered for repository development. Nevada governors twice, first in 1989 and again in 1999, had informed the Secretary of Energy that the site should be disqualified because of substantial evidence that the site did not meet the required minimum groundwater travel time from the repository waste-emplacement-zone to the accessible environment, a factor critical to the site's ability to isolate radioactive waste. The response to both governors' letters was that DOE was still studying the site. DOE's ultimate response was to repeal the guidelines that Yucca Mountain could not meet and would make the site unsuitable for further consideration.

Nevada's statutorily permitted Notice of Disapproval of the President's recommendation of the Yucca Mountain site to Congress was overridden by the House and Senate in 2002. According to the Act, DOE then had up to 90 days to submit a Yucca Mountain repository site license application to the Nuclear Regulatory Commission. DOE intentionally ignored this requirement in its rush to a Site Recommendation, and it was not until June 2008, six years later, that DOE submitted its Yucca Mountain repository license application to NRC, months prior to promulgation of a final radiation protection standard, which prompted a 2009 revision of the application.

Nevada timely filed a petition to intervene in the NRC licensing proceeding and had 218 contentions admitted for adjudication. Other intervening parties brought the total contentions to about 300 – by far a record for any NRC adjudicatory proceeding. In its early substantive review of the license application, NRC Staff issued 642 Requests for Additional Information, 50 of which resulted in DOE's commitment to update its license application, which has not taken place since the licensing proceeding was suspended in 2010, and remains suspended today, for lack of appropriations from Congress. Prior to the 2010 suspension, DOE had unsuccessfully moved to withdraw its license application as being "unworkable" for reasons later specified to include the unrelenting resistance to the program by Nevada. Nevada leadership has communicated numerous times that it does not consent to a Yucca Mountain nuclear waste repository, and vows that it will not consent to it.

Following the suspension of the proceeding, the States of Washington and South Carolina, and Aiken, South Carolina brought NRC into the Circuit Court of Appeals for the District of Columbia by claiming the suspension was unlawful. The court ordered NRC to continue the licensing process as long as it had unexpended appropriated funds from prior years, but it could not order NRC to proceed if no further funds were appropriated. To date NRC has spent nearly all of its carry-over funds writing a needed Supplemental Environmental Impact Statement on groundwater impacts and a Safety Evaluation Report that presents the NRC Staff position on the adequacy of the license application to provide "reasonable expectation" that the repository will meet the specifically tailored radiation protection standard for Yucca Mountain. The Staff concluded that its position is, should there be an adjudication of the application, that it meets the required safety standard, but it lacks the required Congressional land withdrawal for the site, and an appropriation of water rights, which Nevada had earlier denied.

Aside from the 50 commitments to update the license application noted above, a massive revision of the license application is necessary because the repository design and safety analysis is based on a disposal waste package concept that DOE has abandoned due to the evolution of waste storage technology at nuclear reactor sites during the period of dormancy of the project. The plan in the application was to have the waste removed from reactor cooling pools and placed directly into an industry-wide uniform canister whose specifications are the basis of the design and safety analysis of the Yucca Mountain repository. The canisters would then be part of an integrated system of storage, transportation, and disposal. The design and regulatory certification work for the canister was abandoned by DOE shortly after the licensing process was suspended, and in the meantime reactor owners have been purchasing, and will continue to purchase, a wide variety of containers for at-reactor storage of their irradiated ("spent" or "used") nuclear fuel, none of which even approach the specifications of the planned canister consistent with the repository design. Repackaging the irradiated fuel into canisters meeting the original specifications has significant time, expense, and worker exposure issues that will continue to grow as irradiated fuel is discharged from operating reactors. It is unknown what path DOE would take to proposing a waste package for disposal at Yucca Mountain.

Because the fractured characteristic of the rock at Yucca Mountain provides pathways for infiltration of precipitation water through the underground location of the waste, DOE has designed a relatively corrosion resistant disposal container for the planned canister. But it is known that the container will eventually fail and infiltrating water will carry the waste radionuclides to the water table and the accessible environment. In an attempt to further delay release of the waste to the environment, DOE has planned installation of 11,500 titanium drip shields over the containers to deflect water that would drip onto the containers. The ability to perfectly install the 5 ton drip shields with complex waterproof interlocking joints using robots in a high heat and radiation field has not been demonstrated and may not be possible if there is

rock fall in the unmaintainable tunnel. Installation of the drip shields is planned for the final ten years of the 100 year operating lifetime of the repository at a cost estimated at $5 to $9 billion in 2018 dollars. Of course, if the statutory capacity of the repository is expanded, as proposed in H.R. 2699, or eliminated entirely, the drip shield cost increase could more than double. *The question for Congress today is, "Are you willing to commit the country to an expenditure of multi billions of dollars at least 100 years from now on an unproven technology after all the waste has been emplaced underground*?" *Such a commitment is necessary because without the drip shield, DOE's own analysis formula shows that the radiation protection standard will be violated, and the site would be unsuitable for disposal.*

If there is intent to revive the Yucca Mountain repository project some near-term commitments are required. At least $2 billion will be required to complete the licensing process over the next few years, with no assurance of how long it will take. If a license is approved, it assuredly will be followed by extensive litigation. A new 300 plus mile rail line to Yucca Mountain must be approved and constructed, and a portion realigned from the original plan because of a recent National Monument designation. Initial repository (without rail line) construction costs would require appropriations of over $1 billion (2008 dollars) per year. Complete construction of the statutory 70,000 metric ton repository would require boring at least 40 miles of new tunnel at Yucca Mountain.

The Yucca Mountain project has a unique and troubling history; the geology of the site is known to not be capable of isolating nuclear waste; the 2008 license application repository design and safety analysis requires significant revision; and the safety of the site remains to be heavily contested in an unprecedented licensing hearing of uncertain outcome. It is time to abandon this failed Yucca Mountain nuclear waste repository project and open the way for a new nuclear waste policy.

Consolidated "Interim" Storage of High-Level Radioactive Waste-- Prevent a Disaster by Rejecting This Risky Plan

We oppose any bills that authorize, fund, facilitate or enable consolidated 'interim' storage of nuclear reactor waste, mainly irradiated ("spent") nuclear fuel.

Consolidated "Interim" Storage entails moving and storing high-level radioactive waste, one of the most deadly substances on Earth, from dozens of nuclear sites to one or more centralized locations, presumably until it can be sent to a permanent repository. (The cancelled Yucca Mountain site will not serve this purpose.) A dangerous unprecedented program to haul over a hundred thousand tons of irradiated nuclear fuel thousands of miles across the country, only to move it again, is counterproductive and senseless. It means creating one or more new radioactive sites, in addition to the ones already contaminated.

Thousands of radioactive shipments would travel routinely for 20 to 40 years through 87% of Congressional districts, emitting radiation and creating transportation accident and security risks all the way, putting nearly the whole country at risk. Meanwhile, more waste is still being generated and stored at operating nuclear reactors.

The supposedly "interim" site(s) could become *de facto* permanent even though it would not be designed or characterized for it. Consolidation is the first step to dangerous reprocessing of nuclear waste and plutonium proliferation.

Consolidated "Interim" Storage would **not** facilitate or accelerate the transfer of waste to a permanent repository; in fact it would **delay and take resources** away from efforts to do so. It would cost billions of dollars, money better spent on a realistic scientific effort to develop viable permanent isolation and improved storage systems.

Two companies have applied for licenses from the Nuclear Regulatory Commission (NRC) for consolidated (centralized) "interim" storage of high-level radioactive waste. Both applications are being challenged on legal and technical bases.

- **Waste Control Specialists (WCS)** seeks to bring 40,000 tons of high-level radioactive waste to Andrews County, Texas, from nuclear reactors around the country. WCS and ORANO USA have

formed Interim Storage Partners. ORANO is the French government-owned corporation formerly known as Areva, which has been cited for failure to perform on a number of Department of Energy contracts. Their application seeks storage for 40 years but anticipates extensions up to 100 years. The above–ground dry storage casks would be exposed to extreme desert temperatures, storms, lightning, flooding and seismic events. The site is close to the nation's largest aquifer, the Ogallala, which provides water for eight states including the nation's bread basket.

- **Holtec International** seeks to store up to 173,000 tons of deadly high-level radioactive waste for 40 years, with possible extensions to 120 years, at a site between Hobbs and Carlsbad, New Mexico. The tops of storage units would be slightly above the ground surface, with waste canisters below ground, at a site with groundwater present at depths of 35' to 50' below the surface. This site would have similar risks from extreme temperatures, intense storms and earthquakes.

Significant Risks

You can't see, taste, smell or feel it, but ionizing radiation can lead to birth defects, cancers, reduced immunity and death. Exposure to unshielded high-level radioactive waste is lethal. Accidents involving radiation releases can lead to water contamination and cost taxpayers billions of dollars for cleanup. One radioactive transport accident could destroy lives and livelihoods and impact water supplies, businesses, homes, ranches, agriculture, thriving local industries including the oil industry, and tourism. Rails, trucks, and barges could all be used to transport this deadly waste.

Over 10,000 shipments would take place, in a process lasting over 20-40 years, risking lives and financial disaster. Rail shipments would involve very heavy loads, weighing as much as 38% more than train tracks are rated to handle. Real-world train accidents have already exceeded the supposed worst-case scenarios used for analyzing risks, including a head-on collision of two trains in West Texas, each going 65 miles per hour. However, the NRC is not requiring updated standards that would meet or exceed the severity of accidents that have already happened, nor is the potential use of drones and armor-piercing weaponry in sabotage events being considered.

Consolidated "interim" storage plans pose risks for the entire nation, since transportation routes would go through many major U.S. cities, as well as rural areas across the country. Any major commercial rail line (including through the heart of Washington, D.C.) could be used for transport of high-level radioactive waste, and 218 million people live within a half-mile of likely rail lines, putting them at increased risk for exposure, even from routine emissions. Risks could escalate when a train is stopped at a siding or is in a switchyard.

A study by Radioactive Waste Management Associates in 2003 found that 1,370 latent cancer fatalities

could result from a rail accident with irradiated fuel. They estimated costs of $145 - $270 billion[1] for a severe rail accident.

A single rail car could carry as much plutonium as was in the bomb dropped on Nagasaki. Transportation accidents and potential acts of terrorism could lead to radioactive contamination of land, water and air, and radioactive emissions from routine transport shipments could impact health and safety. These unnecessary risks should be prevented.

The communities and regions targeted with Consolidated "Interim" Storage don't want it, despite claims to the contrary. There is strong bipartisan opposition.

- Resolutions opposing consolidated interim storage of this waste and its transport through local communities have been passed by Bexar, Dallas, Nueces, El Paso and Midland Counties in Texas, the cities of San Antonio, Midland and Denton, and the Midland Chamber of Commerce. In New Mexico, resolutions have been passed in Bernalillo McKinley and Santa Fe Counties, the cities of Albuquerque, Las Cruces, Lake Arthur, Jal, Gallup, the Church Rock Chapter of the Navajo Nation and the New Mexico Cattle Growers Association.
- A coalition of oil and ranching companies and royalty owners are legally opposing the high-level radioactive plans for Texas and New Mexico, due to risks to the oil industry.
- Nine New Mexico Senators and twenty-one House Members asked the NRC to allow the Legislature time to examine crucial health, safety and economic concerns to the state.
- Together, over 70,000 public comments were submitted to the NRC opposing the two high-level radioactive waste projects. There is no consent to these plans. In fact, there is very strong opposition.
- The New Mexico Governor has expressed opposition.

Please act in the interest of people across the nation in preventing the dangerous plans to transport massive amounts of high-level radioactive waste to consolidated "interim" storage sites.

[1] In today's dollars, then it would be nearly 40% greater, with inflation.