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 Project)	)	February 18, 2019

SIERRA CLUB'S MOTION TO AMEND CONTENTION 16

Comes now Sierra Club and in support of this Motion to Amend Contention 16, states as follows:

INTRODUCTION

This Motion is presented pursuant to 10 C.F.R. § 2.309(c)(1). Sierra Club has filed a Petition to Intervene in this proceeding and propounded Contention 16, which states:

> The ER does not contain any information as to whether brine continues to flow in the subsurface under the Holtec site.

Sierra Club now seeks to amend Contention 16 to address Requests for Additional Information (RAI) submitted by NRC Staff to Holtec and Holtec's Responses (Accessison No. ML19016A481) Holtec's Response was docketed in ADAMS on January 17, 2019. Holtec's Response presented new information that was not available until January 17, 2019.

The new information in Holtec's January 17, 2019, Response provides new and additional basis for Contention 16.

BACKGROUND

A. Characterization of Groundwater in Holtec's Environmental Report

The Environmental Report (ER) originally submitted with Holtec's license application purported to describe the presence and location of groundwater in the area of the Holtec site. Revision 3 of the ER was docketed on January 17, 2019. Revision 3 apparently made no changes in the description of groundwater.

The ER, 3.5.2.1, notes that the Holtec site is located in the Capitan Underground Water Basin. That section of the ER further states that the Capitan aquifer occurs within dolomite and limestone strata deposited as an ancient reef. Groundwater on the east side of the Holtec site is brackish exceeding a regulatory threshold. The ER further describes two test wells that were drilled at the Holtec site in 2007. At least one of the well samples contained highly mineralized brine.

Describing the groundwater in the area surrounding the Holtec site, the ER, 3.5.2.1 [sic, should be 3.5.2.2], p. 3-40, states, "Much of the shallow groundwater near the Site has been directly or indirectly influenced by brine discharges from potash refining or oil and gas production. . . . As a result, saturations of shallow groundwater brine have been created in a number of areas associated with the playa lakes (ELEA 2007, Section 2.4.2.1)."

B. Basis and Facts Supporting Contention 16 as Currently Formulated

The basis for and the facts supporting Contention 16 as currently submitted are based on the report of George Rice, a professional hydrologist. Mr. Rice's report was submitted with Sierra Club's Petition to Intervene.

Contention 16 asserted that the ER does not adequately address basic questions regarding the subsurface movement of brine. Although the ER, 3.5.2.1, states that brine

was detected in the test wells in 2007, the ER does not determine whether the springs/seeps that were flowing in 2007 continue to flow; whether the brine is moving along parched zones in the alluvial materials or along the alluvium/Dockum interface, and whether the brine could come into contact with the storage containers. Furthermore, there was no evaluation in the ER for the corrosion potential of the storage containers due to brine in the groundwater after the period for which the containers are certified.

C. Holtec's Answer to Contention 16 as Currently Formulated

Holtec's Answer to Contention 16 claims the contention offers no explanation as to how corrosion and leaks from the containers could occur; that the bottom of the CIS facility is below the level where Sierra Club's expert said groundwater would be present; that there is no showing that brine might be present in the shallow groundwater; and that the CIS facility would be on the opposite side of the site from where brine was found. Finally, the Answer asserts that Sierra Club's expert was simply asking questions, not presenting facts.

The RAIs from NRC Staff, as explained below, however, raise questions about salts in the area of the proposed CIS facility from a different perspective that did Contention 16. Holtec's Responses to the RAIs, which Holtec was required to answer and not just pass off as it did with Contention 16, present new information which Holtec had not asserted in its Answer to Contention 16.

D. The Requests for Additional Information and Holtec's Response

NRC Staff's RAI 17-12 states that Holtec's documentation in the ER and SAR describes the presence of salts (i.e., brine, halides) in the area of and surrounding the

Holtec site, and that Holtec's assertion that the presence of halides is negligible is not supported by the documentation. Further, the NRC Staff notes that the presence of salts creates "the potential to cause stress corrosion cracking of stainless steel [as in the Holtec containers]." So the Staff was raising the same concerns as Sierra Club raised in Contention 16. This acknowledgment by the Staff is new information that adds significant credibility to Contention 16.

Holtec's Response to RAI 17-12 was that the design of the Holtec system would preclude the salts being transported to the storage canisters, and that Holtec would implement an aging management program that would purportedly prevent any corrosion of the storage containers due to the salts in the ground. However, in its Answer to Contention 16, Holtec never mentioned its aging management program.

NRC Staff's RAI 17-14 requests details on the maintenance activities for the Holtec storage system. Holtec's response acknowledges the possibility of thinning of the walls of the cavity enclosure container (CEC) due to corrosion and/or pitting of the interior surfaces of the CEC. As shown by the request and response for RAI 17-12, the corrosion and/or pitting could be caused by brine in the groundwater.

REQUEST FOR LEAVE TO AMEND CONTENTION

A. Applicable Standards

NRC Regulation 10 C.F.R. § 2.309(c) allows a petitioner to amend its contentions if the presiding officer finds that the petitioner "has demonstrated good cause" by satisfying the following factors: (i) the information on which the filing is based was not previously available; (ii) the information upon which the filing is based is materially

different from information previously available; and (iii) the filing has been submitted in a timely fashion based on the availability of the subsequent information. An amended contention generally is considered timely if it is filed within 30 days of the date upon which the new information became available. *Shaw AREVA MOX Services (*Mixed Oxide Fuel Fabrication Facility), 67 N.R.C. 460, 493 (2008) ("Many times, boards have selected 30 days as [the] specific presumptive time period" for timeliness of contentions filed after the initial deadline).

Sierra Club respectfully submits that permitting the amendment of a contention is appropriate where new information shows that material statements in a license application are false or incorrect, given the "importance" placed by the Commission on "completeness and accuracy of information submitted by applicants and licensees" and the Commission's demand for "[n]othing less than candor." *Randall C. Orem, D.O.*, CLI-93-14, 37 NRC 423, 427 (1993) (citing *Petition for Emergency and Remedial Action,* CLI-78-6, 7 N.R.C. 400, 18 (1978); *Hamlin Testing Laboratories, Inc.,* 2 AEC 423, 428 (1964), *aff'd,* 357 F.2d 632 (6th Cir. 1966); *Virginia Electric and Power Co.* (North Anna Power Station, Units 1 & 2), CLI-76-22, 4 N.R.C. 480 (1976), *aff'd*, 571 F.2d 1289 (4th Cir. 1978)).

B. Request for Leave to Amend Contention

Sierra Club's proposed Amended and Substituted Contention 16 is attached to this Motion.

DEMONSTRATION OF GOOD CAUSE FOR LATE FILING

Sierra Club satisfies the three-prong test for good cause to file this amended contention based on new information as follows:

A. The information upon which the filing is based was not previously available.

The RAIs and Holtec's Responses, upon which the amended contention is based, were not available until January 17, 2019. Sierra Club could not have known about the NRC Staff's confirmation of Sierra Club's groundwater concerns and Holtec's Responses until that time. The RAI's and Responses significantly add to and confirm the statements in Contention 16.

B. The information upon which the filing is based is materially different than information previously available.

The NRC Staff perspective set forth in RAIs 17-12 and 17-14 presents a context for the Holtec documentation that is materially different than the context in which Holtec had previously presented the discussion of groundwater and its effect on the containers in the CIS facility. Likewise, when Holtec was required to respond to NRC Staff it was compelled to present information materially different than presented in its Answer to Contention 16.

More specifically, Holtec's Response to RAI 17-12 asserts that there is no material issue with brine in the groundwater because the containers in which the radioactive waste is stored will allegedly not leak and Holtec claims that its Aging Management Program will detect any leaks. Neither of these allegations were made in Holtec's Answer to Contention 16 as it was presented in Sierra Club's Petition to Intervene. Therefore, these new arguments constitute new information that was not previously available.

Likewise, in its Response to RAI 17-14, Holtec makes admissions regarding the potential of CEC wall thinning due to corrosion and/or pitting of the internal surfaces of the CEC. These admissions appear nowhere in the Holtec documentation nor in Holtec's Answer to Sierra Club's contentions.

C. The amended contention has been submitted in a timely fashion based on the availability of the subsequent information.

The amended contention is being filed within 30 days of Sierra Club having learned of the RAI's and Holtec Responses that form the basis of the amended contention, and therefore, the amended contention is timely. *Shaw AREVA MOX Services*, 67 N.R.C. at 493.

CONCLUSION

For all of the reasons stated herein this Motion should be granted

/s/ *Wallace L. Taylor*

WALLACE L. TAYLOR
Law Offices of Wallace L. Taylor
4403 1st Ave. S.E., Suite 402
Cedar Rapids, Iowa 52402
319-366-2428;(Fax)319-366-3886
e-mail: wtaylorlaw@aol.com

ATTORNEY FOR SIERRA CLUB

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 Project)	)	February 18, 2019

CERTIFICATE OF SERVICE

Pursuant to 10 C.F.R. § 2.305, I certify that, on this date, copies of Sierra Club's Motion to Amend Contention 16 were served upon the Electronic Information Exchange (the NRC's E-Filing System) in the above captioned proceeding.

/s/ Wallace L. Taylor
WALLACE L. TAYLOR
Law Offices of Wallace L. Taylor
4403 1st Ave. S.E., Suite 402
Cedar Rapids, Iowa 52402
319-366-2428;(Fax)319-366-3886
e-mail: wtaylorlaw@aol.com

ATTORNEY FOR SIERRA CLUB

AMENDED AND SUBSTITUTED CONTENTION 16

The ER does not contain any information as to whether brine continues to flow in the subsurface under the Holtec site. Holtec has not properly accounted for mechanisms that could allow corrosive material to reach cavity enclosure containers (CECs) and/or spent fuel canisters. Holtec's Aging Management Program would be insufficient to address the problem of groundwater impacting the integrity of the spent fuel containers.

Basis for Contention

Two brine disposal facilities once operated in the northeast portion of the Holtec site. A water sample was collected in 2007 from one of the springs immediately south of the Holtec site. That sample contained brine. ER 3.5.2.1.

The ER does not adequately address basic questions regarding the subsurface movement of brine. This is important because brine could cause corrosion of the containers holding the radioactive waste and cause leaks in the containers.

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

These facts are based on the declaration of George Rice, previously submitted with Sierra Club's Petition to Intervene, and the Requests for Additional Information and Holtec's Responses thereto, as described below, and the declaration of Dr. Gordon Thompson, hereto attached.

10 C.F.R. § 51.45 requires an ER to thoroughly describe and evaluate the affected environment and the environmental impacts of the proposed project. The Holtec ER notes that brine was detected in a water sample from a spring immediately south of the Holtec site. ER 3.5.2.1. However, as Mr. Rice notes, the ER does not determine whether the springs/seeps that were flowing in 2007 continue to flow; whether the brine is moving

along parched zones in the alluvial materials or along the alluvium/Dockum interface; and whether the brine could come into contact with the storage containers.

The NRC Staff also expressed concerns about Holtec's documentation with respect to salts, such as brine and halides. NRC Requests for Admission (RAIs) and Holtec's Respones were filed in ADAMS on January 17, 2009 (Accession No. ML19016A481). RAI 17-12 states as follows:

> Provide additional information to justify the statements in HI-STORE SAR Chapter 18 that the halide content in the air at the HI-STORE site is negligibile with respect to the potential to cause stress corrosion cracking of stainless steel.
>
> HI-STORE SAR Section 18.3 states that "the halide content in the air is negligible." SAR Section 18.4 states that the air contains a "minuscule concentration of halides" and that the relative humidity in the high desert of southeastern New Mexico is low, making the delivery of salts to the canister surface less effective.
>
> The staff notes that it does not appear that the above conclusions in HI-STORE SAR Chapter 18 are supported by local area information provided in SAR Chapter 2 and the Environmental Report, as follows:

- SAR Chapter 2 describes the area around the site as containing several playas, or transitory shallow lakes, that contain accumulations of halite (sodium chloride) and gypsum. The SAR also states that the surrounding area historically has been mined for potash. The staff notes that sylvinite, a mixture of sylvite (potassium chloride) and halite, is the typical potash ore mined in the Carlsbad Potash District in southeastern New Mexico (Barker and Austin, 1993).

- Section 3.5.1 of the Environmental Report notes the high salinity conditions in the local playas, which includes Laguna Gatuna and Laguna Plata within two miles of the site.

- In contrast to the statement in SAR Section 18.4, low levels of relative humidity are typically associated with a greater degree of dust transport in semi-arid climates (Csavina et al., 2014).

- SAR Section 2.1.2 states that soil samples at the HI-STORE site had chloride concentrations of 26-43,000 mg/kg, although the SAR concludes that the high

chloride measurements were due to sampling in areas previously used for oilfield disposal.

The staff requires additional justification for why the salts that are known to be present in the surrounding area would not be expected to be transported to the canisters, and why elevated salt concentrations in the soil were necessarily attributed to the oil field rather than the naturally occurring salt deposits in the region and high salinity of the local playas.

Holtec's Response to this RAI stated, in pertinent part:

The salts in the surrounding area are not expected to be transported to the canisters due to the design of the system. . . . It should also be noted that although it is not anticipated that a significant amount of salts will be transported to the canisters, Holtec has still implemented a full aging management program, as described in Chapter 18.

After reviewing the documentation regarding this issue, Dr. Gordon Thompson had this to say in his declaration, p. 22-23:

Holtec's Response to RAI 17-12 says that salts in the surrounding area are not expected to reach the SNF canisters. Holtec's Response to RA 17-14 says that the cavity enclosure containers (CECs) would be isolated from corrosion agents in the native soil. Both statements exhibit unwarranted optimism, especially in view of foreseeable effects of climate change.

Holtec's SAR says (at Section 6.5.2.6) that the Design Basis Flood for the proposed CISF is 5 inches. The SAR also says (at Section 2.4.3) that the estimated maximum flood would be 4.8 inches. Thus, it appears that the CISF design has a small margin of safety (0.2 inches) regarding flooding of the below-ground cavities.

Holtec's SAR says (at Section 2.6.1) that CISF construction would involve excavation to a depth of 25 feet below grade. Holtec's ER says (at Section 2.2.2.1) that the CISF would store SNF to a total depth of about 22.5 feet. Holtec's SAR says (at Section 2.5) that an onsite well showed water depth of 34 feet below grade. Artesian head was estimated at 50 feet. Water in the well was highly mineralized brine. Thus, the CISF design has a modest margin of safety (11-12 feet) regarding highly mineralized groundwater reaching the elevation of SNF canisters.

It appears that Holtec has not considered climate change. Discussion of meteorology in Holtec's SAR (at Section 2.3) is confined to historical

observations. Yet, as discussed in Paragraph V-2, above, effects of climate change at the CISF site are foreseeable.

The GCRP report predicts substantial increases in the frequency and intensity of heavy precipitation events across the United States. The report notes that such increases are expected even in regions where total precipitation is projected to decline, such as the southwestern United States. Moreover, the GCRP report notes that present climate models probably under-estimate the scale of future climate change.

Thus, over coming decades, the CISF site is likely to experience greater drought, interspersed by episodes of heavy precipitation with increasing frequency and intensity. Episodes of high wind speed could also occur with increasing frequency and intensity.

The expected trend in heavy precipitation could substantially increase the potential for flooding of the below-ground cavities at the proposed CISF, especially in view of the CISF's small margin of safety against flooding. Such flooding might, in principle, be corrected by pumping water out of the cavities. Such correction would rely, however, on continuation of institutional control. Loss of such control is a foreseeable outcome. Moreover, flooding could occur after the accumulation of corrosive particulates – salt dust – in the below-ground cavities. In that event, water would distribute the corrosive material across surfaces including the exterior boundaries of SNF canisters. Removal of that material could be difficult.

Cooling of SNF canisters at the proposed CISF would occur by thermosiphon action, with air intake at about grade level. Corrosive particulates in the local environment could be drawn into the below-ground cavities by the incoming air. Transport of particulates into the cavities could be exacerbated by increased air concentrations of particulates and/or by increased deposition of particulates near the air intakes. Those increases could arise from increased incidence of drought and/or high wind speed, attributable to climate change.

The expected trend in heavy precipitation could substantially increase the level of highly mineralized groundwater at the CISF site, episodically or permanently, potentially reaching the elevation of SNF canisters. In that event, mineralized groundwater could reach the exterior surfaces of CECs. The resulting corrosion could, over time, allow mineralized groundwater to enter the below-ground cavities and come into contact with SNF canisters.

Holtec's SAR says (at Section 17.11) that corrosion of structural steel (i.e., rebar) embedded in concrete structures would not be a problem at the proposed CISF, because the VVM would contain no rebar. However, Holtec's ER says (at Section

2.2.2.8) that the support foundation pad (SFP) would contain rebar. If mineralized groundwater rose to the level of the SFP, the presence of rebar could exacerbate degradation of the SFP, allowing groundwater access to the exterior surfaces of CECs.

Discussion here shows that Holtec has not properly accounted for mechanisms that could allow corrosive material to reach CECs and/or SNF canisters. In this regard, Holtec's Responses to RA 17-12 and RA 17-14 exhibit unwarranted optimism.

Dr. Thompson also commented on Holtec's Response relying on its Aging Management Program, in his declaration, p. 23-26:

Holtec's Response to RA 17-12 says that Holtec's Aging Management Program (AMP) would conduct inspections of SNF canisters and take corrective actions as necessary. Holtec's Response to RA 17-14 says that inspection of CEC interior surfaces would suffice to detect wall thinning due to corrosion. Holtec's SAR says (at Table 18.6.1) that SNF canisters would be inspected every 5 years, and VVMs – which include CECs – would be inspected every 5 years.

Holtec has withheld important information about its AMP, asserting that this information is proprietary. The information withheld includes Attachment 10 to Holtec's license application letter. Also, much of the content has been removed from Chapter 18 of the non-proprietary version of Holtec's SAR that is available to me. By withholding information of this kind, Holtec obstructs the development of a coherent national strategy for managing SNF. Partial information available in Holtec's SAR (at Chapter 18 and page xviii) suggests that Holtec's inspection of SNF canisters would rely on visual examination, accelerated coupon testing, and eddy current testing. NRC has, in recent years, recognized the need to inspect SNF canisters at ISFSIs. One manifestation of that recognition is a study done by Pacific Northwest Laboratory for NRC, which yielded a 2013 report. The report identified two options for deploying sensors to inspect SNF canisters that remain within their overpacks. One option would be a flexible wand. The other option would be a robotic crawler. In a September 2014 presentation, Steve Marschman, of DOE's Idaho National Laboratory, summarized the state of the art of inspecting SNF canisters that remain within their overpacks. Marschman identified three such inspections:

- "EPRI [Electric Power Research Institute] led three examinations (partly funded by DOE); Calvert Cliffs, Hope Creek, Diablo Canyon
- Inspections generally consisted of:
    - Temperature measurements of cask at points inside the annulus between the cask and canister

- SaltSmart measurements in similar locations
- Dust collection from the cask lid
- Visual inspection"

Marschman explained that experience with these inspections was unsatisfactory, saying:

> "Conclusion
> - We conclude that we couldn't conclude much about the potential for ClSCC [chloride-induced stress corrosion cracking]
> - We need a better way to gather information from canisters"

DOE sponsored a research project, through its Nuclear Energy University Programs, to help find a better way to gather information from SNF canisters. The project team was led by Cliff Lissenden. The team assumed that SNF canisters would remain within their overpacks. The team succeeded in building a working prototype of a robotic crawler, and described their work in a 2018 report as follows:

> "While the project team met all milestones and exceeded our own expectations in some areas (e.g., sensitivity of LIBS [laser-induced breakdown spectroscopy] to chlorides), there is still room for significant further development. Our goal was to build a working prototype, which was accomplished. However, there is a [sic] still much effort [needed] to transform the working prototype into a reliable product for commercial use."

The technical challenge of performing this type of robotic inspection is discussed by Sungho Choi and colleagues in a 2018 paper. They say:

> "In addition to a constricted tortuous access path, the vertical guide channels (nominally 50-mm deep, 150-mm wide, and at 214-mm intervals) block access to portions of the circumferential and bottom welds under the channels. Moreover, if the axial weld is located at a channel, it is completely inaccessible. Consequently, this limited accessibility to welds prevents the use of nondestructive inspection (NDI) techniques that rely on point-wise scanning, such as visual testing, eddy current testing, and ultrasonic testing using bulk waves, as much of the welds can be hidden by guide channels. The most appropriate technique would be guided wave ultrasonic testing because it can be considered as a line scan method and can potentially inspect all the welds."

Clearly, this area of research has not matured to the point of developing a reliable, proven system for inspecting SNF canisters at functioning ISFSIs. For example,

Lissenden et al's working prototype was not tested on a canister containing actual SNF. Ongoing research, development, and field testing – if properly funded and done with active cooperation by vendors and licensees – might yield a reliable, proven system in about a decade.

The work described above is primarily directed toward inspecting SNF canisters. This work could eventually yield, as a byproduct, a system that uses an internal sensor to detect wall thinning of the exterior surface of a CEC due to corrosion. Such detection is not possible today.

Discussion here shows that Holtec lacks a capability to perform credible inspections of SNF canisters or CECs. In this regard, Holtec's Responses to RAI 17-12 and RAI 17-14 exhibit unwarranted optimism.

Holtec's Response to RAI 17-12 says that Holtec's AMP would conduct inspections of SNF canisters and take corrective actions as necessary. A credible plan for taking such corrective actions should be a precondition for licensing the proposed CISF. Indeed, NRC should require – as a licensing precondition – the articulation of a credible, coherent, long-range plan for responding to foreseeable contingencies affecting the proposed CISF, including emergencies and slowly-developing situations.

Holtec says little about its preparations for contingencies affecting the proposed CISF. Holtec has withheld the CISF Emergency Response Plan, contending that it is proprietary. I see no justification for withholding this Plan.

Holtec's SAR says (at Section 18.14) that Holtec could deploy "a highly conductive sequestration canister with a gasketed lid that can be used to isolate a leaking [SNF] canister from the environment". This statement suggests that Holtec does not believe its own assertion (see paragraph VII-2, above) that no credible event could ever release any amount of radioactive material from an SNF canister at the proposed CISF.

A sequestration canister of the type described might be an appropriate element of a coherent, long-range plan for responding to foreseeable contingencies. Holtec has not articulated such a plan. The brief, casual mention of a sequestration canister suggests that Holtec is not serious about contingency planning.

As explained in Contention 9, the UMAX container system was certified for a design life of 60 years and a service life of 100 years. But Holtec envisions this CIS facility operating for at least 120 years. So there is no evaluation for the corrosion

potential of the containers due to brine in the groundwater after the period for which the containers are certified. That is why the ER must evaluate the nature and location of the brine as described by Mr. Rice.

In addition, Gordon Thompson's declaration, p. 20-21, addresses Holtec's assertion that the containers won't leak or be impacted by the groundwater:

> Holtec asserts that no credible event, whether accident or attack or slow degradation of a canister boundary, could ever release any amount of radioactive material from an SNF canister at the proposed CISF.
>
> This assertion is remarkably optimistic. In the context of accident or attack, this assertion is also inconsistent with statements in NRC's GEIS, as mentioned in paragraphs IV-2 and IV-4, above. The GEIS concedes that a credible accident or attack could release radioactive material, albeit with low probability.
>
> Holtec makes an equivalent assertion in its ER (at Section 4.13.2). Then, the ER (at Section 4.13.3) makes a false claim that Holtec's assertion is consistent with NRC's GEIS and with NUREG-1864, which is cited in the GEIS (see paragraph IV-2, above). The claim is false because Holtec says that the probability of a release is zero, while the GEIS says that this probability is low.
>
> In the context of slow degradation of a canister boundary, Holtec's assertion is inconsistent with DOE's consideration, in the Yucca Mountain EIS, of a scenario involving loss of institutional control of an ISFSI after about 100 years of service (see paragraph III-3, above). That loss would eventually lead to failure of the boundary of each canister at the ISFSI, resulting in a release of radioactive material.
>
> NRC's GEIS is itself optimistic about the probability and magnitude of a release of radioactive material from an SNF canister at an ISFSI. For example, the GEIS assumes that the operating environment for an ISFSI will remain stable and benign throughout the indefinite future. As discussed in Section V, above, that assumption is imprudent. It is even imprudent for the storage period – until about 2140 – that is contemplated in Holtec's ER.
>
> Thus, NRC's GEIS carries forward a longstanding tendency of NRC to ignore or suppress inconvenient information (see Section VI, above). That behavior makes NRC an impediment to the development of a coherent national strategy for managing SNF (see Section III, above).

As discussed in paragraph VII-2, above, Holtec compounds NRC's failure to consider inconvenient information. Holtec refuses to acknowledge any possibility that radioactive material could be released from an SNF canister. By taking this unreasonable position, Holtec obstructs the development of a coherent national strategy for managing SNF.

The proposed CISF would involve placement of SNF canisters in below-ground cavities. I acknowledge that incorporation of this design feature would reduce the probability of an attack-induced release of radioactive material of a given magnitude, when compared to an above-ground ISFSI using established Holtec technology, if all other factors remained equal. In the context of attack resistance, a questionable feature of the design of the proposed CISF is that the top lid of each below-ground cavity is, apparently, held in place by gravity. That design feature is implied by a statement in the Holtec SAR (at Section 17.6) that the only bolts employed in the vertical ventilated module (VVM) system are those used to secure the vent flue to the inlet and outlet plenums. The proposed CISF could be vulnerable to a Type IV attack, as specified in Table IV-2 of this declaration. The outcome of such an attack could be a cask fire, as discussed in paragraph IV-5, above. If the below-ground configuration of the proposed CISF is compared to an above-ground ISFSI using established Holtec technology, induction of a cask fire would be more difficult for the below-ground configuration, although still possible. The difference in difficulty would be lessened if the top lid of the below-ground cavity could be readily removed.

The below-ground configuration of the proposed CISF could adversely affect the performance of the facility in areas of concern other than attack resistance. Two issues are salient. First, water entering the below-ground cavities from above or below could accumulate and contribute to degradation of the external boundaries of SNF canisters. Second, the lack of visible structure above grade level could contribute to the CISF becoming a repository by default (see paragraph III-7, above).

NRC's GEIS is itself optimistic about the probability and magnitude of a release of radioactive material from an SNF canister at an ISFSI. For example, the GEIS assumes that the operating environment for an ISFSI will remain stable and benign throughout the indefinite future. As discussed in Section V, above, that assumption is imprudent. It is even imprudent for the storage period – until about 2140 – that is contemplated in Holtec's ER.

Thus, NRC's GEIS carries forward a longstanding tendency of NRC to ignore or suppress inconvenient information (see Section VI, above). That behavior makes NRC an impediment to the development of a coherent national strategy for managing SNF (see Section III, above).

> As discussed in paragraph VII-2, above, Holtec compounds NRC's failure to consider inconvenient information. Holtec refuses to acknowledge any possibility that radioactive material could be released from an SNF canister. By taking this unreasonable position, Holtec obstructs the development of a coherent national strategy for managing SNF.

So, Dr. Thompson's analysis shows that Holtec's reliance on the assertion that brine in the groundwater would not reach the spent fuel canisters and that Holtec's Aging Management Program would detect any leaks in the containers is not supported by the facts. Holtec's ER, Rev. 3, 4.5.3, does not discuss environmental impacts regarding groundwater, as described in RAI 17-12 and 17-14, and as addressed in Dr. Thompson's declaration. That section of the ER only discusses the impacts of surface water runoff.

And as described in Mr. Rice's report, the ER, 3.5.2, does not adequately discuss the nature, location, and quality of the groundwater on and near the site of the CIS facility.

The ER is therefore inadequate in discussing these impacts, and to the extent that the groundwater impacts are not discussed, this contention is a contention of omission.