A PROPOSED WASTE ACCEPTANCE QUEUE FOR SHUTDOWN NUCLEAR POWER REACTORS

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This paper describes a proposed order for conveyance of spent nuclear fuel (SNF) from shutdown nuclear power reactors in the event the U.S. Department of Energy (DOE) develops and opens a storage or disposal facility, and exercises its contractual authority to preferentially remove fuel from shutdown nuclear power reactors.

The "Standard Contract" [a] *between the DOE and nuclear power plant operators establishes the "oldest fuel first" (OFF) Waste Queue in which acceptance rights for DOE to remove SNF from reactor sites is accorded first for fuel that has been permanently discharged from the reactor the longest. However, the Standard Contract also gives DOE the authority to accept fuel from shutdown reactor sites before fuel from operating sites, and allows for "exchanges" of acceptance obligations. The Standard Contract is silent with respect to the order of pick up within the group of shutdown plants. This paper outlines a simple, equitable and efficient "mini-queue" for shutdown plants.*

- *To the extent practical, DOE would pick up fuel site by site.*
- *The order of pick up would be for the longest shutdown plant first (LSPF)*[b].
- *For a multi-unit site, the shutdown date would be based on the most recently shutdown unit.*
- *For sites containing both shutdown reactors and operating reactors, pick up would occur only after all fuel is removed from other sites with no operating reactors.*

Assuming DOE exercises its discretion under the Standard Contract to give preference to shutdown plants, a site-by-site approach to the mini-queue is clearly preferable to OFF. Site-by-site allows for the quickest possible termination of security, emergency planning and other activities to safeguard SNF, thereby benefitting not only the licensees, but also the government through reductions in damage claim payments[c] *. Moreover, fuel removal and transportation operations will be accomplished more efficiently with minimal "wait times" between shipments. The LSPF approach to the mini-queue is equitable in that first relief is provided to the licensee that has been waiting the longest for necessary DOE performance in order to eliminate regulatory requirements associated with the possession of SNF.*

Removal of spent fuel from a site that still hosts an operating nuclear power reactor does not provide the same benefit as removing all spent fuel from a site with no operating reactors. In the former instance, the licensee must still maintain a security and emergency planning infrastructure for the site, obviating most cost and resource savings.

Finally, it should be noted this mini-queue for removal of fuel from shutdown plants in no way modifies any obligation of the government or any aspect of the Standard Contract, including the general OFF queue. This proposed approach is consistent with the Standard Contract and can be implemented under DOE's existing authority without contract modification or legislative authorization.

I. BACKGROUND

The Nuclear Waste Policy Act (NWPA or Act) of 1982[1] established the legal framework for SNF and high-level radioactive waste (HLW) management in the United States. Commercial nuclear fuel is periodically discharged from the cores of commercial reactors operated to generate electricity. In the United States, 99 commercial reactors are currently licensed to operate, and they generate close to 20 percent of the nation's electricity. In

[a] The government has an individual contract with each operator, but all contracts are essentially identical and based on language from the NWPA, hence the term "Standard Contract."

[b] As determined by the date of the letter informing the Nuclear Regulatory Commission of the cessation of power operations at the unit.

[c] The government has been reimbursing licensees for such expenses pursuant to damage claims filed after the government's partial breach of Standard Contracts. This paper will not address, or involve, legal liability issues involved in such claims.

addition to commercial spent fuel, the government is responsible for disposing of its own used fuel (from weapons material production, naval propulsion, university and research reactors) and HLW (almost entirely the result of reprocessing carried out to support the production of material for nuclear weapons). The NWPA also established a fee on the operation of nuclear power reactors to cover the estimated cost of disposing of commercial spent fuel. Under the authority of the NWPA, the DOE investigated numerous sites in the United States for suitability as a geologic repository for HLW. The selection process was narrowed to three sites and, in 1987, Congress amended the NWPA[2] to focus on the characterization of a geologic repository site at Yucca Mountain, Nevada. In 2002, President George W. Bush recommended the Yucca Mountain site as the nation's HLW repository and, following the approval process established by the NWPA, both houses of Congress overrode the Governor of Nevada's veto of that recommendation. In June 2008, DOE submitted an application to construct the Yucca Mountain repository to the U.S. Nuclear Regulatory Commission (NRC). The application was under review in 2010 when the Obama Administration, responding to opposition from the State of Nevada, declared the Yucca Mountain site "unworkable" and discontinued all licensing efforts. States, local governments and individuals sued the federal government over the Yucca Mountain Project termination and, in August 2013, the U.S. Court of Appeals found for the plaintiffs and directed the NRC to resume its review of the Yucca Mountain license application[3]. However, the government has not appropriated sufficient funds to complete the licensing process, and Congress and the executive branch are deadlocked over the future direction of the HLW program.

In 2012, the Blue Ribbon Commission on America's Nuclear Future (BRC) completed a two-year study by issuing a comprehensive report[4] with recommendations to move the HLW management program forward. One of the key BRC recommendations is to establish a consolidated storage facility for used fuel from commercial nuclear power plants, with priority given to stranded fuel from shutdown plant sites. In 2013, DOE issued its strategy document for responding to the BRC recommendations and managing spent fuel. Among other things, DOE's new strategy[5] called for beginning operation of a consolidated storage facility for shutdown plant fuel by 2021. In addition, senators have introduced several authorization and appropriations bills that instruct the executive branch to develop consolidated storage facilities for shutdown plants, although none have been enacted and prospects for passage remain uncertain. The nuclear power industry has also endorsed consolidated storage with priority for shutdown plant fuel[6]. Despite the current political stalemate, the potential for expedited removal of spent fuel from shutdown plant sites exists, either to a consolidated storage facility or to a repository at Yucca Mountain, should the project be successfully restarted sometime in the future[d].

The NWPA required DOE to enter into contracts with nuclear power plant operators covering the removal of spent fuel from reactor sites. Among other things, the Standard Contract provided a mechanism for the government to collect money from the nuclear power plant operators to cover the cost of managing and disposing of commercial SNF. The Standard Contract required the government to begin removing commercial SNF from reactor sites in 1998 and established an order for removal commonly referred to as "oldest fuel first" or OFF. Under OFF, acceptance rights for DOE to remove SNF from reactor sites is accorded first for fuel that has been permanently discharged from the reactor the longest[e].

Although the NWPA authorized the DOE to enter into the Standard Contracts, the only contractual term required by the Act is that in return for payment of the nuclear waste fee, the DOE will dispose of SNF and HLW beginning not later than January 31, 1998. Otherwise, the NWPA provides only that the DOE establish the terms and conditions under which such disposal services shall be made available. (NWPA Section 302, 42 U.S. Code § 10222) The Standard Contracts provide: "Notwithstanding the age of the [spent nuclear fuel] and/or HLW, priority may be accorded any [spent nuclear fuel] and/or HLW removed from a civilian nuclear power reactor that has reached the end of its useful life or has been shut down permanently for whatever reason." Thus, DOE has the discretion to exercise this provision, i.e., accept fuel from shutdown reactor sites before taking fuel based on acceptances earned by SNF that has been discharged longer but resides at operating plant sites. In the event DOE exercises its discretion, the Standard Contract is silent on the order of spent fuel pick up within the population of shutdown plant fuel assemblies. In the absence of further contractual terms detailing how DOE would implement priority for shutdown plants, DOE is obligated to exercise its discretion in a reasonable fashion. DOE and industry may work together to develop a reasonable pickup order. No legislative changes or contractual amendments are necessary.

This paper provides and discusses a proposed order for removal of spent fuel in the event DOE elects to

[d] Yet another possibility would be another repository at an as-yet unidentified alternative site. However, DOE's own estimate for completing siting and licensing for such a repository is the 2040s per Reference 5. By that time there would most likely be many more shutdown plants so the issue of expedited storage for a limited population of shutdown plants would be moot,

[e] While the oldest fuel earns acceptance rights first, the utility may apply those rights to any of its SNF.

exercise its authority to preferentially remove shutdown plant fuel first.

II. NEED FOR A "MINI-QUEUE"

The order for spent fuel pick up by DOE is commonly referred to as "the queue"; this paper uses the term "mini-queue" to refer to the order of pick up in the event DOE elects to exercise its authority to remove shutdown plant fuel first. Why is a mini-queue needed in the first place?

Fundamentally, the need arises because the Standard Contract is silent with respect to order of pick up among shutdown plants. Absent a prescribed order, DOE can be assumed to have the latitude to remove fuel from shutdown plants using whatever approach it deems reasonable. The OFF queue taken literally is inconsistent with prioritizing shutdown sites for first fuel removal because most of the oldest fuel resides at operating plants, not shutdown plants. Although it would certainly be possible to take the OFF concept and apply it solely to the population of all shutdown plant fuel, that method would not necessarily be the optimal approach. An appropriate mini-queue will:

- ensure an orderly and predictable removal of spent fuel from shutdown reactor sites,
- provide for the most cost-efficient removal of fuel, and
- carry out shutdown plant spent fuel removal in an equitable manner among the contract holders.

While there is no contractual requirement for DOE to consult with nuclear power plant operators on a mini-queue, it would be desirable for the parties to work together to develop an approach that best addresses the needs of the parties and overall system of spent fuel management. It would be transparently disingenuous to state that utilities and the government have a good working relationship on spent fuel matters. Utilities filed lawsuits against the government in the 1990s when it became apparent DOE would not meet its deadline of beginning to remove spent fuel from reactor sites in 1998. As the BRC pointed out in detail, DOE has not been a reliable partner for any other parties involved in spent fuel management. Nevertheless, absent a fundamental change in the NWPA, DOE will be responsible for managing and disposing of commercial used nuclear fuel. Developing a mutually agreed mini-queue is an opportunity to enhance the working relationship between DOE and contract holders before addressing other, more contentious issues.

If DOE does not establish up front a reasonable and defensible formula for pickup order, it will encourage political pressure to remove spent fuel first from particular shutdown sites. Conversely, having an established approach with a reasonable basis in place may discourage overt political manipulation.

III. PROPOSED MINI-QUEUE APPROACH

The proposed approach is summarized and described below.

- To the extent practical, DOE would pick up fuel site by site.
- The order of pickup would be for the longest shutdown plant first (LSPF)[b].
- For a multi-unit site, the shutdown date would be based on the most recently shutdown unit.
- For sites containing both shutdown reactors and operating reactors, pick up would occur only after all fuel is removed from other sites with no operating reactors.

Applying the proposed approach described above, the resultant order of pick up by site and the amount of fuel at each site is provided in Table I below. Data used in the table is predominantly from Reference 7.

TABLE I. Order of Spent Fuel Pick up for Shutdown Sites

Plant	Shutdown Date	Est MTU[f] Fuel
Humbolt Bay	1976	28.9
La Crosse	1987	38.0
Rancho Seco	1989	228.4
Yankee Rowe	1991	127.1
Trojan	1992	358.9
Connecticut Yankee[g]	1996	412.3
Maine Yankee	1996	542.3
Zion 1 & 2	1997	1019.4
Big Rock Point	1997	57.9
Crystal River	2013	619.3
Kewaunee	2013	513.3
San Onofre 1, 2 & 3	2013	1609.2
Vermont Yankee	2014	~645[h]
Total		**~6200**

Note 1: Table includes shutdown sites without operating reactors as of December 31, 2014.
Note 2: Shaded sites have undergone complete decommissioning except for spent fuel removal.

There are six nuclear plant sites in the country at which one unit is shut down, while others continue to operate: Fermi (Unit 1 shut down in 1972), Indian Point

[f] Metric tons of uranium when initially loaded into the reactor.
[g] Sometimes referred to as Haddam Neck.
[h] The Vermont Yankee total does not include the fuel in the core of the reactor when it ceased power operation in 2014.

(Unit 1 s hut down 1974), Peach Bottom (Unit 1 shut down 1974), Dresden (Unit 1 shut down 1978), Three Mile Island (Unit 2 s hut down in 1979) and Millstone (Unit 1 shut down 1998). Those sites are not included in the above table. The Fermi 1, Peach Bottom 1 and Three Mile Island 2 fuel have already been shipped off site. Per the proposed mini-queue approach, fuel from Indian Point 1, Dresden 1 and Millstone 1 would not be prioritized for early pick up because sitewide cost savings for shutdown reactors cannot be realized until all fuel is removed from all reactors on the site.

The duration of the shutdown plant pickup campaign is defined by the amount of fuel to be removed and the pickup rate. For illustrative purposes only, it was assumed the pickup rate would be the same as the one provided in the DOE 2004 Acceptance Priority Ranking & Annual Capacity Report[8] and shown in Table II, below.

TABLE II. Assumed Pickup Rate

Year	Pickup Rate (MTU/yr)
1	400
2	600
3	1200
4	2000
5+	3000

Applying this assumed pickup rate (Table II) to the pickup queue (Table I) results in an LPSF pickup campaign as shown in Table III below.

TABLE III. Pickup Campaign Based on LSPF Approach

	Plant	
Year	Complete Removal	Partial Removal
1	Humbolt Bay La Crosse Rancho Seco	Yankee Rowe
2	Yankee Rowe Trojan	Connecticut Yankee
3	Connecticut Yankee Maine Yankee	Zion
4	Zion Big Rock Point Crystal River Kewaunee	San Onofre
5	San Onofre Vermont Yankee	N/A

With the assumed pickup rate, DOE would complete fuel removal from at least two sites each year and the shutdown plant campaign would be complete within five years. Note the assumed pickup rate was developed for a program shipping fuel to a geologic repository and the rate is probably high for a co nsolidated storage facility only. However, the example shows how the program might work through the inventory of fuel stored at the country's shutdown sites.

IV. RATIONALE FOR THE PROPOSED APPROACH

Site by site is clearly the most efficient approach to removing spent fuel from shutdown sites. E ach site will need to mobilize resources to ship fuel off site; once mobilized, the sites will want to conduct the shipments as quickly as possible in order to minimize "down time" for those resources. It is reasonable to assume that DOE will have limited transportation resources (trucks and/or rail cars and support services). S preading those resources among two or more sites at the same time could lead to undesirable "down time" at the sites shipping spent fuel.

Similarly, it is desirable from a DOE perspective to remove all fuel from a site as quickly as possible. As a result of DOE's failure to carry out its contractual obligations to remove spent fuel, the federal government is compensating shutdown sites for costs incurred to manage their resident spent fuel. As long as one spent fuel assembly remains on site, the plant operator continues to incur all security, emergency planning and related costs. As soon as all spent fuel is gone from a site, site operators should be able to obtain NRC approval to terminate protective measures for the spent fuel, at which point the federal government's spent fuel liability for that site is over. Accordingly, going site by site will allow DOE to stop paying compensation earlier and minimize the cost to the government.

Picking up fuel first from the longest shutdown plant is a matter of equity. Had the DOE been performing in accordance with its contract, the longest shutdown plant would most likely have been able to ship all of its spent fuel off site first. T his would have been accomplished through the normal OFF queue along with exchanges as allowed under the Standard Contract.

For multi-unit sites, the shutdown date is that of the most recently shut down unit. As long as there is at least one operating unit, the security and emergency planning requirements associated with a s hutdown unit are a relatively small increment above what is required to be spent on the operating unit anyway. It is not until the last unit on site is shut down that significant cost saving will be possible from shipping spent fuel to another location.

Relative to sites with both operating and shutdown reactors, there is limited benefit picking up spent fuel from a shutdown unit at such a location. As noted above, the site must provide security, emergency planning and other support services for the operating reactor or reactors, and the incremental burden of extending those services to shutdown reactor is relatively minor. Therefore, removing spent fuel from reactors at sites with an operating reactor is a much lower priority for both site operators and the government.

V. ALTERNATIVES

Alternative approaches to the system described in Section III are discussed.

V.A. OFF (Shutdown Plant Fuel Only)

Rather the going site by site, the established OFF approach could be applied to the population of spent fuel resident to the shutdown plants. This has the advantage of being consistent with the contractual approach in place for the broader population of all spent fuel.

With OFF, the final discharge dates for each fuel assembly determines acceptance rights for the site at which the fuel resides. There was significant overlap of the operating periods of the now-shutdown nuclear power plants, so the order of the mini-queue would not be plant by plant; instead, multiple shutdown plants would earn acceptance rights for some, but not all, of their fuel in the first year. As a result, DOE would be picking up from many of the plants in a given year, rather than going site by site. For the reasons discussed in Section IV, this option would be much less efficient than the site-by-site approach.

An example exercise illustrates how OFF would work for shutdown plants. Reference 8 provides the OFF queue for the entire population of SNF discharged from commercial nuclear power plants as of December 31, 2002. The same document postulates a pickup rate of 400 MTU in the first year. Assuming the same pickup rate (400 MTU) for the first year of picking up fuel from the 13 shutdown sites listed in Section III, the pick ups at individual plants during that first year are shown below.

TABLE IV. First Year Pick Up Using OFF

Plant	MTU Fuel Picked Up (First Year)
Humbolt Bay	14.6
La Crosse	10.1
Rancho Seco	0
Yankee Rowe	20.0
Trojan	0
Connecticut Yankee	86.0
Maine Yankee	84.3
Zion 1 & 2	0
Big Rock Point	14.2
Crystal River	0
Kewaunee	0
San Onofre 1, 2 & 3	97.9
Vermont Yankee	72.9

Using this approach, DOE would pick up fuel from eight different sites, but would not pick up all the fuel at any of the sites. Accordingly, DOE would have to deploy back to each site in following years – clearly a very inefficient approach.

V.B. Closest Plant First

A case could be made for shipping first from the sites closest to the spent fuel destination (presumably a consolidated storage site, but possibly a repository site). In general, the shorter the shipping route, the less complicated the transportation. Similar, shipments that cross the fewest state lines (ideally zero) are easier than those that cross more jurisdictional boundaries.

However, without a known destination, it is not possible to plan transportation in detail. Moreover, with the intent to transport all of the shutdown site fuel to a consolidated location, transportation challenges cannot be avoided, only delayed. One rationale for a consolidated storage site is that it will allow for the development of the transportation infrastructure needed to ship spent commercial fuel. Rather than trying to postpone inevitable challenges, it is considered better to take the plants as they come and address transportation as needed.

It should be noted the government and commercial industry have an admirable record of safely shipping spent fuel and other sensitive nuclear materials throughout the country and abroad[9]. While transportation can be an area of significant public concern, establishing a track record for safely transporting spent fuel from shutdown plant sites should be a readily achievable outcome of a consolidated storage program.

V.C. Ease of Site Access

The consolidated storage destination is not known, but the shutdown sites are spread throughout the country. Most of the spent fuel is stored in large, heavy transportable storage systems. For example, the Connecticut Yankee and Yankee Rowe sites have spent fuel stored in NAC-MPC systems (canisters with concrete overpacks), which contain 24 fuel assemblies per system. The size and weight dictates that most, if not all, spent fuel will be transported, at least in part, via rail. However, some of the shutdown plant sites have no on-site rail access and would likely ship fuel via heavy-haul truck to a location at which shipping containers can be transferred to rail cars. Some of those truck routes may be short; others longer and more challenging.

Nevertheless, one of the purposes of a consolidated storage program is to develop and demonstrate the transportation infrastructure required to move spent fuel. Cherry-picking the easiest routes at the expense of the more equitable approach (LSPF) is difficult to justify when all of the fuel should be removed in relatively short order. The preferable approach is to establish a defensible criterion (length of shut down) and follow it.

V.D. Least Fuel First (LFF)

The cost of maintaining an independent spent fuel storage installation is not closely related to the amount of fuel stored on site. As long as there is one spent fuel assembly present, the site operator must provide security, emergency planning and support services. However, with all other things being equal, the less fuel stored on site the quicker it can be removed once a shipping campaign begins. Accordingly, a case can be made for clearing out the smaller sites first (picking up from sites LFF) in order to minimize the government liability to shutdown site operators for damage claims (i.e., reimbursements for expenses incurred storing the fuel).

However, a cursory examination of Table I shows that LFF would not be substantially different from LSPF. With a couple of exceptions, LSPF orders the shutdown plants such that fuel will be removed first from plants with small inventories. Given the limited impact that LFF would have, it would appear desirable to stick with the equity-based LSPF criterion.

V.E. On-site Storage Mode

Spent fuel is stored at reactor sites in two modes – underwater in spent fuel pools or in dry storage systems (thick-walled casks or thin-walled canisters in overpacks). At all of the shutdown plant sites, the dry storage systems are dual-purpose (transportable). For off-site shipment, fuel residing in spent fuel pools may be shipped as bare fuel in transportation casks, or it may be loaded into large, dual-purpose systems. Fuel residing in dry storage will presumably be shipped in the dual-purpose systems in which it currently resides. In fact, most of the shutdown plant sites have removed their spent fuel pools from operation, so no other practical option exists.

The characteristics of the receiving facility are not known at this time. It may be a simple consolidated storage facility set up to handle dry storage only, in which case all fuel must be shipped off of shutdown plant sites in dual-purpose systems. The receiving facility could also be more complex, with a spent fuel pool and/or hot cells capable of receiving bare fuel as well as dual-purpose systems.

In addition to the uncertainty in the characteristics of the receiving facility, there is an important practical consideration. All of the plants listed in Table I have all spent fuel in dry storage or plan to put all spent fuel into dry storage in the near future. Of course, if additional nuclear power plants shut down, such actions will add plants to the list that have considerable inventories of fuel stored in spent fuel pools. Given all of this uncertainty, it would not be reasonable to factor in storage mode as a consideration for the shutdown plant queue at this time.

V.F. Shutdown vs. Decommissioned Sites

Once a nuclear power reactor permanently ceases power operations, NRC regulations (10 CFR 50.82) provide up to 60 years for decommissioning the reactor. As a practical matter, after an initial planning stage, plant operators choose one of two approaches[i]. With DECON, the plant structures are dismantled and materials are shipped off site for reuse or disposed of as radioactive or nonradioactive waste. With SAFSTOR, the reactor is placed in a condition of safe long-term storage, which allows the radioactivity to decay to lower levels pending dismantlement and decommissioning. SAFSTOR is essentially delayed DECON because regulations require decommissioning be completed within 60 years of permanent shut down for all reactors. Five sites (denoted by shading in Table I) have been through DECON except for off-site shipment of stored spent fuel. The remaining eight of the 13 sites are planning SAFSTOR or in the process of DECON.

The presence of SNF on site precludes the reuse of the shutdown plant site for other purposes. Once the spent fuel has been removed and a plant has been through complete DECON, the site can be repurposed or sold. Therefore, there are advantages to removing all spent fuel from sites that have undergone DECON, and those advantages could be argued to justify giving pickup preference to such sites. However, there are also advantages to removing all spent fuel from sites in SAFSTOR. Removing the stored SNF makes site maintenance during SAFSTOR less complicated and costly, and the lack of spent fuel on site will make ultimate DECON activities easier to perform by eliminating interferences (e.g., heavy lifts in the vicinity of stored SNF) and precluding complications posed by security measures for spent fuel.

From a practical standpoint, if DOE removes fuel from shutdown plant sites with a reasonable pickup rate, Table III shows that DECON vs. SAFSTOR is a distinction without an appreciable difference. The fuel would be removed from all 13 shutdown sites within approximately five years, so providing preference to DECON sites would have a relatively small impact. Moreover, Table I shows that decommissioned plants are clustered toward the beginning of the LPSF queue anyway; again, a priority for completely decommissioned plants would have little practical impact on the current group of shutdown sites. Ultimately, DECON vs. SAFSTOR is a decision that the site operator makes for economic reasons and other considerations. Plants in SAFSTOR have the same rights to spent fuel removal under the law and under their contracts with DOE for

[i] There is actually a third option, ENTOMB, in which radioactive materials are encased on site. To date no NRC licensee has requested that option.

spent fuel removal as plants that have completed DECON. Accordingly, affording priority for plants in one state of decommissioning vs. another is not considered to be warranted.

Having made the case for providing no priority for plans in DECON (or, for that matter, plants in SAFSTOR), it should be noted that a site in the midst of DECON may prefer to adjust its spent fuel pickup dates from those determined by LSPF in order to minimize interference with major site DECON activities. Such adjustments are reasonable and should be addressed with DOE and other shutdown sites on a case-specific basis.

VI. SUMMARY AND CONCLUSIONS

If there were a working spent fuel and HLW management program and a site to which the fuel could be shipped, there are various approaches to ordering the removal of spent fuel from shutdown plant sites. Section II of this paper outlined the advantages for establishing early an agreed pickup queue formula for such SNF. Section III proposed a formula for such a queue – i.e., the pick up should be performed site by site, beginning with the longest shutdown plant. Section IV provided the rationale for the formula. Section V discussed the pros and cons to various alternatives to the LSPF proposal.

It is apparent there would be value in the earliest possible removal of SNF from shutdown plant sites. It is unfortunate, to say the least, that the nation's spent fuel and HLW management system has come to a dead standstill in recent years due to a determination on the part of the federal government's executive branch that it is not obligated to follow federal law. Recent court cases[j] have exposed those actions for what they are – illegal – and it can only be hoped the federal government will begin once again to discharge its responsibilities under the law.

[j] On, August 13, 2013, the United States Court of Appeals for the D.C. Circuit ruled the NRC violated the law by dismissing the Yucca Mountain nuclear waste repository licensing proceeding, noting that the "President may not decline to follow a statutory mandate or prohibition based upon policy objections." The court ordered the NRC to reinstate the licensing process so long as appropriated funds remain available[3]. In a related case, on November 19, 2013, in *National Ass'n of Regulatory Util. Comm'rs v. U.S. Dep't of Energy* (NARUC v. DOE II), 736 F.3d 517, 521 (D.C. Cir. 2013) *reh'g en banc denied*, No. 11-1066, 2014 U.S. App. LEXIS 5200 (D.C. Cir. Mar 18, 2014), the D.C. Court held that in light of DOE's termination of the Yucca Mountain project, DOE had failed to justify continued collection of the nuclear waste fee as required under the NWPA. The court ordered DOE to suspend collection of the fee.

REFERENCES

1. Nuclear Waste Policy Act of 1982, Public Law No. 97-425 (January 7, 1983) (codified as amended at 42 U.S. Code, Chapter 108 §§ 10101-10270).
2. Nuclear Waste Policy Act Amendments, Public Law 100-203, Title V, Subtitle A (December 22, 1987).
3. *In re Aiken County*, 725 F.3d 255 (D.C. Cir. 2013), *reh'g en banc denied*, No. 11-1271, 2013 U.S. App. LEXIS 22003 (D.C. Cir. Oct. 28, 2013) (granting Writ of Mandamus against the U.S. Nuclear Regulatory Commission).
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