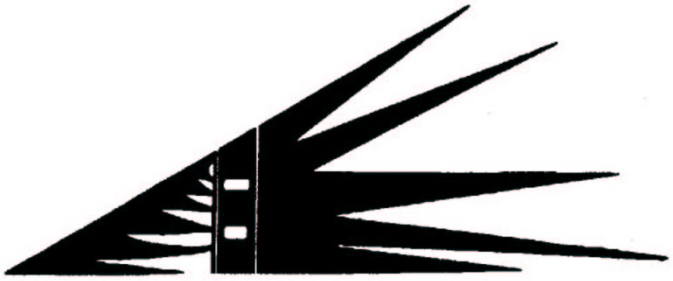

SOUTHWEST RESEARCH AND INFORMATION CENTER
P.O. Box 4524 Albuquerque, NM 87196 505-262-1862 FAX: 505-262-1864 www.sric.org

March 20, 2017

U.S. Department of Energy
Office of Nuclear Energy
Response to DWR RFC
1000 Independence Ave. SW
Washington, DC 20585

VIA Email to: DWR@hq.doe.gov

Dear People:

Southwest Research and Information Center (SRIC) is a 46-year-old nonprofit organization based in Albuquerque, New Mexico that has been involved in Department of Energy (DOE) nuclear waste issues throughout its history. SRIC has been very involved in all aspects of the Waste Isolation Pilot Plant (WIPP) and is an active member of the Alliance for Nuclear Accountability (ANA), so we have significant familiarity with defense nuclear waste, including the high-level waste (HLW) and spent nuclear fuel (SNF) that would be emplaced in the Defense Waste Repository (DWR).

SRIC believes that DOE should not proceed with the DWR because the 2015 presidential decision should be re-considered. Further, proceeding with a DWR is premature. DOE should respond to SRIC's and all other comments and suspend work on proceeding with the Draft Plan and related DWR activities. DOE should also suspend the Deep Borehole research project. Efforts to pursue disposal options should stop until the Environmental Protection Agency (EPA) issues new disposal standards and the Nuclear Regulatory Commission (NRC) issues new disposal licensing requirements. DOE's focus on HLW should be to improve the safety and management of storage of HLW and SNF, including activities to reduce health impacts on workers and threats to the environment.

The DWR decision should be re-considered.
SRIC disagrees with the 2015 decision that reversed more than 30 years of U.S. law and policy that provided that commercial and defense SNF and HLW should be disposed in the same repositories. The Nuclear Waste Policy Act (NWPA) of 1982, Section 8(b)(2), provides:

> "Unless the President finds, after conducting the evaluation required in paragraph (1), that the development of a repository for the disposal of high-level radioactive waste resulting from atomic energy defense activities only is required, taking into account all of the factors described in such subsection, the Secretary shall proceed promptly with arrangement for the use of one or more of the repositories to be developed under subtitle A of title I for the disposal of such waste."

The April 30, 1985 decision by President Reagan concluding that a defense only repository was not required was a sound one that was made after a public comment process that resulted in 30 comment letters containing more than 400 comments from various states, tribes, and organizations – *An Evaluation of Commercial Repository Capacity for the Disposal of Defense High-Level Waste Responses to Comments* (DOE/DP-0027), December 1985. After considering those comments, DOE stated:

> "…no evidence was presented which would lead to the conclusion that a defense only repository was required. In fact, we were led to the conclusion that co-disposal would be even more cost effective than the draft report indicated." at 4.

In contrast, there was no similar draft report for public comment prior to the 2015 decision to proceed with a DWR. Had there been such a public comment opportunity, SRIC and other entities would have objected to the defense only repository and would have provided significant additional information that the President could have considered. Some of the deficiencies with the 2015 DOE recommendation also have been noted by others, including the General Accounting Office (GAO).

GAO issued a report on January 31, 2017 entitled: *NUCLEAR WASTE Benefits and Costs Should Be Better Understood Before DOE Commits to a Separate Repository for Defense Waste*. GAO 17-174. The GAO found:

> "DOE's recommendation to the President for a separate defense HLW repository cited benefits in each of the six areas the NWPA required—cost efficiency, public acceptability, regulation, transportation, national security, and health and safety—and concluded that a strong basis exists to find that a defense HLW repository is required. However, DOE did not quantify the benefits, estimate the likelihood that a defense repository could produce these benefits, or show the risks if certain benefits could not be realized as planned." at 15.

> "DOE officials told us they are at the conceptual stages of studying options for a separate defense repository, but they said that when they move from studying repository options to planning for a separate defense HLW repository, they will comply with OMB's guidance. Nevertheless, by DOE not providing the President with complete and, where possible, quantified benefits, the President made a decision that potentially commits the nation to spending tens of billions of dollars and decades of work without the level and type of information federal agencies need to justify key decisions and inform decision makers." at 22.

"The preliminary cost and schedule estimates DOE provided to the President for a defense HLW repository are not reliable…. According to DOE officials, they did not develop reliable estimates to reflect all likely costs and schedule activities because their plan was still at the conceptual stage, and DOE officials did not have enough information to generate cost and schedule estimates that met best practices; however, industry best practices documented by GAO state that it is possible to generate reliable estimates of cost and schedule even when information is limited." at 23.

"We found that DOE's cost estimates were not reliable because they excluded major costs that will likely add tens of billions of dollars, were minimally documented, lacked transparency, and were not fully credible." at 25.

"In this case, because not all costs were included—along with confidence levels to reflect the risks that could adversely affect the program—DOE officials do not know whether a benefit-cost analysis would have shown that a single, commingled repository would be more cost efficient." at 32.

"We found that DOE's estimates for developing and operating both repositories were not well-constructed and that beginning operations at two repositories by 2048 appears optimistic." at 32.

"The DOE officials agreed with our conclusion that, without a fully developed and documented integrated management schedule, it is not possible to evaluate the time frames of certain activities to determine the schedule estimate's reliability. They also said that it was too early to construct a reliable schedule and that the schedule they developed was high-level and based on expert judgment developed from past repository experiences, most notably Yucca Mountain." at 35.

"DOE is planning to develop a consent-based siting process for a defense HLW repository with the intention of attaining consent for an eventual repository site. However, DOE likely faces significant opposition and distrust as it develops this process. Moreover, DOE is planning to develop a consent-based siting process before it has addressed certain prerequisites—such as the possible need for EPA to update health and safety regulations—which are necessary to solicit public comment on its consent-based siting process, screen potential sites for a repository, and engage in site selection discussions with local communities." at 35.

"In particular, regarding the prerequisite for updating regulations, it is important that regulations are developed before siting a repository to avoid suspicion that the regulations would change to suit the repository. In particular, we found in 2011 that simultaneous development of safety regulations and a license

application for Yucca Mountain galvanized opposition against DOE. The Blue Ribbon Commission recognized this risk in its 2012 report, stating that safety regulations—and how to demonstrate compliance with them—should be developed before selecting a site to avoid public suspicion that standards are being adjusted to fit the site." at 38-39.

"DOE did not provide sufficient information to the President on the prerequisites for developing a consent-based siting process and engaging local communities in siting a nuclear waste repository or the amount of time it might take to address these issues." at 40.

"The information DOE provided to the President in 2015—concluding that a strong basis exists to find that a defense HLW repository is required—served as the basis for the decision that started the nation down the path of developing two repositories. However, the information DOE provided on the estimated costs and schedule was not well-documented, accurate, or credible, and it omitted billions of dollars in expected costs. The information DOE provided to the President also did not quantify benefits, when possible, explain the likelihood of achieving these benefits; or describe the potential impact of costs on future defense budgets. Unlike a single, commingled repository, which would have received most of its appropriations from industry fees, a defense HLW repository will likely have to be fully funded by funds appropriated for the defense budget. Without comprehensively quantifying benefits and calculating the likelihood of achieving them, or fully reflecting all costs and time frames associated with key activities, DOE asked the President to make a decision that could commit the nation to spending tens of billions of dollars and performing decades of work without knowing whether the benefits outweigh the costs, particularly when compared to the benefits and costs of a single, commingled repository." at 40-41.

Thus, the lack of public process and the inaccuracies and unreliability of the DOE basis for proceeding with a defense-only repository result in the necessary conclusion that there was not an adequate basis for the 2015 decision. Consequently, the decision should be re-considered, and DOE should not proceed with further activities for a DWR until it first provides a new basis to proceed in draft for public comment. DOE should then produce a new evaluation, based on the public comment, and submit that information to the president for a new determination about whether a DWR is required.

The Draft Plan Is Premature and must be Withdrawn

Among other reasons, the DOE efforts to proceed with a DWR are premature because very little of the waste is in a form in which it could be disposed, even if there were a repository. The Draft Plan states: "Not all wastes are available today in their final form for disposal, and as described in Section 3.2, disposal operations will proceed in phases." at 13. That statement is misleading, at best. The Draft Plan does not establish that more than the 34 canisters of

radioactive borosilicate glass stored at Hanford are ready for disposal, which is not even one percent of the volume shown in Table 2. Presumably, DOE believes that the approximately 4,000 canisters that have been processed at the Defense Waste Processing Facility (DWPF) at SRS are considered to be the final disposal form, but that is not actually determined. Additionally, the transport package for those canisters is not known. The Draft Plan itself acknowledges that there are more canisters to be generated at DWPF than the number that have been filled. Of course, none of the 55 million gallons of liquid HLW at Hanford have been solidified, which could be at least half of the total volume shown in Table 2. Nor will any of that waste be solidified for decades because of ongoing technical, budget, and schedule problems at the Waste Treatment Plant. None of the HLW at INL is in final disposal form. Given the worker and public health and safety and environmental risks posed by HLW and DOE's poor performance in safely managing and storing that waste, the focus must be research and implementation of safe storage of HLW, not on premature efforts for siting a defense-only repository.

Regarding SNF, none of the Navy or DOE SNF is in final disposal form. Current U.S. policy is to continue to create more Navy SNF indefinitely. Thus, no Defense repository could be designed and operated for the total, unknown volume of Navy SNF that would be generated for the indefinite future. The U.S. must develop a policy regarding how much Navy SNF will be generated and what the long-term storage and disposal options will be.

Any Siting Process Is Premature

It is also premature to proceed with identifying possible disposal sites, including "consent-based siting" because communities, tribes, and states could not know to what they are consenting. Very importantly, there are no technical standards for what a "suitable" site would be. There is no basis to believe that any community, tribe, or state would give "consent" to proceeding with an open-ended repository program, which is essentially what the Draft Plan seeks. Further, there are no legal requirements for what a consent-based process would be, including what kind of agreements would be required and how they would be binding on the entities, the role of Congress in approving and abiding by such agreements, among many other issues.

DOE should not proceed with a siting process, but it could encourage Congress to provide funding so that the Environmental Protection Agency could begin a public rulemaking process to develop such standards. Once such publicly accepted standards are issued, the Nuclear Regulatory Commission could develop new licensing standards. Any siting process should not begin until such standards and licensing requirements are issued. Any other process will give the appearance, and perhaps be the reality, of developing standards so that already proposed sites would be deemed suitable.

DOE's Deep Borehole program should be terminated

In addition to the defense repository plan, DOE also is pursuing potential disposal of some defense HLW in deep boreholes. That program is severely flawed and should be terminated.

In 2016, the DOE program, then under contract to Battelle, twice tried to site a deep borehole research program in North and South Dakota. Both attempts failed because of lack of public support. DOE should have then stopped that program and ceased wasting additional funding and provoking more community opposition to the proposed research. Instead, DOE issued a new Request for Proposal. On December 19, 2016, DOE announced that it had contracted with four companies to obtain leases on four sites that could be developed as borehole research sites. https://energy.gov/under-secretary-science-and-energy/articles/studying-feasibility-deep-boreholes

These sites are raising additional concerns about DOE and contractor reliability in rural areas that have little or no previous experience with DOE. For example, in Quay County, New Mexico, hundreds of people are objecting to the project, and the Quay County Commission rescinded its support for the project. The Superintendent of the Logan Municipal Schools, who is also the State Representative, withdrew his support for the project. Some opposition apparently exists in each of the other three site areas. Such experiences also will almost certainly entail opposition and distrust of future research and siting efforts. Thus, the borehole research program is counterproductive – it does not generate new data but it does result in significant public opposition.

Moreover, SRIC agrees with much of the Nuclear Waste Technical Review Board report of January 2016. http://www.nwtrb.gov/reports/DBD_final.pdf. The report states,

> "A deep borehole disposal system could be as complex as a mined, geologic repository and assessing the performance of each of these disposal options may require an equivalent level of data collection and testing. However, deep boreholes lack the easy working access for characterizing the disposal zone that shafts, ramps, and tunnels would provide in the case of a much shallower mined, geologic repository. Thus, the ability to characterize the disposal zone in a borehole is extremely limited as compared with a mined, geologic repository. Also, the Board has not been presented with any compelling evidence that deep borehole disposal can be accomplished more quickly than disposal in a mined, geologic repository." at xiii.

SRIC believes that it is premature to proceed with any borehole program, especially when it is engendering significant public opposition, technical disposal standards and licensing requirements do not exist, and whether borehole disposal should be pursued is in doubt.

DOE's History with WIPP raises concerns about other repositories

DOE's track record at its only repository – the Waste Isolation Pilot Plant (WIPP) – does not provide confidence in the Department's ability to site and safely operate a DWR. WIPP was to "start clean, stay clean" as a transuranic waste repository. It has failed that mission as there is significant contamination of the underground which cannot be cleaned up as the result of a February 2014 radiation release. WIPP was shut down for three years and will receive only limited amounts of waste over the next several years. Clearly, DOE and its contractors have not

established that they can safely and efficiently operate a repository, based on the WIPP experience.

DOE's History with nuclear waste raises concerns about any DOE repository program
The Blue Ribbon Commission on America's Nuclear Future issued its Final Report in January 2012. The Commission concluded:

> "The overall record of DOE and of the federal government as a whole, however, has not inspired widespread confidence or trust in our nation's nuclear waste management program. For this and other reasons, the Commission concludes that a new, single-purpose organization is needed to provide the stability, focus, and credibility that are essential to get the waste program back on track." at x.

The Commission did not recommend whether or not the new, single-purpose organization would also deal with defense waste disposal. But if a new organization will be in charge of commercial SNF disposal, for both policy and efficiency reasons, having one organization in charge should be far superior to having two entities – a new organization and DOE that are both implementing repository programs. Public confusion about differing organizations and requirements, the likelihood of duplication and inefficiencies, the increased costs of two bureaucracies and programs, among other things, make having two programs undesirable. DOE should not proceed with any repository program until Congress determines whether there will be the single-purpose organization or whether DOE should proceed with a defense repository.

DOE should change its focus on HLW
Because it is premature to proceed with a DWR, it is inappropriate to spend funds, personnel, and management attention on the Draft Plan. DOE should cease efforts to prepare a draft plan and activities for a DWR. Instead, DOE should focus on significantly improving the safety and management of its HLW and SNF. DOE should:

- Request funding for and plan for new environmentally compliant tanks at Hanford to address current and future leaking tank problems.
- Improve the safety practices at Hanford and prevent further worker exposures to vapors and excessive amounts of radioactivity.
- Address the continuing problems of operating the Integrated Waste Treatment Unit at INL.
- Improve the processing rate at DWPF and meet tank closure milestones in order to meet the most urgent environmental threat at SRS.
- Comply with existing milestones of compliance agreements and permits at Hanford, SRS, and INL.

SRIC further recommends that DOE post on its website all of the comments that it receives about the Draft Plan, provide its responses, and terminate the planning process for the DWR until the recommendations of SRIC, GAO, and other commenters are fully addressed.

Thank you for your consideration and response.

Don Hancock
Nuclear Waste Program Director