

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

IN THE MATTER OF:)	
)	Docket No. 72-1051
HOLTEC INTERNATIONAL)	
)	
(Consolidated Interim Storage Facility)	February 25, 2019
Project))	

**SIERRA CLUB'S ADDITIONAL CONTENTIONS IN SUPPORT OF PETITION
TO INTERVENE AND REQUEST FOR ADJUDICATORY HEARING**

CONTENTION 27

During the hearing before the ASLB in this case that occurred on January 23 and 24, 2019, Holtec relied on its purported Aging Management Program, SAR Chapter 18, to support its claim that there is no issue with high burnup fuel, as set forth in Sierra Club Contentions 14 and 20-23. Holtec had not relied upon, or even mentioned, the Aging Management Program in its Answer to Contentions 14 and 20-23, which raise issues regarding high burnup fuel. This is new information that was not available to Sierra Club until Holtec relied upon the Aging Management Program at the ASLB hearing.

Holtec's Aging Management Program, SAR Chapter 18, only mentions high burnup fuel once, in Section 18.3. The Aging Management Program does not explain how the impact to the containers from high burnup fuel will be addressed. The reference simply refers to Appendix D of NUREG-1927, which provides a process for experimental demonstration for time periods beyond a 20-year licensing period.

The ER does not mention the aging management program at all.

Since the Holtec CIS facility is expected to be in operation well beyond the 40-year licensing period, the Aging Management Program in the SAR, if it proposes to comply with Appendix D, must set out in detail how it will do so.

Basis for Contention

As stated in Sierra Club Contention 20, since 1999 the amount of high burnup fuel (HBF) being used in nuclear reactors has increased substantially. Since 2012 all of the fuel used in reactors has been HBF. Therefore, extra steps must be taken to ensure that HBF does not cause cladding failure and embrittlement. The concerns regarding HBF and Holtec's failure to address those concerns in its documentation were set forth in Sierra

Club Contentions 14 and 20-24. Holtec had not relied upon, or even mentioned, the Aging Management Program in its Answer to Contentions 14 and 20-23.

Holtec's reliance on its Aging Management Program during the ASLB hearing on January 24, 2019, regarding HBF, is not supported by the provisions of the Aging Management Program as set forth in Chapter 18 of the SAR.

Facts Upon Which Petitioner Intends to Rely in Support of This Contention

The first mention of Holtec's Aging Management Program with respect to HBF occurs at page 85 of the January 23, 2019, ASLB hearing transcript. Judge Trikouros asked Sierra Club counsel:

JUDGE TRIKOUROS: The existence of a high burner [sic] fuel aging management program, an aging management program specific to high burner [sic] fuel, that – which I think is a SAR issue -- is not adequate. You think it should also be discussed in depth in the ER.

Tr. p. 85.

However, Sierra Club had not mentioned the Aging Management Program in any of its contentions regarding high burnup fuel, nor had Holtec mentioned the Aging Management Program in its Answer to any of Sierra Club's contentions.

When it was Holtec's turn to respond to ASLB questions at the hearing on January 24, 2019, Holtec's counsel volunteered a reliance on the Aging Management Program, leading to the following exchange:

MR. WALSH: Yes. In addition, Your Honor, I would also like to correct something from yesterday. There is the aging management program for high burnup fuel, which is not a voluntary program, as was stated. It will be part of the license requirements of the facility.

That is a program that's going to, basically, incorporate data that is learned from the Department of Energy and EPRI, and we'll take whatever protective actions

are necessary. But the assertion yesterday that it's a voluntary program is flat wrong.

JUDGE TRIKOUROS: Okay. I guess we did discuss that yesterday with Mr. Lodge. And you're in a position to implement anything that comes out of these research programs that are underway?

MR. WALSH: Yes, that is our position.

Tr. p. 286.

But Holtec's response is more an expression of hope than any real assurance that the Aging Management Program will work. Holtec's counsel explained that the Program would be based on ongoing research. Tr. p. 323. There is no indication what this research will determine or when.

The only reference to high burnup fuel in the SAR, 18.3, simply refers to Appendix D of NUREG-1927, Standard Review Plan for Renewal of Specific Licenses and Certifications of Compliance for Dry Storage of Spent Nuclear Fuel (Accession No. ML16179A148). Appendix D makes the following statements:

The experimental confirmatory basis that low burnup fuel (≤ 45 Gwd/MTU) will maintain its integrity in dry cask storage over extended time periods was provided in a demonstration test (NRC, 2003; Bare, et al., 2001; Einziger, et al., 2003). A similar confirmation test, . . . does not exist for . . . HBU [high burnup] fuel Certification and licensing HBU fuel for storage was permitted for an initial 20-year term using the guidance contained in Interim Guidance (ISG) 11 (NRC 2003), which was based on short-term laboratory tests and analysis that may not be applicable to the storage of HBU fuel beyond 20 years, particularly with the current state of knowledge regarding HBU fuel cladding properties.

There is no evidence to suggest that HBU fuel cannot similarly be stored safely and then retrieved for time periods beyond 20 years, but the supporting experimental data is not extensive. Therefore, confirmatory data or a commitment to obtain data on HBU fuel and taking appropriate steps in an aging management program (AMP) will provide further information that will be useful in evaluating the safe handling of individual assemblies of HBU fuel for extended durations.

A demonstration program could provide an acceptable method for an applicant to demonstrate compliance with the cited regulations for storage of light water reactor fuels (LWR) for periods of greater than 20 years

It is important to note that Holtec's request is for a 40-year license, not a 20-year licensing period. It is therefore doubtful, that Appendix D even applies. Moreover, Holtec does not propose to conduct a demonstration program, as contemplated in Appendix D.

An aging management program must be based on more than hope and a promise. DOE has issued guidance on this topic. O.K. Chopra et al., *Managing Aging Effects on Dry Cask Storage Systems for Extended Long-Term Storage and Transportation of Used Fuel-Revision 2*, September 30, 2014, found at https://rampac.energy.gov/docs/default-source/storage/fcrd-ufd_r1.pdf. That document explains that since nuclear waste storage facilities "consist of mostly passive SSCs, their degradation may not be readily apparent from a simple condition-monitoring program such as periodic inspection," *Id.* at p. 1.3-5. The document then describes four types of Aging Management Programs that may be required:

- *Prevention*: Programs that keep the aging effects from occurring, e.g., coating programs to prevent external corrosion of a carbon steel overpack component, and adequate drying to prevent hydride reorientation in PWR high-burnup cladding alloys.
- *Mitigation*: Programs that slow the effects of aging, e.g., cathodic protection systems used to minimize corrosion of metallic components embedded in concrete.

- *Condition Monitoring*: Programs that search for the presence and extent of aging effects, e.g., visual inspection of concrete structures for cracking and sensors that monitor temperatures, pressures, or fission gas such as Kr-85.
- *Performance Monitoring*: Programs that verify the ability of the SSCs to perform their intended safety functions, e.g., periodic radiation and temperature monitoring.

The Aging Management Program in the SAR, Chapter 18, with respect to high burnup fuel, SAR, 18.9, does not qualify in any of the four types listed above. As noted previously, the Holtec Aging Management Program for high burnup fuel relies entirely on a “surrogate demonstration program” that is not even in existence at this time. It will allegedly be determined in the context of future tests and experiments.

The DOE document cited above also refers to the ten elements that should be in an Aging Management Program, as shown in the table below.

Table I.1 Definitions of Ten Elements in an AMP for Managing Aging Effects in SSCs of DCSSs/ISFSIs.

	AMP Element	Description
1.	Scope of the program	The scope of the program should include the specific structures and components subject to an AMR.
2.	Preventive actions	Preventive actions should mitigate or prevent the applicable aging effects.
3.	Parameters monitored or inspected	Parameters monitored or inspected should be linked to the effects of aging on the intended functions of the particular structure and component.
4.	Detection of aging effects	Detection of aging effects should occur before there is a loss of any structure's or component's intended function. This element includes aspects such as method or technique (i.e., visual, volumetric, or surface inspection), frequency, sample size, data collection, and timing of new/one-time

		inspections to ensure timely detection of aging effects.
5.	Monitoring and trending	Monitoring and trending should provide for prediction of the extent of the effects of aging and timely corrective or mitigative actions.
6.	Acceptance criteria	Acceptance criteria, against which the need for corrective action will be evaluated, should ensure that the particular structure's and component's intended functions are maintained under all current licensing basis design conditions during the period of extended operation.
7.	Corrective actions	Corrective actions, including root-cause determination and prevention of recurrence, should be timely.
8.	Confirmation process	The confirmation process should ensure that preventive actions are adequate and appropriate corrective actions have been completed and are effective.
9.	Administrative controls	Administrative controls should provide a formal review and approval process.
10.	Operating experience	Operating experience involving the AMP, including past corrective actions resulting in program enhancements or additional programs, should provide objective evidence to support a determination that the effects of aging will be adequately managed so that the structures' and components' intended functions will be maintained during the period of extended operation.

There is no indication in the SAR that these ten elements are part of or included in Holtec's Aging Management Program with respect to high burnup fuel.

During the hearing on January 24, 2019, as noted above, Holtec's attorney claimed that the Aging Management Program was not voluntary. However, it is indeed voluntary on two levels. First, Holtec apparently gets to fashion its own program. As explained above, Holtec's Aging Management Program is seriously deficient with respect to the criteria in the cited guidance documents. Second, there is no indication that there will be any NRC oversight of Holtec's execution of the program. This is especially true if the use of the facility extends beyond 120 years. Holtec is only planning on an initial

license of 40 years and two additional 40-year licenses. ER. Rev. 3, 1.0. That Aging Management Program would certainly be voluntary after the 120-year time period. There would definitely be no NRC oversight at that point.

Nor does the ER mention the Aging Management Program with respect to high burnup fuel. An ER is required to thoroughly describe and evaluate the affected environment and the environmental impacts of the proposed project. 10 C.F.R. § 51.45. This discussion must include mitigation measures. NRC guidance for the preparation of environmental reports requires:

The ER should summarize mitigation measures that could reduce adverse impacts. These mitigation measures should be incorporated in the proposed action and alternatives (40 CFR 1502.14(f) and 1508.20). The anticipated effectiveness of these mitigation measures should be addressed in reducing adverse impacts. Residual impacts or unavoidable adverse impacts which remain after mitigation measures have been applied should be analyzed, as well as any further impacts caused by the mitigation measures themselves. The technical feasibility and the cost-benefit of any potential mitigation measures including costly actions that would yield only minor environmental benefits, should be noted.

NUREG-1748, *Environmental Review Guidance for Licensing Actions Associated with NMSS Programs*, 6.5. The Aging Management Programs purports to be a mitigation measure addressed to the impacts of high burnup fuel. As discussed above, the Aging Management Program is deficient and therefore does not comply with the above-cited guidance.

In addition, Mr. Alvarez points out in his report that the impacts of decay heat from high burnup fuel on the internal environment of commercial dry casks are virtually impossible to monitor, according to a 2014 NRC-sponsored study, cited in footnote 19 of Mr. Alvarez' report. The difficulty in monitoring is "because of high temperatures, radiation, and accessibility difficulty." Furthermore, Mr. Alvarez notes that the Nuclear Waste Technical Review Board said in 2016 that there is "little or no data to support dry storage and transport for spent fuel with burnups greater than 35 gigawatt days per metric ton of uranium." Alvarez report at p. 6. Mr.

Alvarez concludes that it will take DOE at least a decade to complete a study involving temperature monitoring in a specially designed dry cask containing high burnup fuel. Given the uncertainty about storage of high burnup fuel, Holtec's attempted reliance on its Aging Management Program give no assurance that the impacts of high burnup fuel will be adequately addressed.

CONTENTION 28

During the hearing before the ASLB in this case that occurred on January 23 and 24, 2019, Holtec relied on its purported Aging Management Program, SAR Chapter 18, to support its claim that there is no issue with impacts to or from the groundwater, as set forth in Sierra Club Contentions 15-19. Holtec had not relied upon, or even mentioned, the Aging Management Program in its Answer to Contentions 15-19, which raise issues regarding the presence and location of and impacts from groundwater. This is new information that was not available to Sierra Club until Holtec relied upon the Aging Management Program at the ASLB hearing.

Holtec's Aging Management Program, SAR Chapter 18, only mentions groundwater testing or monitoring in connection with concrete structures, in Section 18.8. The Aging Management Program does not explain how the impact to the containers from groundwater or impacts to the groundwater from leaking containers will be addressed. The reference simply refers to Appendix D of NUREG-1927, which provides a process for experimental demonstration for time periods beyond a 20-year licensing period.

The ER does not mention the aging management program at all.

Since the Holtec CIS facility is expected to be in operation well beyond the 40-year licensing period, the Aging Management Program in the SAR, if it proposes to comply with accepted guidance, must set out in detail how it will do so.

Basis for Contention

Sierra Club contentions 15-19 set forth deficiencies in Holtec's ER with respect to properly describing the groundwater resources in the area of the proposed CIS facility. In its Answer to these contentions, Holtec made no mention of its Aging Management Program in its Answer to those contentions.

Holtec's reliance on its Aging Management Program during the ASLB hearing on January 24, 2019, regarding groundwater resources, is not supported by the provisions of the Aging Management Program as set forth in Chapter 18 of the SAR.

Facts Upon Which Petitioner Intends to Rely in Support of This Contention

The first mention of Holtec's Aging Management Program with respect to groundwater occurs at page 297 of the January 24, 2019, ASLB hearing transcript:

JUDGE TRIKOUROS: Okay. The aging management program, not specifically the high burnup fuel one, but the standard aging management program does include testing of groundwater, and can you tell me what that means?

Because we have an outstanding contention that claims that there's groundwater there that you have not -- that you don't know is there, so to speak.

MR. SILBERG: Well, we have existing wells that have been monitored that have identified groundwater. The results of that are set forth in the application.

I don't know off the top of my head what the aging management plan says on that specific topic, we can certainly find that information and get it to you.

JUDGE TRIKOUROS: Yes, it didn't have a lot of details. It basically said you would be testing the groundwater, it didn't identify -- I don't think it identified specific wells or anything like that.

I don't even think it identified the groundwater specifically, if it was talking about aquifers or -- but again, we've been through so much material, I can't remember the details of that.

But if there were near-surface groundwater, do you believe that the aging management program would capture that?

Tr. p. 297.

Later, in a dialogue with NRC Staff counsel, Judge Trikouros made the following comments regarding the Aging Management Program:

JUDGE TRIKOUROS: And we also discussed and that's why I don't want to spend too much time going over things that we discussed. But we also discussed

that the aging management program in the SAR requires groundwater testing. And I can't imagine that they wouldn't use the ER as a basis for identifying why groundwater is there and what potential corrosive material might be in the groundwater and therefore having an ER that doesn't have the correct groundwater identified and the correct sources of, say, brine identified could be problematic from that point of view.

I can't imagine in the aging management program they're going to go do some environmental analysis to try and find new groundwater. They're just going to use whatever knowledge they have of where groundwater is. I would assume that. And I had no basis for not assuming that based on the conversation we had on this yesterday.

Tr. p. 348-349.

However, Sierra Club had not mentioned the Aging Management Program in any of its contentions regarding groundwater, nor had Holtec mentioned the Aging Management Program in its Answer to any of Sierra Club's contentions.

The only reference to groundwater in the Aging Management Program, SAR, 18.8, is in connection with reinforced concrete. That reference simply says that there will be periodic sampling and testing of groundwater, but there are no specifics regarding that sampling and testing.

An aging management program must be based on more than hope and a promise. DOE has issued guidance on this topic. O.K. Chopra et al., *Managing Aging Effects on Dry Cask Storage Systems for Extended Long-Term Storage and Transportation of Used Fuel-Revision 2*, September 30, 2014, found at https://rampac.energy.gov/docs/default-source/storage/fcrd-ufd_r1.pdf. That document explains that since nuclear waste storage facilities "consist of mostly passive SSCs, their degradation may not be readily apparent from a simple condition-monitoring program such as periodic inspection," *Id.* at p.

1.3-5. The document then describes four types of Aging Management Programs that may be required:

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- *Condition Monitoring*: Programs that search for the presence and extent of aging effects, e.g., visual inspection of concrete structures for cracking and sensors that monitor temperatures, pressures, or fission gas such as Kr-85.
- *Performance Monitoring*: Programs that verify the ability of the SSCs to perform their intended safety functions, e.g., periodic radiation and temperature monitoring.

The Aging Management Program in the SAR, Chapter 18, with respect to groundwater, SAR, 18.8, does not qualify in any of the four types listed above. As noted previously, the Holtec Aging Management Program for groundwater relies entirely on periodic sampling and testing. No details are given as to how the sampling and testing will be done.

The DOE document cited above also refers to the ten elements that should be in an Aging Management Program, as shown in the table below.

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There is no indication in the SAR that these ten elements are part of or included in Holtec's Aging Management Program with respect to groundwater.

During the hearing on January 24, 2019, as noted above, Holtec's attorney claimed that the Aging Management Program was not voluntary. However, it is indeed voluntary on two levels. First, Holtec apparently gets to fashion its own program. As explained above, Holtec's Aging Management Program is seriously deficient with respect to the criteria in the cited guidance documents. Second, there is no indication that there will be any NRC oversight of Holtec's execution of the program. This is especially true if the use of the facility extends beyond 120 years. Holtec is only planning on an initial license of 40 years and two additional 40-year licenses. ER. Rev. 3, 1.0. That Aging Management Program would certainly be voluntary after the 120-year time period. There would definitely be no NRC oversight at that point.

Nor does the ER mention the Aging Management Program with respect to groundwater. An ER is required to thoroughly describe and evaluate the affected environment and the environmental impacts of the proposed project. 10 C.F.R. § 51.45. This discussion must include mitigation measures. NRC guidance for the preparation of environmental reports requires:

The ER should summarize mitigation measures that could reduce adverse impacts. These mitigation measures should be incorporated in the proposed action and alternatives (40 CFR 1502.14(f) and 1508.20). The anticipated effectiveness of these mitigation measures should be addressed in reducing adverse impacts. Residual impacts or unavoidable adverse impacts which remain after mitigation measures have been applied should be analyzed, as well as any further impacts caused by the mitigation measures themselves. The technical feasibility and the cost-benefit of any potential mitigation measures including costly actions that would yield only minor environmental benefits, should be noted.

NUREG-1748, *Environmental Review Guidance for Licensing Actions Associated with NMSS Programs*, 6.5. The Aging Management Programs purports to be a mitigation measure addressed to the impacts of groundwater. As discussed above, the Aging Management Program is deficient and therefore does not comply with the above-cited guidance.

CONTENTION 29

The ER, Rev. 3, has now added “utilities” , in addition to DOE, as possible entities that might take title to the radioactive waste in the CIS facility. The ER provides no hint, however, as to whether a private utility that owns a nuclear reactor would agree to retain title to the waste. In fact, the costs to a private utility would be so great that the utility would not want to retain title to the waste. And Holtec is still presenting DOE as a possible titleholder in the ER, even though Holtec’s counsel admitted at the ASLB hearing on January 24, 2019, that DOE cannot legally take title to the waste. Thus, Holtec has failed to show reasonable assurance of funding for the project, as required by 10 C.F.R. § 72.22(e).

Basis for the Contention

Because Holtec has now admitted that DOE cannot legally take title to the radioactive waste that would be stored at the CIS facility, any reference to DOE involvement should be disregarded in this licensing proceeding. That leaves the proposal that the private nuclear reactor owners would retain title and be financially responsible. Holtec has not presented any evidence that the reactor owners would want to take on that responsibility. In fact, the financial implications of that scenario make it highly unlikely.

Facts Upon Which the Petitioner Intends to Rely in Support of this Contention

At the ASLB hearing on January 24, 2019, under questioning by Judge Ryerson, Holtec’s counsel admitted that it would be illegal for DOE to take title to the radioactive waste to be stored at the CIS facility. Tr. p. 250. That leaves Holtec forced to rely on its claim that the private nuclear reactor owners would retain title to the waste and be financially responsible. But Holtec has not provided any evidence to indicate that those reactor owners would want to or agree to retain title to the waste and be financially responsible. Holtec provided no statements from reactor owners

supporting Holtec's claim, nor any documentary evidence supporting any reason reactor owners would accept that responsibility.

The attached report by Robert Alvarez describes the financial implications to reactor owners. As Mr. Alvarez states, just 5,000 MTU of spent fuel would incur costs of \$2.4 billion over 40 years and \$4.72 billion over 80 years. Holtec, on the other hand, proposes to store at least 100,000 MTU of spent fuel for a period of 120 years. It is highly unlikely – in fact, probably a fanciful dream – that private reactor owners would agree to incur that kind of expense. It would be less expensive for them to keep the waste on the reactor site.

Mr. Alvarez also notes at p. 2 that:

Generally, utilities paying their own way will have to address expectations as to the spent nuclear fuel canistering that would be less economically onerous if DOE were involved. The timing for shipment to Holtec's facility of high burnup fuel, and requirements of shipment integrity are interrelated and will be different if DOE is not directing the traffic. Private payers will have budget constraints and economic priorities that are different – and so affect timing of moving fuel around – from a scenario where DOE is the contractor.

Finally, Mr. Alvarez describes the implications of high burnup fuel in the containers that would be stored at the Holtec facility. High burnup fuel increases the risk of leaks of radioactive material because of the damage to the cladding caused by the high burnup fuel. This is a risk that would be the responsibility of the reactor owners if they retain title and financial responsibility.

It is highly unlikely, therefore, that reactor owners would agree to retain title to the waste as envisioned by Holtec. And Holtec has not provided even a hint that the reactor owners would agree to that arrangement.

The financial implication to the reactor owners and the illegality of DOE taking title to the waste violates 10 C.F.R. § 72.22(e), which requires that Holtec must have the necessary funds, have reasonable assurance of obtaining the necessary funds, or by a combination of the two, have the funds to construct and operate the CIS facility for the planned life of the facility, i.e., 120 years.

In its attempt to comply with § 72.22(e), Holtec has stated in its *Financial Assurance and Project Life Cycle Cost Estimates* at p. 3:

Additionally, as a matter of financial prudence, Holtec will require the necessary user agreements in place (from the USDOE and/or the nuclear plant owners) that will justify the required capital expenditures by the Company.

And since DOE cannot legally finance the project, that means that the private reactor owners must accept the financial responsibility for the project. But Holtec has provided no indication that the reactor owners would be willing to do that. And as noted above, Robert Alvarez has explained that reactor owners “will have budget constraints and economic priorities that are different – and so affect timing of moving fuel around – from a scenario where DOE is the contractor. “

Furthermore, the cost numbers do not justify assurance that nuclear reactor owners would accept the financial responsibility. As noted above, Mr. Alvarez cites a study in which Holtec was involved that concluded that it would cost \$4.72 billion to store 5,000 MTU of spent fuel in a CIS facility for 80 years. Applying those figures to the total of 100,000 MTU of waste for 120 years as envisioned by Holtec for this CIS facility, the financial responsibility for the reactor owners would be \$141.6 billion.

Would it be less expensive for reactor owners to continue to store the waste at the reactor site? Holtec doesn't tell us. That would be important information to know in order for the NRC to determine whether there is reasonable assurance of adequate funding. Mr. Alvarez in his report states that storing waste in the wet pools at the Vermont Yankee reactor for six years is expected to cost \$149 million. But what would one reactor owner's share be of the \$141.6 billion dollars for storing the waste at the Holtec CIS facility for 120 years? Based on the inadequate information from Holtec, we do not know. Holtec has provided no indication of how many reactors would be storing waste at the CIS facility. The fewer reactors that participate in the Holtec project, the grater share of the expenses each would have to bear. And if the ISP project in Andrews County, Texas is licensed, even fewer reactors would be contributing to the expense of the Holtec facility.

The NRC has discussed in previous cases what constitutes reasonable assurance of adequate funding. The seminal case is *Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), 46 N.R.C. 294 (1997). That case involved an application to construct a uranium enrichment facility, pursuant to 10 C.F.R. Part 70. In that case the Commission discussed the difference in the financial assurance requirements of Part 70 and Part 50 of the regulations.

10 C.F.R. § 50.33(f)(1) requires an applicant for a license to construct a nuclear reactor to show that it actually “possesses or has reasonable assurance of obtaining the funds necessary to cover estimated construction costs and related fuel cycle costs.” 10 C.F.R. § 70.23(a)(5), on the other hand, simply requires an applicant for an enrichment facility to show that the applicant “appears to be financially qualified.” In the *Claiborne* case the NRC held that the language in Part 70 is obviously less demanding than the requirement in Part 50. The upshot was that the financial viability of a Part 70 applicant is to be determined on a case-by-case basis, and that the strict requirements of Part 50 do not apply as a matter of law. The Commission ultimately decided that if a permit was granted, there should be strict financial assurance conditions in the permit that must be shown before construction could begin.

Three years later, in *Private Fuel Storage LLC* (Independent Spent Fuel Storage Installation), 52 N.R.C. 23 (2000), the Commission applied the decision in *Claiborne* to an application under 10 C.F.R. Part 72. As noted above, 10 C.F.R. § 72.22(e) requires an applicant to provide “reasonable assurance” of funding. That language seems much closer to the Part 50 language than the Part 70 language discussed in *Claiborne*. Although the Commission in *PFS* did not specifically say if it was applying the case-by-case analysis adopted in *Claiborne*, that is inferred. The bottom line was that the Commission allowed PFS to provide the financial assurance through license conditions. But that was only after a showing of financial assurance was made through an evidentiary hearing. The Commission said:

Claiborne should not be interpreted, however, to hold that where the danger to public health and the environment presented by a proposed facility is not as great as the danger presented by a nuclear reactor, the Commission will grant a license to an applicant of dubious financial qualifications. Under the *Claiborne* approach, we still consider the financial prospects of the proposed license, but we do not hold the license applicant to Part 50-style specific means of showing financial capability.

That showing requires an evidentiary hearing. The documentation presented by Holtec thus far has not made that showing.

Since Holtec finally admitted at the ASLB hearing on January 24, 2019, that DOE cannot legally take title to or have financial responsibility for the waste to be stored at the Holtec facility, and since there is insufficient financial assurance that reactor owners would retain title to the waste and take financial responsibility, Holtec has not complied with 10 C.F.R. § 72.22(e). And although financial requirements could be placed in the license conditions, that must be determined on a case-by-case basis after an evidentiary hearing.

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