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General Comment

See attached file(s)

Attachments

Holtec HI-STORE CIS Scoping Comments #2 Docket ID NRC-2018-0052

Citizens Environmental Coalition

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July 30, 2018

Ms. May Ma
Office of Administration
Mail Stop: TWFN-7-A60M
US Nuclear Regulatory Commission
Washington, DC 20555-0001

Submitted via Rulemaking website &
via email to Holtec-CISFEIS@nrc.gov

Re: Docket ID NRC-2018-0052 Holtec HI-STORE CIS Facility, Scoping for the Environmental Impact Statement focused on Licensing and Safety Analysis Report

Dear Ms. May Ma,

Holtec Hi-STORE CIS Comments on Licensing Report –Safety Analysis Report Doc # HI-2167374
Revision 0, March 27,2017 Attachment 2 to Holtec Letter 5025012 (up to Section 2.0 only)
Chapter 2.0 utilizes new attachment 3, Rev. OB

Incompleteness of Application
The public is not receiving adequate information pertaining to this application. For example, essential drawings related to the facility and equipment are not provided in the SAR, because they are identified as **Proprietary Drawings Withheld per 10CFR2.390**. This is a public review process and none of this material should be proprietary. We have inadequate written descriptions of some very important equipment and without the drawings we are unable to answer basic questions that we have.

The Glossary p. i
The Glossary fails to contain numerical values that are essential to the definition in many cases. There is also no reference to where the essential values might be found. The Glossary should have these values so there is easy access when reading the Report. Examples: Accident Condition Storage temperature, Cavity Enclosure Container, Design Basis Earthquake, Design Basis Load, Design Basis Missile, Design Extended Condition Earthquake (DECE), Design Heat Load, Design Life, Interfacing Components-a List, License Life, Long Term Storage, Lowest Service Temperature, Most Severe Earthquake (MSE), Normal Storage Condition, Off-Normal Storage Condition, Operating Basis Earthquake, Service Life.

AFR Away from Reactor ISFSI. This item is not in the glossary except under ISFSI.

Cask Receiving Area is identified as being partially or completely enclosed. The cask receiving area should be in an enclosed building with a robust ventilation and air cleaning system --- meeting specifications for a hot cell—in order to handle the potential for damaged fuel packages. A sheet metal structure for this area and the **Cask Transfer building** is not an adequate plan.

Cavity Enclosure Container means a thick-walled cylindric steel weldment that defines the storage cavity.... The thickness of the wall is not provided in the definition. In addition under Section 1.5 Licensing Drawings are identified as being provided--- but these are identified as Proprietary Drawings Withheld per 10CFR2.390.

Confinement Boundary- What piece of actual equipment does this definition apply to? Does this relate to the casks arriving from nuclear reactors around the country? Or are you talking about the Cavity Enclosure Container?

Controlled Low-Strength Material (CLSM), also referred to lean concrete or Self-hardening Engineered subgrade (SES). We question the use of fly ash and fly ash slurry as backfill in this application.

The use of fly ash should be evaluated in the EIS. Fly ash usually contains large amounts of heavy metals and polycyclic aromatic hydrocarbons. Over time this could lead to contamination of groundwater. Fly ash is also very alkaline as is the native potash in the area. The impact of high alkaline materials on metal and concrete corrosion and degradation over time should be evaluated.

Cooling Time (or post-irradiation cooling time) for a spent fuel assembly is the time elapsed after its discharge from the reactor to the time it is loaded into the canister. Are you trying to identify the time spent in a fuel pool at a reactor? Or the total time in dry storage?

Design Basis Earthquake (DBE) is the seismic input applicable to the cask's long term storage on the ISFSI pad. Also called **a Safe Shutdown Earthquake (SSE)** No numerical value is provided. Without the value being stated we cannot assess its adequacy for this site.

Design Basis Load (DBL) and **Design Basis Missiles (DBM)**—There is no list of established DBLs. There is likely more than one. There is no identification of the DBMs either.

Design Heat Load or Design Basis Heat Load- In this definition we are provided with only one of four factors mentioned. The single provided factor is the 400 degrees C for the peak cladding temperature. The three missing ones are the computed heat rejection capacity, the normal ambient temperature used, and the thermal capacity of the system. We are told the analysis reflects conservatism but there is no way we could arrive at this conclusion independently with so little information.
This needs to be evaluated in the EIS.

Design Life—the minimum duration for which the SSC (systems, structures and components) or Facility is intended to perform its intended function as set forth in the SAR, if operated and

maintained in accordance with the document. We are not even provided here with the numerical Design Life.
This information should be evaluated in the EIS.

Design Report is mandatory for SSCs designated as important to safety. This SAR is the Design Report for the Hi-Store facility. While the report may be mandatory, if it supplies insufficient information to the public, or withholds proprietary information important to safety, it cannot be in compliance with the regulations. **Design Specification** is a document that provides a complete set of design criteria and functional requirements. The Public has not been provided with essential information. The NRC is only in the early stages of their review, so their evaluation is far from complete. Yet the public has only a short period of review to handle incomplete application materials. This SAR is also the Design Specification.
All of this should be evaluated in the EIS, accompanied by materials that should be in the SAR.

Divider Shell means a cylindrical shell bearing insulation over most of its inner and outer surface that divides the annular space between the canister and the CEC shell into two discrete regions for the down-flow and up-flow of air in the UMAX VVM. The divider shell and the lid for the VVM are important structures related to the ventilation and heat removal of the system. However, the few drawings we have are not adequate to identify the structures in the lid of the VVM for drawing air in and exiting hot air out. The size of the pathways are not provided and we have not been told the cubic feet per minute of air flow. We assume that the proprietary drawings have more complete information.
An important issue is the design of the lid as it is likely that dust will be blowing across this facility. If dust builds up in the Cavity Enclosure Container, how would it be removed and what would the impact be on heat removal? Has the lid design been tested under windy conditions? What wind speed impairs passive air intake?

FSAR is an acronym for Final Safety Analysis Report (10CFR72).

Important to Safety (ITS) Used in 10CFR72 and 10CFR71. The Safety functions according to NUREG-1536, Rev 1, 2010 should be included here. The functions that dry storage system structures, systems, and components important to safety are designed to maintain include: • Protection against environmental conditions, • Content Temperature Control, • Radiation Shielding, • Confinement, • Sub-criticality control, and • Retrievability.
A major portion of the EIS should be devoted to Safety, including ITS equipment.

Interim storage means an autonomous monitored canister storage facility from which the stored canister can be retrieved, if necessary. Autonomous means independent, self-governing, self-directed or sovereign. We cannot know if this is autonomous true ownership and management until legal agreements have been clarified.

The EIS should fully explore all the ownership and management issues pertinent to a facility of this nature including the financial arrangements, liability and financial assurance for any future adverse events and remediation.

Interfacing Components means the weldments certified in other dockets that will be used with the Hi-Storm UMAX VVM assemblies for transferring and storing canisters at the Hi-Store facility. The canister is an Interfacing Component. Are we talking only about canisters or are there other interfacting components? A reference to other dockets is not adequate. Holtec should be as complete as possible in identifying the names of the Interfacing components that they are aware of now and the status of their approval.
The EIS should certainly be completely transparent, unlike this glossary which leaves us asking more questions, than getting answers.

License Life means the duration for which the system is authorized by virtue of its certification by the US NRC. Here we are not even told what License Life Holtec is applying for.

Licensing Drawings are an integral part of this SAR wherein the essential geometric and material information on Hi-Storm UMAX is compiled to enable the safety evaluations pursuant to 10CFR72 to be carried out. The most important issue associated with this application relates to safety and we are told that essential information is contained in these drawings and we are being denied access to them – because they are proprietary.
Please explain exactly how safety of the public is a proprietary issue?
The EIS must provide all the drawings and diagrams that describe the facility. The EIS should also contain a process flow diagram with steps starting when a shipping cask delivers Spent Nuclear Fuel (SNF) to the Holtec facility.

Long Term Storage means the period of passive storage in the Hi-Storm UMAX VVMs at the AFR facility. There is no clarification regarding the expected number of years.

MSE is an acronym for Most Severe Earthquake utilized to denote the ultra- high earthquake resistant options used in the Hi-STORM UMAX generic license. These options are not utilized for the Hi-Store facility.

Normal Storage Condition refers to the integrated time average of the annual ambient temperature at an ISFSI site. It is used, as prescribed in ISG-11 Rev3 and NUREG-1536 as the reference air inlet temperature in the ventilated cask's thermal analysis for computing the fuel cladding temperature. Reference is also made to Non-ventilated casks, although there should be clarification as to whether any non-ventilated casks will be at this site.
To protect fuel and cladding from further damage the normal storage conditions should not be based on an annual average across all seasons, but on an average of peak summertime temperatures. In that way measures can be taken to prevent cladding temperatures from exceeding the 400 degrees C limit.

Off-Normal Storage Condition refers to the highest 3 day average of ambient air temperatures. Consideration should also be given to the 24 hour average temperatures. High temperatures in the day time could be mitigated by nighttime cooling. The impact of high heat days that continue through the night to be relatively hot could be more problematic for the SNF.
The EIS should fully evaluate normal and off-normal storage conditions.

Operating Basis Earthquake is the three-dimensional seismic motion that is assumed to apply to any site activity whose duration exceeds one work shift. It is set equal to the bounding value of 1000 year return earthquake for this site. Short duration activities lasting less than a work shift are considered seismic-exempt operations.
This is an incredible definition that cannot possibly have any scientific basis. Major destructive earthquakes around the world often last only minutes. This definition requires an earthquake to be ongoing for an 8 hour work shift or maybe longer if there are 10 or 12 hours shifts. This definition ensures that all future earthquakes will not disrupt any operations, because they will be seismic- exempt. If this is really about the classification of operations during an earthquake, the definition needs correction.
Given the importance of the seismic exemption, it should have its own definition and rationale. The EIS should fully evaluate this insane definition for an Operating Basis Earthquake and fully discuss the rationale for this seismic exemption.

Service Life means the duration for which the SSC is reasonably expected to perform its intended function. Service Life may be longer than Design Life because of the conservatism associated with the standards to maintain the SSC.
The EIS should deal with Design and Service Life fully and provide the rated life for all SSC equipment.

Severity Index is the indicator of the safety importance and operational fragility of a SSC which informs the level of monitoring, inspection and remediation measures required in its Aging Management Program. The canister has the highest severity index of 3. Those not ITS have a Severity Index of 0.
The EIS should provide a list of all the SSCs associated with this facility and their severity indexes for the Hi-Store Facility.

Thermal Capacity of the Hi-STORM system is defined as the amount of heat the storage system (incl. SNF canister) will actually reject with the ambient environment at the normal temperature and the peak fuel cladding temperature below the ISG-11 Rev 3 limit.
The EIS must evaluate the impacts of 500 VVMs that are fully loaded and their ability to eject heat sufficiently when summer temperatures reach 95 degrees Fahrenheit or higher. We saw no analysis of the total heat load.

UG is the acronym for HI-STORM UMAX Generic License components.

The definition of Weldment should be added : a unit formed by welding together an assembly of pieces.

1.0 p.1-1 Ownership/Management/Legal Agreements
We are told the site is owned by the Eddy-Lea Energy Alliance, which is an LLC owned by 2 counties and 2 cities. There is an MOA, which has not been provided. It deals with the design, licensing, construction and operation of the site. Apparently the Board of Finance of New Mexico has approved the sale of the Site to Holtec, but the Sale has not yet taken place.

Thus far despite a lot of material, essential information is missing. Who will be the owner of the CIS facility? Who will be the manager? Holtec International will serve as the operator of the HI-STORE CIS. An operator usually has far less responsibility than an owner or manager. What exactly does the memorandum of agreement specify in terms of various responsibilities, financial assurances, liabilities etc. ? We need to know who is responsible for what. Is the MOA also referred to as the Compact or are these separate legal agreements? We need to ensure nothing has been left out of any agreement. Spent nuclear fuel represents an enormous financial liability because it must be isolated from humans for more than a million years.

Citation: "The Site is currently owned by the Eddy-Lea Energy Alliance (ELEA), a limited liability company owned by the cities of Carlsbad and Hobbs, and Eddy County and Lea County. In April 2016, Holtec and ELEA signed a memorandum of agreement (MOA) [2.1.1] covering the design, licensing, construction and operation of the Site. Among other things, that MOA provides the terms by which Holtec could purchase the Site. On July 19, 2016, the New Mexico Board of Finance approved the sale of the Site to Holtec [2.1.2]." p. 2-2

We don't see how site preparation and construction can begin in 2018 (Table 1.02 p. 1-6) when the public does not even have access to critical information about this project and the EIS has not been prepared. Table 1.02

Section 1.1 p.1-9

General Description of Installation

We don't see a Repair & Maintenance building and we are not told where these activities would take place.

A fuel storage area is mentioned but no description for this is provided, including type and amount of fuels.

How many personnel are planned for day, evening and night shifts? And their relevant titles?

"The storage pad and ISFSI at large are equipped with an efficient drainage system."

We would like to know more about the drainage system. We have been told elsewhere that if rainwater gets into the Hi-Storm UMAX VVMs, workers have to insert a hose to remove water that has accumulated inside. If there is a drainage system we would like to understand more details about the plan, what it drains and its capacity including a diagram.

There should be a description of operations at the facility from the time SNF arrives and the multiple steps that are undertaken. General maintenance, surveillance and monitoring activities should also be described.

Section 1.2 p. 1-12

e. This item tells us there are no above- ground important- to- safety building structures. All canister facilities are below ground.

However, it is possible that shipments may arrive and need to be stored until they can be placed below ground. Wouldn't the receiving bldg. be considered important-to- safety in this case?

We also believe that a Hot Cell is needed for an ISFSI away from reactor facility, in case the cask and fuel were damaged in transport. A Hot cell would be an ITS facility.

f. According to this item a canister in the Hi-Store UMAX cavity can be examined remotely to assay the state of integrity of its confinement boundary shell making its monitoring a low dose activity.

We need more information about this remote examination, how it is done and its capability.
g. Here we are told that the dose limit will be met with large margins and the environmental footprint will be vanishingly small. We do not agree based on the limited and careless analyses we have seen to date.
h. The canister confinement boundary may not be subject to galvanic corrosion, but it will be subject to atmospheric chemistry and dust which is alkaline. High air flows will bring this material into contact with the canister and contribute to corrosion over time.

Section 1.2.2 p.1-13 Constituents of the HI-STORM UMAX Vertical Ventilated Module and ISFSI Structures
We have very limited information on these components because the licensing drawings referred to are proprietary. It should be noted that Revision 0 is labeled SAR-Non proprietary, but it still does not have the drawings in Section 1.5 p. 1-14
b. The Divider Shell description indicates that several inches of rainwater at the bottom of the CEC will not impair thermal performance – even if it blocks air flow. We need these diagrams and an explanation for this potentially serious problem.
c. The Closure Lid. We have no details regarding the design of this lid which is critically important for assuring adequate air flow for decay heat removal. In addition, we need to understand that dust in a wind storm will not be drawn into the air flow and build up within the CEC. Dust loading could not only contribute to loading but scratching of the canister surface if cleaning of the CEC to remove dust requires removal of the canister. We did not see modeling that was done to assure that passive air flow can handle heat removal during 100 degree Fahrenheit summers for many VVM installations in close proximity.

1.2.5.2 d) Instrumentation –" The HI-STORM UMAX is a completely passive system with appropriate margins of safety; therefore, it is not necessary to deploy any instrumentation to monitor the cask in the storage mode." We don't know how 'NO MONITORING' can be deemed an acceptable plan for an ISFSI facility under existing regulation. Has Holtec applied for and received exemptions from monitoring?
The Nuclear Waste Technical Review Board 2010 Report that was looking at extended dry storage terms, recommended significantly more monitoring, not less. It also raised major concerns about the lack of knowledge related to High burnup fuel and its behavior over long term storage.

1.2.7 Ancillary Equipment
Here we are told that the list of this equipment does not include test and measurement equipment, radiological survey equipment, leak test equipment and cast test connectors. Where is the presentation of the appropriate set of equipment for a major nuclear waste facility handling the most dangerous form of nuclear waste?

HI-2167374 Proposed Rev OB
Chapter 2 Site Characteristics
P. 2-7
"Because the only mechanism for radiological exposure would be from radiation (neutrons and gamma rays) emitted from the storage casks, the highest public dose would result from an individual located as close to the SNF casks as possible. For details on the radiation protection

evaluation for the Site, see Chapter 11 of this SAR." We will return to this subject later, however, we believe that the only way that such an irresponsible conclusion can be reached is by way of faulty and non-conservative analyses of all the situations where there is a potential for harm.

Mining Issues p. 2-8 to 2-12

There is a substantial discussion of potash mining in the area, which is mining for potassium salts. There is a closed historic potash mine and operating mines within 4.2 miles of the site. The distances provided may not include the underground distances to the mines. This should be clarified. The mine opening at the surface can be very different than the dimensions of the mine underground. These dimensions underground should be diagrammed with the Holtec site included on the map.

There is a discussion of subsidence, sinkholes and mine collapse. Casing failure from oil & gas drilling can allow water in to dissolve salt formations over time.

"Well casing corrosion is a common problem in the Delaware Basin, caused by contact with the brine fluids being withdrawn or injected depending on the purpose of the well. There are documented cases where escape of unsaturated brines and dissolution of salt formations caused catastrophic collapse to the surface…"p. 2-11

"Subsidence from mining creates voids that cause collapse of strata above the mining level. The overlying and surrounding rock or soil naturally deforms in an effort to arrive at a new and more stable overall equilibrium position. This equilibrium-seeking action can result in both vertical and horizontal ground movement, and, if not controlled or minimized, can cause damage to both surface and subsurface structures. It can result in the development of undesirable surface topography, such as surface cracking or collapse, sinkholes, blocking or changing stream channels, and modification of drainage pathways." P. 2-9

As the maps show there are multiple core drilling locations for potash mining as well as multiple locations where oil and gas drilling occurred in the past—both on and immediately adjacent to the Holtec site. Abandoned wells are often not closed properly and given the vulnerability of salt formations, it is essential that abandoned wells be properly closed as well as any drilling locations.

"According to Golder and Associates, "the zone of disturbance of strata above the mine workings extends beyond the limit of the mine workings and data from the southeast New Mexico potash fields suggest that a reasonable limit for defining this zone of disturbance would be an angle of 45 degrees from the vertical" [2.1.18]. Consequently, for potash mining at a nominal 3,000-feet depth, the subsidence effects area could extend 3,000 feet beyond the edge of the mine workings [2.1.18]. Given that the nearest historic potash mine is approximately 2 miles away from the CIS Facility, subsidence effects at the CIS Facility Site from past or current potash mines would not be expected to occur. " 2-10

We disagree with this opinion. There has been a great deal of subsurface mining and drilling in the area with the potential for additive and synergistic effects. Expert extensive evaluation is necessary.

Active Mining We are told that "Holtec has an agreement with Intrepid Mining LLC (Intrepid) such that Holtec controls the mineral rights on the Site and Intrepid will not conduct any potash

mining on the Site."p. 2-10 This statement only addresses the Holtec Site itself, not immediately adjacent activity.

There is potential danger to any mining in close proximity to the site.
We don't know the nature of the agreement with Intrepid Potash, but they were recently approved to conduct solution mining of potash in the main potash mining area. (p. 2-9) We don't know exactly where this is in relation to the Site. Why would Intrepid Potash seek approvals if they were not going to conduct solution mining? Pumping water into a mine is not an activity limited by property boundaries—but by where the water will naturally flow. Sinkholes are associated with brine extraction. At one brine well in Carlsbad, New Mexico, geophysical surveys indicated the presence of subsurface fracturing, cavities, and collapse, but no surface manifestation of collapse has occurred other than tilting of the ground surface. P. 2-11.

- **More thorough analysis and actions are needed to address this situation.**
- **What is the horizontal working extent of all the underground mines in the vicinity of the Holtec site?**
- **Provide a map illustrating this with a key that is legible for all to read—unlike many of the exhibits in the Holtec documents.**
- **Ensure that all abandoned wells and former drill sites are properly closed and sealed.**

"The Permian basin deposit includes the major mines outside of Carlsbad, New Mexico, to the world's purest potash deposit in Lea County, New Mexico (not far from the Carlsbad deposits), which is believed to be roughly 80% pure." Source, Wikipedia.

Oil & Gas Drilling
"The Belco Shallow and Belco Deep drill islands are located approximately 0.25 and 0.5 miles, respectively, from the CIS Facility Site boundary, and are intended to accommodate multiple oil and gas well locations, all or most of which will be horizontal wells completed below the Bone Springs formation (7,800 feet below the ground surface. Oil and gas drilling has occurred on those drill islands in the past and could be used in the future." We are also told that the rail spur may intersect those drill islands. p. 2-12 Obviously the rail spur is incompatible with drilling locations, but no solution is suggested.

Here we are talking about High Volume, High Pressure Horizontal drilling deep underground in order to fracture rock and release natural gas. None of the catastrophic consequences associated with hydrofracking are discussed here. Instead the discussion switches to the expected dramatic increase in water demand for the area.

Fracking has led to well blow-outs that have involved explosions and fire, and worker deaths. Oil and gas drilling also often use injection wells to dispose of contaminated water that is generated. Such disposal injection wells have been associated with increased seismic activity. Fracking is also about creating fractures in the rock or increasing fractures already present. There is almost no ability to control where fractures are created or enlarged, and there is potential to impact the Holtec Site. Horizontal fracturing does not eliminate the possibility of undesirable vertical fractures to other rock layers or water supplies.

Horizontal hydro-fracking has resulted in catastrophic impacts throughout the nation. It is a use completely incompatible with the storage of large volumes of the most dangerous nuclear waste in the nation—which must be completely isolated from humans for millions of years.

Here we have Figure 2.1.4 Utility Infrastructure which is not legible. We either receive no drawings or diagrams because they are proprietary or illegible ones.
One hundred pages away from the discussion of drilling and mining we have this sentence: "By agreement with the applicable third parties, the oil drilling and phosphate extraction activities have been proscribed at and around the site." P. 2-121 This is conflicting information pertaining to the phosphate extraction and drill islands that must be clarified. Concerning use of the drill islands at p. 2-12 we were told they could be used in the future.

2.2.2 Pipelines

"There are approximately 27,000 miles of energy-related pipelines in New Mexico that are regulated by the U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration (PHMSA). Three pipelines are currently near the CIS Facility Site: (1) a Transwestern (TW) 20-inch diameter natural gas pipeline located approximately 0.8 miles from the western boundary of the Site, and (2) a DCP Midstream (DCP) 20-inch diameter natural gas pipeline located approximately 0.16 miles east of the eastern boundary of the Site; and (3) a DCP 10-inch diameter natural gas pipeline located approximately 0.17 miles east of the eastern boundary of the Site. The two 20-inch pipelines are classified as high-pressure pipelines rated for a pressure of 1,180 pounds per square inch (psi). They are normally operated at a pressure of approximately 680 psi. A fourth pipeline is proposed to be constructed near the two DCP pipelines east of the CIS Facility Site. That pipeline would be a 10.75-inch diameter lowpressure natural gas pipeline and would run south-to-north between the two existing pipelines which are east of the CIS Facility."p.2-40
The analysis presented regarding the natural gas pipelines and the potential danger was an amateur effort. The potential for danger is major and should have been analyzed by experts. If Holtec does not have the appropriate experts in house they can be hired. Going to the PMHSA website would have enabled even an amateur to gain essential information from their Emergency Response Guidebook.
<u>Key Points:</u>

- Signs showing pipeline locations are accurate only to within 500 feet.
- Pipeline natural gas has no mercaptans to provide an odor to the gas. So the gas is odorless and thus no adequate warning.
- You should not attempt to fight a fire in the event of a rupture without ensuring that the flow of gas has been turned off.
- Natural gas can travel a considerable distance staying low to the ground because it is heavier than air. A leak can also be underground and fill a cavity or crack underground. It will travel until it encounters a spark or ignition source. The Holtec site would have lots of ignition sources. Major disasters have occurred in this way.

<u>Important information regarding the existing and proposed new pipeline needs to be obtained including:</u>

- The material used in the pipeline and its age

- Record of inspections and dates. In-line inspections are essential at this site.
- Precise Location of shut-off valves and whether they can be remotely operated.

Considerable information is available on the PMHSA website pertaining to recommendations of the National Transportation Safety Board and the activity to implement those recommendations such as related to in-line inspections. In the case of two serious natural gas disasters, San Bruno, CA & Allentown, PA, it took many hours for emergency responders to locate the shut-off valves for the pipelines involved worsening the disaster by hindering the response.
Chapter 2 has identified but failed to adequately analyze the potential danger related to 3 different incompatible uses: salt mining, oil and gas drilling, including hydrofracking, and natural gas pipelines.

Chapter 6 again looks at fire hazards and concludes: "The natural gas pipelines that run underground along the north-south axis to the east of the site do not present a real fire hazard."p.6-38 We strongly disagree.

SAR Proposed Rev OA Doc Attachment 4
Chapter 3
"The HI-STORE CIS facility is a "start clean, stay clean" facility. This means the arriving package from the sender plant site has been assayed and declared the package to be free of any external contamination." p. 3-1.
It could be a very long way from the sender plant to this CIS facility. And the Holtec site is assuming that nothing has occurred along the way to alter the condition of the package.

"The HI-STORE facility is a zero effluent site; no liquid or gaseous effluents are a part of any operation at the facility." p.3-2 This statement is incredible wishful thinking.
"In order to uphold the HI-STORE philosophy of "Start Clean/Stay Clean" HP personnel ensure that contamination levels on the canisters of incoming shipments meet site requirements. Canisters exceeding the limits will be returned to the originating power plant for dispositioning." P.3-7

This means that contaminated canisters will be repackaged into transport cask and possibly sent back thousands of miles to originating nuclear plant. The worst case would be if the source of contamination is a leak of fission gases. Thousands of curies could be released. Holtec needs to be prepared to receive potentially damaged canisters by building a Hot Cell.

"Maintenance of SSCs, which are classified as important-to-safety, ensure that they are safe and reliable throughout the life of HI-STORE per 10CFR72.122(f). Work on these items will only occur when the equipment being maintained is in the unloaded condition." P. 3-8
See Chapters 10 and 18

3.1.4.4 Surveillance of the Storage Systems.
How often is surveillance performed? Observations recorded? And Corrective action or maintenance performed? P.3-7

3.1.5.4
"Pursuant to the criteria in NUREG/CR-6407, the temperature and radiation monitors are classified as Not-Important-to-Safety." However, Temperature control components are classified as important to safety. The purpose for monitoring is so management will know that the control components are working and temperature control is maintained. P. 3-9

3.2.2 "The heat removal system operability surveillance should be performed after any event that may have an impact on the safe functioning of the HI-STORM UMAX system. These include, but are not limited to, wind storms, snow storms, fire inside the ISFSI, seismic activity, and/or observed animal, bird, or insect infestations. The responses to these conditions involve first assessing the dose impact to perform the corrective action." P. 3-19

There should be a list of estimated doses for most surveillance and maintenance functions provided to us. We have not seen this in the SAR. The heat removal operability surveillance should be described.

3.4.1 "Temperature monitors are equipped with data recorders and alarms in the Security Building. These monitors are not required for safety." We consider these monitors essential for safety particularly if the CIS facility s is receiving high burnup fuel. P. 3-22.
Monitoring cannot be an optional situation.

3.5
"Regulation 10 CFR72.122(j) requires the control room or control area to be designed to ensure that HI-STORE is safely operated, monitored, and controlled for off-normal or accident conditions. This requirement is not applicable to HI-STORE because the spent fuel storage system is a passive system and hence does not require a control room to ensure safe operation." p.3-23

We have read the description of the process for security personnel upon receiving a shipment. After reviewing paperwork and the shipment, immediately the focus is on the transfer of the shipment out of the shipping cask. We are concerned that too much activity is going on in the CTB. There needs to be a management control room or control area separate from where all this activity is going on. It can be co-located or nearby. A control area should also be a clean area. Security personnel and management may have other important issues to handle other than receipt of a shipment.

3.6 "Sampling of the gas inside the transportation cask is performed prior to venting and opening the cask in the CTB. Evaluation of the gas sample determines if the gas can be released to the atmosphere or if it must be filtered and the appropriate radiological protection needed when removing the transportation cask closure. Since the sampling is not required for nuclear safety of the facility, it is not classified as Important-to-Safety."p.3-24

This sampling is critically important to safety. If the integrity of a canister weld has deteriorated or if there is a crack in the canister, it is possible that fission gases have been released into the transport cask. This is the potential worst case scenario for this facility and what it is handling. There is currently no means of ensuring that a microscopic crack does not exist in a canister.

After transportation vibrations a weld could fail. A major release of fission gas would be a very serious event. We are not aware of any part of the Holtec facility that could provide the needed radiation protection in this situation. A hot cell with a robust ventilation system is needed.

This consolidated interim storage facility is the first of its kind in the nation. It should have a new set of rigorous regulations that address critical safety measures.

3.8 iv. "The ventilation paths to passively cool the canister using ambient air during the transfer operation is maintained at all times thus protecting the fuel cladding from overheating and eliminating any thermally guided time limit on the duration for implementing the transfer steps." P.3-26

It is not clear that the ventilation path is maintained if the transfer is not fully completed in one day and the canister remains in the Hi Trac CS.

vii. "Because the canister insertion (and withdrawal) occurs in the vertical configuration with ample lateral clearances, there is no risk of scratching or gouging of the canister's external surface (Confinement Boundary). Thus the ASME Section III Class 1 prohibition against damage to the pressure retaining boundary is maintained."

We have not been told how often the canister might be withdrawn from the VVM in order to conduct maintenance or what the lateral clearances are. Wind-blown dust and atmospheric chemisty could contribute to dust loading and the start of corrosion processes on the surface of the canister. How often is removal of the canister expected over the course of ten years?

4.3.2.4 Confinement
"The VVM and ISFSI structures do not perform any confinement function. Confinement during storage is provided by the SNF storage canisters which are protected from leak by an all- welded stainless steel confinement vessel and are certified in their native docket as subject to a non-credible risk of leakage, see Chapter 9." p.4-18

Here is the crux of the major problem with the Holtec HI-STORE CIS facility. Holtec rests their entire plan on a major assumption that the canisters and the SNF are intact and undamaged with no risk of leakage based on paperwork submitted to NRC in the original docket for the canisters. Historic paperwork does not trump the arrival of SNF in a damaged cask due to 3000 very bumpy transportation miles. Holtec ignores troubling realities and scientific concerns. Safety must operate in the real world facing challenging potential problems with layers of safety protections. Denial that hazards exist is reserved for fools.

However, Holtec goes even further because it systematically claims in various places throughout the SAR that it does not need to monitor, surveil or measure critical parameters because of this assumption of complete safety. Continued denial of real problems should constitute rationale for denial of a permit.

Table 4.3.2 Accident condition of Storage Max Temp. 108 degrees Fahrenheit p. 4-24

This temperature is the maximum ambient temperature in the summer, so this temperature would not reflect an accident condition. Accident conditions would include an explosion & fire, so the temperature should be much higher.

Table 4.4.3 Design Basis Accident is expected to release 5 Rem or 5000 mrem TEDE

Chapter 5 Structural Evaluation and Installation.
We are concerned about the Foundation Pad for the ISFSI, not structurally but how it works operationally. We have not yet seen that analysis. Very heavy equipment has to move on the site carrying very heavy transfer casks. The transfer equipment has limited ability to steer and while this might not be a problem for the first loading, future maintenance and movement on the slab will be constrained by the CEC closure lids. We believe the lids will be jarred and damaged from these movements unless there is an analysis of movements in order to ensure adequately designed and sized pathways.

Chapter 6 Thermal Evaluation
Here they discuss 100% blocked air vents and Flooding at the site. However we still don't have an explanation for the idea that water in the VVM would not hinder the air ventilation of the canister. P. 6-40-6-41.

In this chapter there is also no thermal evaluation of 500 VVMs that all need decay heat removal continuously. Air intake for any single VVM will be based on external ambient temperatures mixed with the discharge air temperatures from nearby VVMs.
There is also inadequate evaluation of fire.

Chapter 7 Shielding Evaluation
Unfortunately there is no meaningful evaluation of the tasks that workers will perform and their dose rate received as a result.

This is simply not adequate. "Occupational dose rates at the surface and 1 meter from a single HI-STORM UMAX." Workers are exposed at much closer distances.
Some Examples:
Typical dose rates for receipt of shipping casks and transfer operations should be identified.
Dose rates for various maintenance activities including inserting a hose in each VVM to remove accumulated water.

Chapter 8 Criticality
"Because the canister shipped from the originating site has already been designed, built, loaded and certified to an NRC-issued Technical Specification, the subcriticality of the canister is pre-established."
"This axiomatic qualification of the canisters will remain valid unless the canister and its fuel basket are physically altered during their transport or handling to the HI-STORE facility which will summarily disqualify them from storage under the HI-STORE CIS docket." P.8-1

Criticality is unlikely because:

- The CIS site is unlikely to be flooded.

- The transport regulations require that the package remains subcritical under normal conditions when flooded with pure water.
- Finally if High burnup fuel is involved in any accident, acceptance may be jeopardized.

"The transportation cask to be used for the approved canisters (HI-STAR 190) will also be qualified for High Burnup Fuel, where fuel damage is possible. In that case, the criticality safety evaluation for the package does not assume flooding of the canister. However, the acceptance tests for the acceptance of the canister on site excludes canisters from transports that have undergone any accident condition, as described in the Facility Technical Specifications. This scenario is therefore not applicable here." Where are the Facility Technical specifications located?

In other words the transport cask for High Burnup Fuel will not be accepted at HI-Store if it has undergone any accident condition. However, we have not seen the Facility Technical specification which would further detail the accident conditions leading to non-acceptance.

Criticality is not monitored at the CIS Site.

Chapter 9 Confinement Evaluation

"Although the HI-STORM UMAX confinement boundary includes the MPC lid to shell weld, this weld is covered with a redundant closure ring. Therefore, the leak testing described is performed only on that redundant closure ring of the confinement boundary."

Since the leak testing of this closure ring was not mentioned for the handling of casks that are arriving, we have to assume this is not tested at the Holtec site. The closure ring then constitutes part of the confinement boundary. The material and its replacement schedule should be stated here.

9.4.1.2 Continuous Monitoring System

"All material at the ISFSI is stored in seal welded canisters, qualified to have no credible leakage per ISG-18. Hence no monitoring of airborne radiation is needed in and around the storage area. For the canister transfer inside the CTB, there is also no expectation that any release of radioactivity would occur, so no monitoring of airborne radiation is required. Nevertheless, radiation detectors able to detect airborne radiation may be used in the CTB as additional measure." P.9-9 This the primary area where a fission release would be likely to occur.

We object to the idea that in the receiving area radiation detectors MAY BE USED. Clearly continuous monitoring is needed as a requirement because you don't know what conditions the packages will be in when they arrive.

Summary

- "No release of any radioactive material is expected from the facility and its operation, hence no additional dose from released material is considered in the evaluations in Chapter 11.
- No radiation monitoring system is required."p.9-11

This safety evaluation is based on wishful thinking rather than the appropriate cautionary approaches that reflect the danger of the material Holtec is handling. If Holtec is functioning in a denial mode, instead of a reality mode, they should not be given a permit to operate.

CHAPTER 10: CONDUCT OF OPERATIONS EVALUATION*

Included are descriptions of organizational structure, testing, training programs, normal operations, emergency planning, and security safeguards.

10.1.1 " The Holtec Corporate Executive responsible for the HI-STORE CIS facility (hereafter referred to as the Corporate Executive) has overall responsibility for safe operation of the site. The Holtec HI-STORE CIS Site Manager (hereafter referred to as the Site Manager) reports to the Corporate Executive."

In this chapter we have a corporate executive and a site manager, which reflects more responsibility than the earlier identification of Holtec as the operator of the facility in this SAR. We still believe it is necessary to provide all the details related to ownership and the agreements between the Alliance and Holtec. This is critically important information and the public has not been provided with any of these details.

Holtec's Safety Analysis reflects the operation of a bakery or a shoe store. Is it possible that the Alliance has taken on most of the accountability for nuclear safety?

RTD monitoring system tests: We don't know what RTD means.

10.3.5 Maintenance Program for the Canister
"The canister is an all-welded stainless steel pressure vessel that does not require an in-service maintenance unless a disruptive occurrence such as deposition of flood-borne foreign materials on the canister's surface occurs. Because submergence from flood has been ruled out as a credible occurrence at the HI-STORE ISFSI, no routine in-service maintenance activity on the stored canister is expected. The Aging Management Program described in Chapter 18, however, will require monitoring and inspection activities, and possibly remedial actions, if so determined." It seems throughout the SAR that Holtec cannot decide whether inspection and maintenance will be needed for the VVM or not.

We think it needs monitoring, inspection and maintenance and each of the activities needs to be defined in terms of time to perform activity and radiation dose received by the work. There was no presentation of the qualifications needed for each activity, or the number of workers present 24 hours of the day, 7 days a week.

The canister needs inspection for corrosion. P. 10-19 The drain system has not yet been described anywhere.

Table 10.3.2 We are pleased to see the reference to continuous air temperature monitoring with alarms for the VVM enclosure.

10.8 SUMMARY

We completely disagree that all of the information below has been adequately presented in this chapter.

The conduct of operations described in this chapter fulfills the requirements of NUREG-1567 [1.0.3], Section 10, by providing the following information:
1. A plan for conduct of operations at the HI-STORE CIS site in compliance with 10CFR72.24(h).
2. Detailed description of the HI-STORM UMAX storage system operations which, based on successful previous experience, is concluded to be largely demonstrated and in compliance with 10CFR72.24(i).
3. Detailed description of the program covering preoperational testing and initial operations, in compliance with 10CFR72.24(p).
4. The provision of acceptable technical qualifications, including training and experience, for personnel who will be engaged in the proposed activities, in compliance with 10CFR72.28(a).
5. A description of a personnel training program to comply with 10CFR72,Subpart I.
6. A description of the operating organization, delegations of responsibility and authority, and the minimum skills and experience qualifications relevant to the various levels of responsibility and authority, in compliance with 10CFR72.28(c).
7. A commitment to maintain an adequate complement of trained and certified installation personnel before receipt of spent fuel or high-level radioactive waste for storage, in compliance with 10CFR72.28(d).
8. Assurance of qualification by reason of training and experience to conduct the operations covered by the regulations in 10 CFR 72, in compliance with 10CFR72.40(a)(4).
9. Assurance with regard to the management, organization, and planning for preoperational testing and initial operations that the activities authorized by the license can be conducted without endangering the health and safety of the public, in compliance with 10CFR72.40(a)(13). P. 10-31

11.2.2 "Provisions exist in this building for donning and removing personal protective equipment, such as anti-contamination clothing and/or respirators if deemed necessary, in the event of contamination in the Canister Transfer Building as a result of offnormal or accident conditions. Provisions for personnel decontamination are also contained in the Security Building." P. 11-11.

Finally we have some sort of admission that offnormal or accident conditions could occur in the Canister Transfer Building. You can only plan for possibilities that you are willing to entertain. Radiation Protection requires that you expect the worst case could happen, and then you work hard to prevent it. This is the opposite of assuming a high degree of safety a priori, therefore being totally unprepared for adverse events.

11.2.4 Confinement and Ventilation

"10CFR72.122(h)(3) [1.0.5] requires that ventilation systems and off-gas systems be provided

where necessary to ensure the confinement of airborne radioactive particulate materials during normal or off-normal conditions. However, there are no special ventilation systems installed at the CIS Facility buildings. There are no credible scenarios that would require installation of ventilation systems to protect against off-gas or particulate filtration." P. 11-12

Here Holtec goes back to being unprepared. There should be a Hot Cell at the CIS facility for receipt of shipments of SNF.

Continuous radiation monitoring should be done at the Storage Pad.

"Local radiation monitors with audible alarms are installed in the Canister Transfer Building. These provide warning to personnel involved in the canister transfer operation of abnormal radiation levels that could possibly occur during transfer operations." P. 11-13.

11.2.4 Confinement and Ventilation

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We strongly disagree with this assessment.

11.3.1 On-site Doses

Transfer operations. Consideration should be given to making the installation and removal of the MPC lifting attachment automated or remotely operated as this accounts for relatively high exposure during transfer operations.

Maintenance & Surveillance functions on the Pad. There is no presentation of any of these functions and the estimation of dose for the workers.

Chapter 13 Decommissioning

Here we are referred to another document that is not available yet. There is little actual information about decommissioning here.

CHAPTER 14: WASTE CONFINEMENT AND MANAGEMENT EVALUATION*

We fundamentally disagree that a breach of containment is not credible.

"The canister design, as approved by the NRC, precludes a breach of its steel weldment construction under all analyzed conditions (Chapters 9 and 15) during storage in the HI-STORM UMAX systems. Therefore leakage of radioactive material from the canisters is non-credible." P.14-4

In 2010 the Nuclear Waste Technical Review Board attempted to answer many questions about long term or extended dry storage and was largely stymied. The Board called for a lot more research in order to be able to answer the questions. Holtec instead assumes that since NRC approved the design that no degradation has or will occur in the future. This is very short-sighted. The NWTRB also said it was essential to monitor the presence of helium in SNF canisters to prevent degradation of cladding and fuel oxidation. While Holtec plans to check the helium when a shipment arrives, there appear to be no plans to monitor its continued presence.

Chapter 15 Accident Analysis
15.2 Off- Normal Events

None of the events include the loss of helium as a result of a leaking weld.
There is no consideration of a crack in the canister.

15.3 Accidents
The only fire accident considered related to a limited amount of fuel. A fire event associated with a pipeline rupture and release of natural gas should have been evaluated.

15.3.7 Confinement Boundary Leakage This analysis is not presented – reference is to the original docket. However, the weld can be subjected to stresses associated with transportation as well as aging, radiation and heat. It can leak. A fuller evaluation is needed of this

15.3.17 Accidents at Nearby Sites
We discussed the danger from pipelines, oil and gas drilling and mining earlier. The analyses done were lacking for these adjacent uses. We believe accidents can impact the Holtec site.

Security & Terrorism have not been evaluated at all for the types of serious attacks that could be launched and impact the Holtec site. The EIS must examine all credible terrorism scenarios.

CHAPTER 17: MATERIAL EVALUATION

Table 17.0.1; Target License, Design and Service Life of the HI-STORE CIS Facility		
Item	**Definition**	**Value in Years**
License Life	The period for which the NRC is expected to grant the initial license	40
Design Life	A conservative estimate of the useable life of the system in full compliance with the regulations and ALARA expectations	80
Service Life	The expected life of the facility for which it will continued to meet all safety requirements if the aging management program described in this SAR is implemented without limitation	120

Given the limited understanding of various materials and degradation processes, it is impossible to know the status of SNF and its containment 80 years from today. If the NRC is serious about understanding the future condition of SNF, its cladding and canister containment, the research that the NWTRB called for in 2010 will be implemented immediately.

There is no basis today for saying that this CIS facility could function for 120 years without enormous risks for the public.

17.10 Seals No information is provided about how often these seals need to be replaced.

18.9 HBF Aging Management Program

The only surrogate HBF program we are aware of is one that won't have any results until 2026. It does not sound as if there will be any monitoring by Holtec and any aging management. We cannot imagine how it would be implemented since the plan is to accept mixed loads of HBF and Low Burnup Fuel. We recommend that no High Burnup Fuel be sent to Holtec. More research is needed.

18.15 RECOVERY PLAN

The AMP described in this chapter has been configured to provide an advance warning of the potential of loss of Confinement integrity in a loaded canister. The accelerated coupon testing and, if the coupon testing indicates onset of nucleation on the canister surface, then a comprehensive canister wall integrity determination using eddy current testing provide a reliable strategy to predict the risk of leakage well before such a problem would materialize.

Nevertheless, it is deemed prudent to have the ability to isolate an at-risk canister before leakage occurs. Towards this end, Holtec will insure that a HI-STAR 190 transport cask can be brought to the HI-STORE CIS site within 30 days after the site's Emergency Response organization identifies such a need.

Finally, it should be noted that there is adequate cross sectional and vertical space available in the VVM cavity to accommodate a highly conductive sequestration canister with a gasketed lid that can be used to isolate a leaking canister from the environment. Such a sequestration canister can be installed using the canister Transfer Facility using a set of steps that are ALARA. This sequestration canister will provide a defense-in-depth measure (in addition to the transport cask which provides a high integrity containment boundary) for dealing with an extenuating situation involving the likelihood of an impending canister leak at the HI-STORE CIS site.

p. 18-30

We are requesting that all of these issues be thoroughly covered in the Environmental Impact Statement pertaining to the Holtec HI-STORE CIS Facility.

Thank you for your attention.

Respectfully submitted,

Barbara J. Warren
Executive Director