REQUESTS FOR ADDITIONAL INFORMATION
ENVIRONMENTAL REVIEW AND ENVIRONMENTAL IMPACT STATEMENT
FOR THE PROPOSED HOLTEC CONSOLIDATED INTERIM STORAGE FACILITY
IN LEA COUNTY, NEW MEXICO

INTRODUCTION

The purpose of the requests for additional information (RAIs) presented below is to obtain additional data and information from Holtec International (Holtec) for the U.S. Nuclear Regulatory Commission (NRC) staff to complete the environmental review and Environmental Impact Statement (EIS) in support of the NRC's evaluation of the Holtec license application to construct and operate a Consolidated Interim Storage Facility (CISF) for spent nuclear fuel (SNF) and high level waste in Lea County, New Mexico (Holtec, 2017a). The Holtec license application included an Environmental Report (ER) (Holtec, 2017b) and a Safety Analysis Report (SAR) (Holtec, 2017c). These RAIs were developed by the NRC staff based on its review of the ER, SAR, Holtec's responses to NRC's Requests for Supplemental Information and other documentation provided by Holtec or independently obtained by the staff. The NRC's EIS is being prepared to fulfill the requirements of the *National Environmental Policy Act of 1969*, as amended (NEPA), and the NRC's NEPA implementing regulations in Title 10 of the *Code of Federal Regulations* (10 CFR) Part 51.

It is important to note that unless Holtec requests otherwise, in accordance with NRC regulations in 10 CFR 2.390, reports, computer files, and other files and documentation that have been or will be provided to the NRC by Holtec and that are cited by the NRC staff as references in the EIS will be added to the NRC's Agencywide Documents Access and Management System (ADAMS) and made publicly available. Unless otherwise indicated, the NRC will make all references cited in the NRC's Draft and Final EIS publicly available at the time of publication of the Draft and Final EIS. In instances where Holtec determines that the requested information must remain proprietary, the NRC staff requests that, as practicable, a version of such documents be provided that contains the information NRC needs to complete the analysis and which can be made publicly available.

The RAIs are presented in the following categories:

- General
- Proposed Action
- Land Use
- Transportation
- Geology and Soils
- Water Resources
- Ecology
- Air Quality

- Climate Change
- Socioeconomics
- Nosie
- Public and Occupational Health
- Cost Benefit
- Mitigation and Monitoring
- Cumulative Impacts

For each RAI, the basis (or justification) for the request is provided. All cited references are listed at the end of this document.

All written reports, computer files, and other files and documentation submitted to the NRC by Holtec in response to the RAIs must be provided in electronic format that is compatible with entry by the NRC into ADAMS. The NRC document, "*Guidance for Electronic Submissions to the NRC"* (NRC, 2011), provides instructions for submitting documents in formats compatible with ADAMS.

REQUESTS FOR ADDITIONAL INFORMATION

GENERAL (GEN)

RAI ER-GEN-1

Provide an update of the status of proposed, pending, and approved licenses, authorizations, and permits specifically for the proposed Holtec CISF. The information provided should identify (i) the issuing agency; (ii) the type of license, permit, or approval needed; and (iii) the current status of securing the license, permit, or approval.

In addition to the information provided in ER Section 1.4 (Applicable Regulatory Requirements, Permits, and Required Consultations) and ER Table 1.4.1 (Holtec, 2017b), provide in tabular format the current status (i.e., issued, under review, yet to be submitted) of Federal, State, Tribal, or local approvals, authorizations, and permits that would be necessary for constructing and operating the proposed CISF. Also, verify that the proposed rail spur is not a common carrier line and therefore would not require a permit from the Surface Transportation Board to approve the construction and operation of the proposed rail spur that would service the proposed CISF in accordance with 49 USC 10901. This information is needed to complete the description of the proposed action and evaluate its environmental impacts.

This additional information is needed in accordance with 10 CFR 51.45(b), and (c), which requires that the ER include a description of the affected environment, and contain sufficient data to aid the NRC in its development of an independent analysis.

PROPOSED ACTION (PA)

RAI ER-PA-1

Given the maximum capacity of the canisters identified in the initial license application for all phases, provide information on whether an increase in the amount of SNF stored at the site from the 5,000 MTU [5,512 tons] to 8,680 MTU [9,568 tons] would change any characterization of the proposed action's impacts across all resource areas (e.g., land use, public and occupational health, air quality, and cost benefit) as presented in the ER.

The ER (Holtec, 2017b) states that up to 5,000 MTU [5, 512 tons] would be stored at the CISF for Phase 1 and for each phase up to 20 phases. However, the certified maximum capacity for the proposed Holtec Umax canister type could be up to 8,680 MTU [9,568 tons] of SNF for a 40-year license term. The evaluation of impacts across all resource areas should be revised as needed to address the increased capacity of the fuel to be stored at the CISF. For example, the cost benefit analyses in ER Chapter 9 (Holtec, 2017b) should be revised to address the maximum amount of fuel that could be stored for Phase 1 as well as cumulatively for all phases (full implementation). Current cost estimates in ER Table 9.2.1 to 9.2.6 (Holtec, 2017b) are based on 5,000 MTU [5,512 tons] for Phase 1 and 100,000 MTU [110,231 tons] for full implementation with the estimated cost for transporting SNF based on $26,000 per MTU. However, based on the potential canister maximum capacity, if all twenty phases store 8,680 MTU [9,568 tons], the cost for transporting SNF would increase from $5.2 billion, as stated in the ER, to over $9 billion (see ER Table 9.2.6).

This additional information is needed in accordance with 10 CFR 51.45(b), (b)(1), and (c), which requires that the ER include a description of the affected environment, discuss the impacts of the proposed action, and include consideration of the benefits and costs of the proposed action and its alternatives.

RAI ER-PA-2

Provide additional information on the anticipated rail spur. This information should include:

- **The status of any Federal, State, and local permits or approvals that would be required to construct and operate the rail spur. ER Table 1.4.1 (Holtec, 2017b) lists a Bureau of Land Management (BLM) permit requirement, but text in ER Section 1.4.2.6 (Holtec, 2017b) also states that a New Mexico Department of Transportation permit would be required (see also GEN-1).**

- **Description and location (figure) containing the revised location of the rail spur including any additional construction structures (e.g., cattle crossings) that are needed to comply with BLM requirements.**

- **The volume of soil that would be excavated during construction and potentially stockpiled during operation of the rail spur and available information on the disposition of the stockpiled soil.**

- **An assessment of the environmental impacts that construction, operation, and decommissioning of the rail spur would have on all resource areas (i.e., land use,**

- **transportation, geology and soils, water resources, air quality, ecology, historic and cultural resources, noise, visual and scenic, etc.).**

- **Any mitigation measures that would be implemented to reduce the environmental impacts associated with construction, operation, and decommissioning of the rail spur on all resource areas.**

- **Any environmental measures and monitoring that would be required during construction, operation, and decommissioning of the rail spur to comply with any applicable Federal, State, and local rules and regulations.**

ER Section 1.3 (Holtec, 2017b) states that an approximately 15.9 hectares [39.4 acres] of land would be disturbed as part of rail spur construction to deliver SNF to the proposed CISF from the rail main line. The ER provides limited information on the construction, operation, and decommissioning activities associated with the rail spur.

This additional information is needed in accordance with 10 CFR 51.45(b) and (b)(1), which requires that the ER include a description of the proposed action and discuss the impacts of the proposed action.

RAI ER-PA-3

Provide additional information on the anticipated concrete batch plant. This information should include:

- **A publicly available figure with the location and size (acreage) of the concrete batch plant showing its location with respect to the proposed CISF. [Figures 2.2.2 and 2.2.3 in the ER (Holtec, 2017b) have been redacted, and are therefore not considered publicly available.]**

- **The design of the concrete batch plant (description of major components) and associated infrastructure (access roads, pipelines, utilities, etc.).**

- **Identify if the concrete batch plant is stationary or mobile, and clarify if there will be one or two concrete batch plants.**

- **Any state and local permits or approvals that would be required to construct and operate the concrete batch plant.**

- **A description of construction, operation, and decommissioning activities for the concrete batch plant and an anticipated schedule for construction, operation, and decommissioning.**

- **Local natural resources (such as groundwater and geologic materials) and manpower needed to construct and operate the plant; and whether or not construction and operation workers for the batch plant are already included in the resource impacts analysis in the ER (transportation, socioeconomics, etc.).**

- **Amount of land that would be disturbed during construction and operation of the concrete batch plant and associated infrastructure.**

- **An assessment of the environmental impacts that construction, operation, and decommissioning (currently not included in ER discussion) of the concrete batch plant would have on all resource areas (i.e., land use, transportation, geology and soils, water resources, air quality, ecology, visual and scenic and historic and cultural resources, noise, etc.).**

- **Any mitigation measures that would be implemented to reduce the environmental impacts on all resource areas associated with construction, operation, and decommissioning of the concrete batch plant.**

- **Any environmental measures and monitoring that would be required during construction, operation, and decommissioning of the concrete batch plant to comply with state and local rules and regulations.**

In ER Section 2.2.2.6 (Holtec, 2017b), Holtec indicates that a concrete batch plant may be used to facilitate storage module construction and future expansion. The concrete batch plant would be located north of the parking lot outside of the protected area.

This additional information is needed in accordance with 10 CFR 51.45(b) and (b)(1), which requires that the ER include a description of the proposed action and discuss the impacts of the proposed action.

RAI ER-PA-4

Provide additional information on the use of heavy haul trucks and the construction, operation, and decommissioning of an intermodal facility (as a transportation option instead of a rail spur). This information should include:

- **The status of any Federal, State, and local permits or approvals that would be required to construct and operate the intermodal facility; specifically, any additional BLM permits needed if the intermodal facility is constructed on BLM land. This information should also be included as part of the response to RAI GEN-1. (see also GEN-1).**

- **Description and location (including one or more figures) containing the location, size (acreage) of the intermodal facility, and any additional access roads or construction structures required to comply with BLM guidelines.**

- **The design of the intermodal facility, including a description of major components, and associated infrastructure (e.g., access roads).**

- **The volume of soil that would be excavated during construction and potentially stockpiled during operation of the intermodal facility and available information on the disposition of the stockpiled soil.**

- **An assessment of the environmental impacts that construction, operation, and decommissioning of the intermodal facility would have on all resource areas (i.e., land use, transportation, geology and soils, water resources, air quality, ecology, historic and cultural resources, noise, visual and scenic, etc.).**

- **Any mitigation measures that would be implemented to reduce the environmental impacts associated with construction, operation, and decommissioning of the intermodal facility on all resource areas.**

- **Any environmental measures and monitoring that would be required during construction, operation, and decommissioning of the intermodal facility to comply with any applicable Federal, State, and local rules and regulations.**

- **Information on the transportation routes the heavy haul trucks would use to access the CISF, including a figure of the proposed routes.**

Throughout the ER (Holtec, 2017b), construction, operation, and decommissioning of a rail spur are discussed, which would provide transportation for the site-access portion of the rail route. However, ER Section 4.9.3.1 (page 4-33) states that in the event that a rail spur is not constructed, transportation of the SNF for the final 6.1 km [3.8 mi] to the site would be accomplished by heavy haul trucks. Holtec should clarify whether the proposed action includes two possible methods for transporting SNF from the existing rail line to the CISF. If the proposed action includes the use of heavy haul trucks and an associated intermodal facility to transfer the SNF casks from the main rail line to the heavy haul truck, provide a discussion of environmental impacts associated with the construction, operation, and decommissioning of the intermodal facility and use of heavy haul trucks.

This additional information is needed in accordance with 10 CFR 51.45(b) and (b)(1), which requires that the ER include a description of the proposed action and discuss the impacts of the proposed action.

RAI ER-PA-5

Clarify the project schedule by project year so that each project phase (1-20) clearly identifies which project stages (i.e., construction, operation, decommissioning) are active for each phase over the entire licensed life. For each project stage, detail what activities are occurring and what equipment is in use.

ER Section 1.3 and ER Table 1.3 (Holtec, 2017b) provide a schedule of proposed construction stages for all phases of the CISF. The schedule in ER Table 1.3 does not identify how the operation or decommissioning stages are incorporated into the project schedule. Also, the schedule only addresses the first half of the forty year license period and does not describe potential overlap between the operation and decommissioning stages. The evaluation should address whether the overlap of stages (construction, operation, and decommissioning) among the phases (1-20) affects the direct or indirect impacts to any resource.

This additional information is needed in accordance with 10 CFR 51.45(b) and (b)(1), which requires that the ER include a description of the proposed action and discuss the impacts of the proposed action.

RAI ER-PA-6

Clarify the inconsistencies regarding the assumptions of title (ownership) for the fuel transported to the Holtec CISF.

ER Section 3.9 (Holtec, 2017b) states that the U.S. Department of Energy (DOE) would be responsible for transporting the SNF; however, the footnote in SAR Table 1.0.2 (Holtec, 2017c) states that the CISF would not be constructed unless an agreement with the user/payer for storing the used fuel (DOE and/or a nuclear plant owner) has been established. Additional information is required if some of the transportation would be carried out by private entities. For example, the ER states that for the transportation worker dose that the DOE administrative dose limite of 5 mSv/yr [500 mrem/yr] would be implemented. However, the DOE dose limit is less than the applicable non-DOE Occupational Safety and Health Administration worker dose limit of 50 mSv/yr [5,000 mrem/yr] (29 CFR 1910.1096). Clarify whether Holtec is relying solely on DOE as the user/payer of the used fuel, or if Holtec anticipates contracting with private entities. Additionally, if Holtec anticipates contracting with private entities, clarify whether statements concerning DOE and transportation should include the possibility for private transport. For example, ER Section 4.9.3.1 (Incident Free Impacts) describes DOE coordination with Federal agencies and support for emergency response training to States, Tribes, and local emergency responders along transportation routes and also refers to a DOE administrative worker annual dose limit of 5 mSv [500 mrem]. Clarify the roles and responsibilities applicable to ownership and transportation of SNF and clearly state what differences would exist based on ownership options.

This additional information is needed in accordance with 10 CFR 51.45(b) and (b)(1), which requires that the ER include a description of the proposed action and discuss the impacts of the proposed action.

RAI ER-PA-7

Verify the correct the latitude and longitude coordinates are provided in the ER.

ER Section 2.2.1 (Holtec, 2017b), Description of the Proposed Site, states “The center of the proposed CIS Facility site (hereafter, “Site”) is at latitude 32.583 north and longitude 103.708 west…” This coordinate is not located within the proposed CISF boundaries.

This additional information is needed in accordance with 10 CFR 51.45(b) and (b)(1), which requires that the ER include a description of the proposed action and discuss the impacts of the proposed action.

LAND USE (LU)

RAI ER-LU-1

Provide information on the applicability of the State of New Mexico law, regulation, or order that prohibits oil and gas development within designated potash mining areas.

ER Section 3.1.1 (Holtec, 2017b) states that past, present and future oil and gas wells exist or would occur on site while ER Section 3.1.2 (Holtec, 2017b) states that, “Further oil and gas development is not allowed by the New Mexico Oil Conservation Division due to the presence of potash ore on the Site.” Clarify which laws are applicable for oil and gas development within and surrounding the proposed site.

This additional information is needed in accordance with 10 CFR 51.45(b) and (b)(1), which requires that the ER include a description of the affected environment and discuss the impacts of the proposed action.

RAI ER-LU-2

Provide a publicly available copy of the agreement between Holtec and Intrepid Mining LLC (Intrepid) concerning the control of mineral rights and potash mining on the proposed project site.

ER Section 3.1.2 (Holtec, 2017b) notes that Intrepid owns two potash mines within 10 km [6 mi] of the proposed site. The Intrepid North mine, located to the west, is no longer actively mining potash underground. The Intrepid East mine, located to the southwest, is still mining potash ore. ER Section 3.1.1 (Holtec, 2017b) states that Holtec has an agreement with Intrepid such that Holtec controls the mineral rights on the site and Intrepid will not conduct any potash mining on the site. A copy of this agreement should include the terms of the agreement, including the duration and geospatial coverage of the agreement.

This information is needed in accordance with 10 CFR 51.45(c), which requires environmental reports to contain sufficient data to aid the NRC staff in its development of an independent analysis.

RAI LU-3

Provide a description of recreational activities that may occur within and surrounding the project area, such as hunting and off-road vehicle use, and any measures that will be implemented to restrict or mitigate the potential impacts of the proposed action on these activities over the life of the project, especially given the proposed site's proximity to public use roads and areas.

SAR Section 2.1.4 (Holtec, 2017c) states that land use in the area of the proposed project includes limited recreational activities.

This additional information is needed in accordance with 10 CFR 51.45(b) and (b)(1), which requires that the ER include a description of the affected environment and discuss the impacts of the proposed action.

RAI ER-LU-4

Provide a figure that identifies the extent of existing and proposed pipelines that cross the proposed project area. The figure should not only show the route of the pipelines within the proposed project area [as depicted in ER Figure 3.1.2 (Holtec, 2017b) and SAR Figure 2.1.21 (Holtec, 2017c)] but also the route of the pipelines outside the proposed project area to a distance of at least 10 km [6 mi].

SAR Section 2.2.2 (Holtec, 2017c) presents information on pipelines that cross the proposed project area, including the owner/operator. ER Figure 3.1.2 (Holtec, 2017b) and SAR Figure 2.1.2 (Holtec, 2017c) show the route of the pipelines within the proposed project area but the figures do not show the owner/operator of the pipelines or the route of the pipelines outside the proposed project area.

This additional information is needed in accordance with 10 CFR 51.45(b), (b)(1), and (c), which requires that the ER include a description of the affected environment, discuss the impacts of the proposed action, and contain sufficient data to aid the NRC in its development of an independent analysis.

RAI ER-LU-5

Provide a description of any specific measures that will be implemented (e.g., that Holtec commits to implement) to mitigate impacts of surface disturbance and any other anticipated impacts resulting from construction, operation, and decommissioning of all components of the proposed CISF described in ER Section 2.2.2 (Holtec, 2017b).

ER Section 6.1 (Holtec, 2017b) presents a general description of proposed mitigation measures to minimize land use impacts from construction, operation, and decommissioning of the proposed CISF. ER Section 6.0 states that mitigation measures presented in ER Section 6.1 may not necessarily be implemented for the proposed CISF (Holtec, 2017b). Clarification of mitigation measure commitments from Holtec should be clearly identified in the ER.

This additional information is needed in accordance with 10 CFR 51.45(b) and (c), which requires that the ER discuss the environmental impacts of the proposed action and alternatives available for reducing and avoiding adverse environmental impacts.

RAI ER-LU-6

Provide the memorandum of agreement (MOA) between Holtec and Eddy Lea Energy Alliance, LLC (ELEA) covering the design, licensing, construction, operation, decommissioning, and purchase terms of the site and the approval by the New Mexico Board of Finance for the sale of the site to Holtec. The MOA will need to be made publicly available in order for NRC to reference the document in the EIS. If the full MOA cannot be made publicly available, provide a redacted or similar version that can be made publicly available and that contains the needed information.

SAR Section 2.1.2 (Holtec, 2017c) notes and provides references to (i) a MOA signed in April 2016 by ELEA and Holtec covering the design, licensing, construction, operation, and decommissioning of the site and the terms by which Holtec could purchase the site and (ii) an action by the New Mexico Board of Finance approving the sale of the site to Holtec.

This additional information is needed in accordance with 10 CFR 51.45(c), which requires that the ER contain sufficient data to aid the NRC in its development of an independent analysis.

TRANSPORTATION (TR)

RAI ER-TR-4 (Note: TR 1, TR 2 and TR 3 were included in RAI Part 2 dated 9/13/2018)

Clarify the analysis of off-site transportation incident-free dose estimates for workers (e.g., vehicle crew members and escorts, inspectors, rail yard workers).

ER Section 4.9.3.1 (Holtec, 2017b) addresses radiological impacts to workers during SNF transportation by referencing a statement about an administrative dose limit in a prior DOE impact analysis of SNF transportation from U.S. power plants to a proposed repository at Yucca Mountain, Nevada (DOE, 2008). The ER states that the DOE analysis determined annual doses to workers would be maintained below a DOE administrative limit of 5 mSv [500 mrem]. The ER then concludes the transportation impacts of the proposed Holtec CISF would not exceed this estimate. Clarify how the DOE administrative limit would limit doses to all workers considering that some workers (inspectors, rail yard employees) would not be employed by DOE. Additionally, if applicable depending on the response to RAI-ER-PA-6, clarify the extent

to which worker dose estimates would be affected if entities other than DOE were responsible for transporting the SNF to the CISF.

This information is needed in accordance with 10 CFR 51.45(c), which requires analyses in environmental reports to be quantitative to the fullest extent practicable and contain sufficient data to aid the NRC in its development of an independent analysis.

RAI ER-TR-5

Provide rail traffic information for the Burlington Northern Santa Fe (BNSF) Carlsbad Subdivision line.

ER Section 3.9.2 (Holtec, 2017b) provides rail traffic information for the Texas New Mexico Railroad line. However, the proposed spur would connect with the BNSF Carlsbad Subdivision line. The same information should be provided for the BNSF Carlsbad Subdivision line.

This information is necessary to evaluate impacts on transportation resources and is needed in accordance with 10 CFR 51.45(b), which requires that the ER include a description of the affected environment.

RAI ER-TR-6

Describe the impact on local traffic patterns and volume if heavy haul trucks were used to transport SNF from a nearby rail line to the CISF.

ER Section 8.19 (Holtec, 2017b) states that the proposed action would not change traffic patterns or traffic on existing roads if a heavy haul truck were used. Clarify the impacts that would be anticipated from the heavy haul truck option for local SNF transportation, considering whether existing roads or newly constructed roads would be used and how traffic would be managed when shipments are being made. If existing public roads would be used, would traffic management actions (e.g., road closures) be implemented on public roads when shipments are occurring to address the potential impacts of slow moving large trucks on traffic safety? Further, if existing roads are used, would improvements be made or additional impacts (e.g., increased wear and tear, maintenance and rehabilitation costs) be anticipated due to the increased weight of the heavy haul trucks on these roads?

This information is needed in accordance with 10 CFR 51.45(b), which requires that the ER include a description of the proposed action and assessment of impacts.

RAI ER-TR-7

Provide additional information about the SNF transportation routing analysis.

ER page 4-32 (Holtec, 2017b) states, “WebTRAGIS was used to determine the route length and population density” with no attribution or reference. Information regarding assumptions in the analysis should be provided including the study author, version of the code, and population data.

This information is needed in accordance with 10 CFR 51.45(c), which requires analyses in environmental reports to be quantitative to the fullest extent practicable and contain sufficient data to aid the NRC in its development of an independent analysis.

RAI ER-TR-8

Provide additional information to support the ER assertion that incident-free transportation risk calculations are bounding.

ER page 4-32 (Holtec, 2017b) states, "Using the maximum dose rate (10 mrem/hr at a distance of 6.5 feet from the cask) assures that the doses calculated by RADTRAN bound those of the proposed SNF shipments to and from the CIS Facility." Considering the RADTRAN technical manual (Weiner et al., 2014) describes numerous input parameters and data values, explain how setting this one parameter in RADTRAN to a bounding value "assures" the calculation results are bounding or clarify the statement to more accurately convey how this and other parameter selections affect the degree of conservatism incorporated into the analysis. The response should describe any other important parameters that are set to bounding values as well as parameters that affect the dose results that are not bounding.

This information is needed in accordance with 10 CFR 51.45(c), which requires analyses in environmental reports to be quantitative to the fullest extent practicable and contain sufficient data to aid the NRC in its development of an independent analysis.

RAI ER-TR-9

Provide technical bases for the applicability of other cited transportation risk analyses.

ER Sections 4.9.3 and 4.9.4 (Holtec, 2017b) describe other past transportation analyses and the conclusions of the studies. Provide detail on the methods, assumptions, and similarities of the cited analyses to explain their applicability to the proposed action.

This information is needed in accordance with 10 CFR 51.45(c), which requires analyses in environmental reports to be quantitative to the fullest extent practicable and contain sufficient data to aid the NRC in its development of an independent analysis.

GEOLOGY AND SOILS (GS)

RAI ER-GS-1

Provide additional information on the regional physiographic features surrounding the proposed CISF site, including a figure showing the physiographic features and a description of the geologic and hydrologic processes responsible for formation of the features.

Physiographic features in the region of the proposed CISF include the Querecho Plains, Lower Pecos Valley, Llano Estacado, Mescalero Ridge, Laguna Valley, Grama Ridge, Nash Draw, Clayton Basin, and San Simon Swale (ELEA, 2007). Clarify the description of these features, some of which are mentioned in the ER and SAR [e.g., see ER Section 3.5.1 (Holtec, 2017b) and SAR Section 2.4.1 (Holtec, 2017c)].

This additional information is needed in accordance with 10 CFR 51.45(b) and (c), which requires that the ER include a description of the affected environment and contain sufficient data to aid the NRC in its development of an independent analysis.

RAI ER-GS-2

Provide information to evaluate the potential for environmental impacts caused by induced seismicity from deep well injection of wastewater at or near the proposed CISF. This information should include the number and location of injection wells within a 10 km [6 mi] radius of the proposed project area. For each identified injection well, provide information on the geologic formation that wastewaters are being injected into, the depth and thickness of the targeted geologic formation, and injected wastewater volumes.

ER Section 3.3.2.1 (Holtec, 2017b) states that recent seismicity southeast and west of the proposed project area is suspected to be induced by injection of waste water from natural gas production into deep wells or wells. The requested information would be used to assess the potential for induced seismicity to impact the proposed CISF.

This additional information is needed in accordance with 10 CFR 51.45(b) and (c), which requires that the ER include a description of the affected environment and contain sufficient data to aid the NRC in its development of an independent analysis.

RAI ER-GS-3

Provide information on the potential impacts associated with the disposition (stockpiling, reuse, or disposal) of excavated soils from construction of the proposed CISF and associated infrastructure, including the rail spur or intermodal facility (see also RAI PA-4). If soils will be stockpiled, provide information on the locations and estimated volume of soil stockpiles, and mitigation measures (including any measures that may be required by New Mexico Environment Department regulations or BLM) that will be implemented to avoid and reduce soil losses due to stormwater runoff and wind erosion. If soils will be disposed, provide information on the estimated volume of soil to be disposed, the location of potential disposal facilities, and how soil will be transported to the disposal facilities.

Provide information assessing the potential impact of the disposition (stockpiling, reuse, or disposal) of excavated soils from construction of the proposed CISF and infrastructure described in ER Section 2.2.2 (Holtec, 2017b), including for the rail spur or intermodal facility.

This additional information is needed in accordance with 10 CFR 51.45(b) and (c), which requires that the ER include a description of the affected environment, discuss the impacts of the proposed action, and contain sufficient data to aid the NRC in its development of an independent analysis.

RAI ER-GS-4

Provide information on the mitigation measures for spill prevention and storm water management that will be implemented during operation to protect soils from radiological and nonradiological contamination.

ER Section 4.3.3 (Holtec, 2017b) states that mitigation measures for spill prevention and storm water management would be applied during operation, as described in Chapter 6. Identify and describe any operational mitigation measures to which the applicant is committing.

This additional information is needed in accordance with 10 CFR 51.45(b) and (c), which requires that the ER discuss the environmental impacts of the proposed action and alternatives available for reducing and avoiding adverse environmental impacts.

RAI ER-GS-5

Provide additional information on the best management practices, acceptable methods, and acceptable means that will be implemented to minimize potential impacts on geology and soils during construction, operation, and decommissioning of the CISF and associated infrastructure (including construction of the rail spur or intermodal facility) described in ER Section 2.2.2 (Holtec, 2017b).

ER Section 6.3 (Holtec, 2017b) states that best management practices would be used to mitigate erosion impacts due to site clearing and grading, acceptable methods would be used to stabilize disturbed soils during construction, and acceptable means would be used to stabilize cleared areas not covered by structures or pavement. Describe the specific measures (e.g., acceptable methods and acceptable means) that will be implemented.

This additional information is needed in accordance with 10 CFR 51.45(b) and (c), which requires that the ER discuss the environmental impacts of the proposed action and alternatives available for reducing and avoiding adverse environmental impacts.

WATER RESOURCES (WR)

RAI ER-WR-1

Provide information about the seasonality of water in Laguna Gatuna and Laguna Plata, water depth that is typical when the lagunas contain water, and monthly, quarterly or other seasonal information on how much water the lagunas contain over the course of a year.

ER Section 3.5.1 (Holtec, 2017b) identifies Laguna Gatuna and Laguna Plata as ephemeral playas and states that surface runoff from the proposed CISF site flows into Laguna Gatuna to the east and Laguna Plata to the northwest. Provide information regarding when and how much water the playas may intermittently contain.

This additional information is needed in accordance with 10 CFR 51.45(b) and (b)(1), which requires that the ER include a description of the affected environment and discuss the impacts of the proposed action.

RAI ER-WR-2

To assist the NRC in describing the affected environment, provide additional information on the site-specific flooding analysis presented in SAR Section 2.4.2 (Holtec, 2017c). The additional information should include input data, output results, and figures illustrating the maximum extent of flooding across the analyzed area such that NRC could replicate or otherwise independently verify the analysis.

SAR Section 2.4.2 (Holtec, 2017c) provides a general description of a site-specific flooding analysis of the proposed CISF site for a maximum precipitation event conducted with ESRI ArcGIS software with 3D and Spatial Analyst extensions and publicly available GIS data.

Provide detailed data to support the NRC staff's validation and verification of the results of the analysis.

This additional information is needed in accordance with 10 CFR 51.45(b)(1), which requires that the ER contain sufficient data to aid the NRC in its development of an independent analysis.

RAI ER-WR-3

Provide additional information on consumptive water use for the proposed CISF including activities that will consume water (e.g., dust suppression or use in concrete batch plant) and the estimated amount of water consumed by these activities. In addition, provide information on the capacity of the City of Hobbs Water Department to meet water demands for the proposed CISF and whether any local or State permits or authorizations will be required to acquire water from the City of Hobbs Water Department (or other sources), and the status of those permits.

ER Section 4.10.1 (Holtec, 2017b) states that peak potable water requirements for the CISF would be 76 L/min [20 gal/min] during construction, operation, and decommissioning and that potable water would be provided by the City of Hobbs Water Department from municipal wells withdrawing water from the Ogallala Aquifer. Provide information on the amount of water that will be consumed by specific activities during construction, operation, and decommissioning. In addition, provide information on the capacity of the City of Hobbs Water Department to meet water demands for the proposed CISF or whether any permits or authorizations would be required to acquire water from the City of Hobbs.

This additional information is needed in accordance with 10 CFR 51.45(b) and (c), which requires that the ER discuss the impacts of the proposed action and contain sufficient data to aid the NRC in its development of an independent analysis.

RAI ER-WR-4

Provide additional information about the existing potable water supply pipe at the proposed CISF site including a figure showing its location in relation to full build-out of the proposed CISF, origin and terminus, source of water, material construction, size (e.g., width or diameter), and delivery capacity (e.g., maximum flowrate). In addition, provide information on any measures that will be implemented to mitigate impacts of the water supply pipe on construction, operation, and decommissioning activities.

ER Section 4.10.1 (Holtec, 2017b) states that an existing potable water supply pipe is already in place at the site and that no notable construction would be required to provide water to the CISF. Discuss potential impacts associated with use of the water supply pipe.

This additional information is needed in accordance with 10 CFR 51.45(b), (b)(1), and (c), which requires that the ER include a description of the affected environment, discuss the impacts of the proposed action, and contain sufficient data to aid the NRC in its development of an independent analysis.

RAI ER-WR-5

Provide information on baseline groundwater sampling for the proposed CISF. Specifically, provide information on whether baseline groundwater sampling would be conducted prior to construction and, if so, provide details of the baseline groundwater sampling program including sampling locations, sampling intervals, and constituents and parameters to be analyzed.

ER Section 4.5.5 (Holtec, 2017b) states that "impacts to groundwater during decommissioning would be minimal. Sampling would also be integral to the decommissioning process to demonstrate that any residual impacts, as compared to baseline sampling results, meet NRC and EPA guidelines." Provide information regarding the baseline groundwater sampling program and any results.

This additional information is needed in accordance with 10 CFR 51.45(b) and (c), which requires that the ER include a description of the affected environment, discuss the impacts of the proposed action, and contain sufficient data to aid the NRC in its development of an independent analysis.

RAI ER-WR-6

Provide a description of any specific environmental measures that will be implemented to mitigate impacts to groundwater and surface water during construction, operation, and decommissioning of the proposed CISF.

ER Section 6.5 (Holtec, 2017b) presents a list of measures that could be implemented to mitigate groundwater and surface water impacts from construction, operation, and decommissioning of the proposed CISF. Proposed commitments to the environmental measures will be used in the impacts analysis.

This additional information is needed in accordance with 10 CFR 51.45(b) and (c), which requires that the ER discuss the environmental impacts of the proposed action and alternatives available for reducing and avoiding adverse environmental impacts.

RAI ER-WR-7

Provide additional descriptions of any planned or expected stormwater management facilities or activities.

ER Section 1.4.2.1 (Holtec, 2017b) and other sections of the ER refer to stormwater permits that would be needed, including those applicable to point source discharge of stormwater. ER Section 4.5.3 (Holtec, 2017b), describes how stormwater runoff would flow into the nearby drainages of Laguna Plata and Laguna Gatuna. Describe any additional stormwater management facilities or activities that are proposed or expected.

This additional information is needed in accordance with 10 CFR 51.45(b) and (b)(1), which requires that the ER include a description of the affected environment and discuss the impacts of the proposed action.

ECOLOGY (ECO)

RAI ER-ECO-1

Provide the acreages of vegetated land by type, bare land, existing disturbed areas such as roads, and open water habitat (e.g., Laguna Gatuna) within the project boundary of the CISF. Clearly identify, using similar categories, the acreages that will be revegetated or reclaimed after decommissioning. This information could be provided in a table.

ER Appendix B (Holtec, 2017b) notes the number of acres that would be disturbed and states that the site is composed of mesquite upland scrubland habitat. In addition to identifying the overall habitat type, information is needed regarding (i) the specific vegetative communities that are present at the site, (ii) how many acres of each vegetative community would be disturbed, (iii) dominant species within each vegetative community, and (iv) the amount of total and relative vegetative cover. This information is needed to describe the affected environment and assess the potential environmental impacts that construction, operation, and decommissioning of the CISF will have on ecological resources.

This information is needed in accordance with 10 CFR 51.45(b)(1) and (2), which require that the ER include a description of the proposed action and discuss the impacts of the proposed action.

RAI ER-ECO-2

Provide any updated information on baseline ecological surveys for land within the proposed CISF project boundary. Specifically, confirm whether additional wildlife and vegetation surveys will be conducted prior to construction. If so, provide details of the types of surveys that would be conducted and an estimated time of completion. In addition, clarify BLM regulations and requirements for wildlife and vegetation surveys on BLM-owned land (proposed rail spur location) as well as wildlife and vegetation surveys required by the New Mexico Department of Game and Fish and the New Mexico Environment Department.

ER Section 3.4 states that an ecological survey was conducted in March 2007 on approximately 407 ha [1,005 ac] of the 421 ha [1,040 ac] parcel. A one-day confirmatory ecological survey was conducted in October 2016 of the 133.5 ha [330 ac] area that is proposed to be disturbed over the life of the proposed CISF project including construction of the access road and rail spur.

This additional information is needed in accordance with 10 CFR 51.45(b) and (c), which requires that the ER include a description of the affected environment, discuss the impacts of the proposed action, and contain sufficient data to aid the NRC in its development of an independent analysis.

RAI ER-ECO-3

Clarify the status of the determination of jurisdictional wetlands by the U.S. Army Corps of Engineers within the proposed CISF project boundary.

ER Section 3.5.1 states that there are no riparian habitats or wetlands at the site. Provide information regarding any baseline wildlife trapping or capture-and-release surveys, nesting bird

surveys, amphibian or reptile surveys, or wetland surveys performed at the site. Also, clarify whether, based on the National Wetland Inventory, any riverine habitat, freshwater pond habitat, and/or lake habitat is present within the proposed project area.

This additional information is needed in accordance with 10 CFR 51.45(b) and (c), which requires that the ER include a description of the affected environment, discuss the impacts of the proposed action, and contain sufficient data to aid the NRC in its development of an independent analysis.

AIR QUALITY (AQ)

RAI ER-AQ-2 (Note: AQ-1 was included in RAI Part 2 dated 9/13/2018)

Clarify and explain the need for an air permit.

ER Section 1.4.2.3 and ER Table 1.4.1 (Holtec, 2017b) state the onsite concrete batch plant requires an air permit. In contrast, ER Section 4.6.1 (Holtec, 2017b) states no air permits will be required because of the low estimated emission levels which include emissions from the concrete batch plant (see ER Tables 4.6.1 to 4.6.2). Clarify the inconsistency regarding the need for an air permit along with an explanation for this expectation.

This information is needed in accordance with 10 CFR 51.45(d), which requires that the ER include a description of the status of compliance with applicable environmental quality standards and requirements, including limitations and requirements which have been imposed by Federal, State, regional, and local agencies having responsibility for environmental protection.

RAI ER-AQ-3

Clarify what the bounding levels of air emissions are for criteria pollutants by addressing the following topics:

- **Clarify the emission level estimates associated with each stage (construction, operation, decommissioning) for each phase over the licensed life of the project, including any overlap of stages and phases**

- **Ensure the ER air quality assessment distinctly addresses criteria pollutants [e.g., carbon monoxide, nitrogen dioxide, particulate matter ($PM_{2.5}$ and PM_{10}), sulfur dioxide].**

If the emission levels currently in the ER are not bounding, revise the emission levels and associated impact analyses accordingly.

Specifying overlap of project stages (i.e., construction, operation, and decommissioning) and phases (Phases 1-20) is an important consideration for identifying the bounding emission inventory. Bounding the peak emission levels relates to both the maximum potential impact and the level of impact analyses conducted in the ER. The applicant did not conduct air dispersion modeling or further impacts evaluation beyond what is presented in the ER Section 4.6.1 (Holtec, 2017b) because estimated emission levels were below a threshold of 10 pounds per hour [per 20 New Mexico Administrative Code (NMAC) 2.72] and 10 tons per year (20 NMAC 2.73). However, the estimated project level emissions in ER Tables 4.6.1 to 4.6.4 (Holtec, 2017b) are close to these thresholds (9.24 pounds per hour and 9.94 tons per year) and if

phases occur simultaneously these thresholds may be exceeded. If the initial (Phase 1) construction stage occurs simultaneously with either the Phase 2 construction or Phase 1 operation, the maximum emission levels currently described in the ER would be exceeded along with the NMAC thresholds that were used to justify the level of analysis in the ER. Since the air emission estimates for Phase 1 construction [see ER Tables 6.4.1 and 6.4.2, (Holtec, 2017b)] and subsequent Phases 2 to 20 construction differ [see ER Tables 6.4.3 and 6.4.4, (Holtec, 2017b)], ensure any revisions to ER Table 1.3 and determination of bounding emission levels reflect this distinction (see RAI PA-5).

For emission levels by stage, ER Tables 4.6.1 and 4.6.2 (Holtec, 2017b), provide estimated emission levels for Phase 1 (initial construction). ER Section 4.6.1.2 (Holtec, 2017b) states that Phases 2 to 20 construction emission levels are estimated at 15 percent of the Phase 1 initial construction emission levels. The NRC staff assumes that operation stage emissions can be calculated by subtracting the Phase 2 to 20 construction estimates from the emission estimates in ER Tables 4.6.3 and 4.6.4. ER Section 4.6.1.4 (Holtec, 2017b) does not quantify decommissioning emissions but states that these emissions are expected to be similar or less than those from construction; however, it is not clear whether this refers to initial construction (Phase 1) or subsequent construction (i.e., Phases 2 to 20). If decommissioning emissions are at initial construction stage levels (i.e., Phase 1) then overlapping with the operation stage emission levels would exceed the maximum emission levels currently described in the ER and also exceed the NMAC threshold the applicant used to justify the level of analyses in the ER.

The ER air quality assessment should address pollutants other than fugitive dust (e.g., carbon monoxide, $PM_{2.5}$, NO_x, and SO_x). ER Sections 4.6.1.1 and 5.2 (Holtec, 2017b) state that fugitive dust is the primary air emission associated with the proposed action. However, ER Tables 4.6.2 to 4.6.4 (Holtec, 2017b) note that the proposed action generates more carbon monoxide and nitrogen oxides than particulate matter.

An accurate characterization of the bounding emission levels for the proposed action is needed in order for the NRC staff to determine whether the current estimates in the ER are bounding and below the threshold values. If the revised bounding emission inventory exceeds the NMAC threshold, provide an analysis of impacts for these new emissions (i.e., emission levels greater than originally analyzed in the ER). For example, if air dispersion modeling is not warranted, provide justification.

This information is needed in accordance with 10 CFR 51.45(b) and (b)(1), which requires that the ER include a description of the proposed action and its potential impacts on the environment.

RAI ER-AQ-4

Provide the detailed information (e.g., calculations, inputs, sources, activities, and parameters) used to generate each of the emission inventories in ER Tables 4.6.1 to 4.6.4 (Holtec, 2017b). Ensure that all of the appropriate emission sources for the proposed action are included in these emission inventories. Revise the emission inventories as well as the associated impact analyses in the ER as appropriate.

ER Section 4.6 (Holtec, 2017b) provides a limited description of how the emission inventories were calculated. Detailed information about the sources of all air emissions is needed for NRC to independently verify the emission inventories.

This information is needed to conduct a technical review of the calculations. This information in needed in accordance with 10 CFR 51.45(c), which requires analyses in environmental reports to be quantitative to the fullest extent practicable and contain sufficient data to aid the NRC in its development of an independent analysis.

RAI ER-AQ-5

Provide a detailed description, to include a figure, of the distance from air emission sources to receptors (e.g., potash mine workers, residences). The information should:

- **Clarify whether the distances to residences identified in the ER Section 2.2.1 (Holtec, 2017b) are from the proposed site boundary or the center of the proposed site.**
- **Consider the activities and potential air emission sources (e.g., the rail spur and the intermodal facility) that occur outside of the 420.9 hectare [1,040 acre] site boundary of the proposed Holtec CISF.**
- **Account for receptors other than residences (e.g., workers at the potash mine) identified in ER Section 2.2.1 (Holtec, 2017b).**

ER Section 2.2.1 (Holtec, 2017b) specifies the distance from the proposed Holtec CISF to residences in several directions. Clarify if this measurement is from the center of the CISF property or the boundary. The environmental impact analysis of air emission sources and receptors will include all identified residences and their spatial relationship to all project emission sources (CISF, rail spur, concrete batch plant, intermodal facility). Because the construction and operation of the rail spur or construction and operation of the intermodal facility occur outside the 420.9 hectare [1,040 acre] site boundary, clarify how close these sources are to (i) the residences described in ER Section 2.2.1 and (ii) other receptors such as the Intrepid Mining Facility which might be closer to rail spur or intermodal facility than the nearest residence is to the proposed Holtec CISF. Furthermore, clarify whether the concrete batch plant is a stationary or mobile plant that would be relocated over the lifetime of the project including beyond the 420.9 hectare [1,040 acre] acre Holtec CISF project boundary. Understanding the distance between air emission sources and potential receptors is an important consideration when assessing air quality impacts.

This information is needed in accordance with 10 CFR 51.45(b) and (b)(1), which requires that the ER include a description of the proposed action and its potential impacts on the environment.

RAI ER-AQ-6

For the cumulative impacts assessment, supplement the regional characterization of the air emissions by addressing:

- **Future regional air emissions considering the life span of the proposed action (not just current emission levels)**
- **Pollutants other than fugitive dust**

ER Section 3.6.2 (Holtec, 2017b) characterizes the area's current National Ambient Air Quality Standards attainment status and provides recent pollutant emission levels for Lea, Eddy, Roosevelt, and Chaves Counties. ER Section 5.1.2 (Holtec, 2017b) states that for purposes of the cumulative impact assessment, the existing non-nuclear activities are assumed to continue at current levels. The basis for the assumption that non-nuclear activities continue at current levels or provide information related to future air emission levels in the region for the non-nuclear activities should be provided. In addition, the cumulative effects analysis in ER Section 5.2 (Holtec, 2017b) only considers fugitive dust based on the statement that the proposed action's primary air emission would be fugitive dust. However, the emission estimates in ER Tables 4.6.2 and 4.6.4 (Holtec, 2017b) indicate that the proposed action generates more carbon monoxide, nitrogen oxides, and volatile organic compounds than particulate matter. The characterization of regional air emissions should address pollutants other than fugitive dust.

This information is needed in accordance with 10 CFR 51.45(b), which requires that the ER include a description of the affected environment.

RAI ER-AQ-7

Clarify the bounding levels of air emissions for volatile organic compounds (VOCs) and non-radiological hazardous air pollutants (HAPs) by addressing the following topics:

- **Clarify the emission level estimates associated with each stage (construction, operation, decommissioning) for each phase over the licensed life of the project, including any overlap of stages and phases**

- **Characterize the potential impacts of the proposed action's emissions for VOCs and non-radiological HAPs.**

Similar to criteria pollutants, identifying the overlap of project stages (i.e., construction, operation, and decommissioning) is important for establishing the bounding emission inventory (see RAI AQ-2) in order to evaluate the maximum potential impact. For example, ER Tables 4.6.1 through 4.6.4 (Holtec, 2017b) do not include non-radiological HAPs and it is unclear if emission levels for VOCs are bounding. The air quality impact assessment in ER Section 4.6.1 (Holtec, 2017b) does not address impacts from VOCs or non-radiological HAPs. ER Tables 4.6.1 to 4.6.4 (Holtec, 2017b) indicate that the proposed action generates more VOCs than any other pollutant. Quantification of the levels of non-radiological HAPs generated by the proposed action is a consideration in the impact assessment (e.g., comparison of project emission levels to State and/or Federal regulatory thresholds for HAPs such as 40 CFR 61).

This information is needed in accordance with 10 CFR 51.45(b) and (b)(1), which requires that the ER include a description of the proposed action and its potential impacts on the environment.

RAI ER-AQ-8

Provide a description of the specific measures that will be implemented to mitigate air effluent emissions from the proposed action and if any mitigation measures were accounted for in the emission inventory documented in ER Tables 4.6.1 to 4.6.4

(Holtec, 2017b). The description of any mitigation measures incorporated in the tables should:

- **Identify any mitigation measures incorporated into these estimates**
- **Specify the effectiveness of the mitigation measure**
- **Provide the basis for the effectiveness of the mitigation measure**

ER Sections 1.4.2.3 and 6.6 (Holtec, 2017b) describe that the applicant will implement best management practices to mitigate air emissions. However, the specific mitigation measures that are considered best management practices are not identified. Clarify whether all of these specific best management practices, or only a subset, will be implemented.

This additional information is needed in accordance with 10 CFR 51.45(b) and (c), which requires that the ER discuss the environmental impacts of the proposed action and alternatives available for reducing and avoiding adverse environmental impacts.

CLIMATE CHANGE (CC)

RAI ER-CC-1

Address the following aspects of climate change as they relate to the proposed action's greenhouse gas emissions:

- **Describe any relevant regional, state, or local goals or laws that address climate change, greenhouse gas emission levels, or both.**
- **Disclose whether any mitigation, project design, or adaptation measures will be implemented to address greenhouse gas emissions resulting from proposed action activities**
- **Describe any areas where the environmental impacts of climate change overlap with the potential environmental impacts of the proposed action on resources (e.g., water usage and availability)**

ER Section 4.6.1 (Holtec, 2017b) assesses that the amount of greenhouse gases generated by the proposed action has a minimal impact since the project's estimated emission levels are below the Federal reporting standard in 40 CFR 98.2. Clarify (i) whether there are any other relevant regional, state, or local goals or laws that address climate change and (ii) whether any mitigation, project design, or adaptation measures will be implemented to address greenhouse gas emissions from the proposed action. Additionally, address whether there are any areas where the environmental impacts of climate change overlap with the potential environmental impacts of the proposed action on resources (e.g., water usage/availability, ambient air temperature, etc.).

This additional information is needed in accordance with 10 CFR 51.45(b) through (d), which require that the ER include: a discussion of the impacts of the proposed action; alternatives available for reducing and avoiding adverse environmental impacts; and a description of the status of compliance with applicable environmental quality standards and requirements,

including limitations and requirements which have been imposed by Federal, State, regional, and local agencies having responsibility for environmental protection.

SOCIOECONOMICS (SOC)

RAI ER-SOC-1

Provide an estimate of indirect and induced jobs that would be generated in the region of influence over the licensed life of the proposed project.

ER Sections 4.8.1 and 4.8.2 (Holtec, 2017b) state that approximately 80 construction-related workers including oversight and management are expected during Phase 1, and, when combined with the operating workforce, the total number of annual workers at the CISF could be as many as 135 during Phases 2-20. In addition to the estimate of direct jobs related to the project, provide information regarding both indirect and induced jobs associated with proposed project.

This information is needed in accordance with 10 CFR 51.45(b)(1), which requires that the ER include a description of the impacts of the proposed action.

RAI ER-SOC-2

To inform the analysis of the environmental and other costs and benefits of the proposed action, provide any available information concerning annuity payments made to Lea and Eddy Counties, and the cities of Hobbs and Carlsbad regarding the SNF storage at the Holtec CISF.

Describe any estimated annuity payments (i.e., monetary compensation) that would be provided by the applicant to Lea and Eddy Counties and the cities of Hobbs and Carlsbad associated with operating the CISF.

This additional information is needed in accordance with 10 CFR 51.45(b)(1), and (c), which requires that the ER discuss the impacts of the proposed action, and include consideration of the benefits and costs of the proposed action and its alternatives.

NOISE (NOI)

RAI ER-NOI-1

Provide estimates of noise levels that would be generated during construction and operation of the proposed CISF, specifically for construction and operation of the concrete batch plant and rail spur.

ER Section 4.6.2 (Holtec, 2017b) provides noise estimates for construction and operation activities. To support the NRC staff's evaluation of potential noise impacts to offsite and onsite receptors, provide additional information to assess impacts from noise generated from the construction and operation of either the concrete batch plant or the rail spur.

This additional information is needed in accordance with 10 CFR 51.45(b) and (b)(1), which requires that the ER include a description of the affected environment and a discussion of the impacts of the proposed action.

PUBLIC AND OCCUPATIONAL HEALTH (POH)

RAI ER-POH-1

Provide additional information (including a figure of receptor locations) regarding the location and orientation of receptors used in public dose calculations relative to the location of the loaded casks at the CISF facility.

ER Sections 4.12.2 and 4.12.2.1 (Holtec, 2017b) provide a limited description of the public dose calculations for the proposed action and cite the SAR analyses and supporting documents. Provide information about the positioning of modeled public dose receptor locations relative to the constructed and loaded CISF. A figure of the proposed facility showing the locations of loaded casks and the surrounding environment where receptors are located should be provided.

This information is needed in accordance with 10 CFR 51.45(c), which requires analyses in environmental reports to be quantitative to the fullest extent practicable and contain sufficient data to aid the NRC in its development of an independent analysis.

RAI ER-POH-2

Provide documentation of the revised source term modeling used in the ER public dose calculations.

ER Sections 4.12.2 and 4.12.2.1 (Holtec, 2017b) provide a limited description of the public dose calculations for the proposed action and cite the SAR analyses and supporting documents. The NRC staff review of the available documentation of the design basis fuel used for the dose calculations indicates that the fuel characteristics (e.g., burnup, cooling time, enrichment) documented in SAR Table 7.1.1 (Holtec, 2017c) represent changes to the design basis fuel used in the referenced supporting calculations; document the applicable source term calculations (e.g., running SAS2H or SCALE). Information provided in response to this RAI should identify any significant differences in the revised source modeling from the referenced UMAX FSAR methods that could affect the public dose calculation results.

This information is needed in accordance with 10 CFR 51.45(c), which requires analyses in environmental reports to be quantitative to the fullest extent practicable and contain sufficient data to aid the NRC in its development of an independent analysis.

RAI ER-POH-3

Provide additional information about the ER public dose calculation methods and results. Specifically, provide the following information regarding the site-specific public dose calculation methods and results for the loaded CISF:

- **Description of the site-specific dose calculation model geometry**
- **Documentation of the site specific materials properties that affect shielding and dose calculations including, but not limited to, concrete and the soil that surrounds the subsurface storage modules, and including a comparison of any generic or general material properties used in calculations with site specific or expected values**

- **Documentation of dose calculation methods and results for the three source terms that were modeled (neutron, decay gamma, and ^{60}Co)**

- **Documentation of variance reduction techniques that were applied to each unique source term and dose calculation (e.g., maximally exposed individual; nearest resident)**

- **MCNP input files for each source term modeled and the computing platform used**

- **Relative errors or variance reported for all dose results**

- **An explanation for the difference in the reported distance from the nearest storage cask to site boundary {400 m [1,310 ft]} and the receptor annual occupancy time (2,000 hr) reported in the referenced SAR Table 1.0.1 (Holtec, 2017c) and what is similarly reported for the public receptor in the ER Section 4.12.2.1 (Holtec, 2017b) as a "maximally exposed individual" located at the nearest fence line at 100 m [328 ft] from the storage pads for "full-time occupancy" which is further clarified in ER Section 4.12.2.3 (Holtec, 2017b) as "for the entire year."**

ER Sections 4.12.2 and 4.12.2.1 (Holtec, 2017b) provide a limited description of the public dose calculations for the proposed action and cite the SAR analyses and supporting documents.

This information is needed in accordance with 10 CFR 51.45(c), which requires analyses in environmental reports to be quantitative to the fullest extent practicable and contain sufficient data to aid the NRC in its development of an independent analysis.

RAI ER-POH-4

Provide the documentation of the public dose calculations in the ER that are based on the full bounding inventory of 10,000 canisters.

ER Section 4.12.2.1 (Holtec, 2017b) provides public dose estimates for a maximally exposed individual, nearest resident, and local population based on "operation of the CIS facility at its maximum capacity." ER Section 4.2.12 (Holtec, 2017b) states that "(a)ll radiological estimates are based on the bounding capacity of the CIS facility, which is 100,000 MTUs consisting of 10,000 UMAX storage units." The reported maximally exposed individual dose is cited to the SAR while the nearest resident and population doses have no citation. The public dose calculations in SAR Chapters 7 and 11 (Holtec, 2017c) are limited to a single phase of 500 canisters (SAR 7.4.2.1, Holtec, 2017c). No dose calculations were identified in the SAR that were based on the full inventory of 10,000 canisters.

This information is needed in accordance with 10 CFR 51.45(c), which requires analyses in environmental reports to be quantitative to the fullest extent practicable and contain sufficient data to aid the NRC in its development of an independent analysis.

COST BENEFIT (CB)

RAI ER-CB-1

Clarify the source for the no-action alternative scenario 3 cost estimate.

In ER Section 9.2.1 (Holtec, 2017b), the source of the scenario 3 estimate of $500 million per year is attributed to page 37 of a Government Accountability Office Report (GAO, 2014). The NRC staff have reviewed that document and were unable to locate the estimated value of $500 million per year.

The requested information is needed in accordance with 10 CFR 51.45(c), which requires that the environmental report include consideration of the benefits and costs of the alternatives as well as contain sufficient data to aid the NRC in its development of an independent analysis.

RAI ER-CB-2

Clarify the discrepancy in the estimated cost for the Holtec CISF construction stage in the application documents and revise the ER as appropriate. Provide a consistent cost estimate for the construction stage, by phase, to support analysis of the costs and benefits associated with the proposed action.

In ER Table 9.2.4 (Holtec, 2017b) estimates Phase 1 construction stage costs at $222.3 million and full implementation (i.e., Phases 1 to 20) construction stage costs at $2.1 billion. In contrast, the document "HI-STORE CIS Facility Financial Assurance & Project Life Cycle Cost Estimates" (Holtec, 2017d) estimates Phase 1 construction stage costs at $182.9 million, but does not provide an estimate for full implementation. Explain the difference between these two documents.

The requested information is needed in accordance with 10 CFR 51.45(c), which requires that the environmental report include consideration of the benefits and costs of the proposed action.

RAI ER-CB-3

Clarify the discussion of the net benefits or net losses attributed to the proposed action.

In ER Section 9.2.3 (Holtec, 2017b) the introduction to the discussion of net benefits states that the proposed action would result in substantial net benefits compared to costs under both Phase 1 and Phase 1-20 (full implementation). However, subsequent text in ER Section 9.2.3 states that under the full implementation (Phases 1-20) of Scenario 2, the discounted costs for the proposed action are greater than the discounted costs for the no-action alternative. More specifically, if no additional nuclear power plants shut down (i.e., Scenario 2) the proposed action incurs a net loss rather than a net benefit when the costs are discounted. The NRC staff requests clarification of the net benefits and net losses to analyze the cost benefit of the proposed action.

The requested information is needed in accordance with 10 CFR 51.45(c), which requires that the environmental report include consideration of the benefits and costs of the proposed action and its alternatives.

RAI ER-CB-4

Identify who pays for the costs (e.g., transporting the SNF, construction, operation, and decommissioning the CISF) described in ER Section 9.2 (Holtec, 2017b) associated with the proposed action, including what costs the Federal government will pay or costs that Holtec expects to be reimbursed by the Federal government.

In the ER, Chapter 9 (Holtec, 2017b) describes the costs associated with the various aspects of the proposed action such as developing the CISF, transporting the SNF, and operating the CISF. However, the analysis does not identify who would be responsible for these costs. To the extent Holtec has evaluated more than one option concerning ownership of fuel (i.e., SNF title), then the analysis should also address how those options affect responsibility for the identified costs (e.g., construction, operation, decommissioning), as well as any implications for the comparison of the costs and benefits associated with the proposed action, any options within the proposed action, and no-action alternative.

The requested information is needed in accordance with 10 CFR 51.45(c) which requires that the environmental report include consideration of the benefits and costs of the proposed action and its alternatives as well as contain sufficient data to aid the Commission in its development of an independent analysis.

MITIGATION AND MONITORING (MM)

RAI ER-MM-1

Holtec should identify all mitigation measure commitments that would be implemented to reduce the environmental impacts on all resource areas.

As addressed in other resource-area specific RAIs (PA-2, PA-3, PA-4, LU-8, GS-3, GS-4, AQ-7, and CC-1), Holtec should identify all mitigation measures that would be implemented to reduce the environmental impacts associated with construction, operation, and decommissioning of the proposed CISF. ER Chapter 6 (Holtec, 2017b) describes mitigation measures that could potentially be implemented to reduce environmental impacts of the proposed action and refers to ER Chapter 4 (Holtec, 2017b) for the specific impacts of use of the mitigation measures. The language is inconsistent between the ER chapters regarding whether the listed mitigation measures would be implemented (i.e., implemented mitigation measures that can be accounted for in the impact analyses). Specifically, ER Chapter 6 should (i) list all mitigation measures for each resource area that are required by Federal, State, or local regulations, (ii) identify all mitigation measures committed to be implemented, (iii) as applicable, indicate which mitigations measures have been credited in the impact analyses (and to what extent), (iv) as applicable, state the expected effectiveness of the implemented mitigation measures (e.g., for air quality), and (v) distinguish mitigation commitments that would be voluntary versus those required as part of a regulation. For example, an applicant could choose to implement a mitigation even though it is not required (e.g., using engines with higher tier ratings, which produce less emissions).

This additional information is needed in accordance with 10 CFR 51.45(b) and (b)(1), which requires that the ER include a description of the proposed action and discuss the impacts of the proposed action.

CUMULATIVE IMPACTS (CI)

RAI ER-CI-1

Provide additional information on past, present, and reasonably foreseeable future actions that may result in a potential for cumulative environmental impacts within an 80-km [50-mi] radius of the proposed CISF.

In the ER Section 5.2 (Holtec, 2017b) states that non-nuclear activities are limited to oil and gas exploration and development activities, mineral extraction (potash mining) activities, livestock grazing and agricultural activities. The NRC staff request verification that no new wind energy projects or transportation projects are planned for the 40 year cumulative impact analysis timeframe within an 80-km [50-mi] radius of the proposed CISF site boundary.

This additional information is needed in accordance with 10 CFR 51.45(c), which requires that the ER contain an analysis of cumulative impacts that may result from the proposed action.

RAI ER-CI-2

Provide additional information to support the analysis of the cumulative impacts of both nuclear and non-nuclear present and reasonably foreseeable future activities for all resource areas.

In the ER Section 5.2 (Holtec, 2017b) provides information on the cumulative impacts of nuclear and non-nuclear activities in the 80-km [50-mi] radius of the proposed CISF. Specifically, the ER discusses only 4 (land use, air quality, transportation of nuclear materials, and health and safety) of the 13 resource areas evaluated as part of the EIS. To support the NRC staff's analysis of the potential cumulative impacts of the proposed action, address potential cumulative impacts relevant the remaining resource areas, including an evaluation of the environmental impacts of nuclear activities [e.g., Waste Isolation Pilot Plant, the National Enrichment Facility, International Isotopes Incorporated Fluorine Extraction Process and Depleted Uranium De-conversion Plant, and Waste Control Specialists existing low level waste facility and proposed CISF] and non-nuclear activities [e.g., oil and gas exploration and development activities, mineral extraction (potash mining) activities, livestock grazing, and agricultural activities].

This additional information is needed in accordance with 10 CFR 51.45(c), which requires that the ER contain an analysis of cumulative impacts that may result from the proposed action.

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