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DOCUMENT CATEGORIZATION

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- ☐ Calculation Package³ (Per HQP 3.2)
 ☐ Technical Report (Per HQP 3.2)
 (Such as a Licensing Report)
- ☐ Design Criterion Document (Per HQP 3.4)
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- ☐ Other (Specify):

DOCUMENT FORMATTING

The formatting of the contents of this document is in accordance with the instructions of HQP 3.2 or 3.4 except as noted below:

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Notes

HI-STORE CIS Facility Emergency Response Plan**REVISION LOG**

Revision	Revision Changes
0	Initial revision.
1	Revised Figure 1.1D to include 2 figures showing existing site facilities (and associated text). Revised Appendix D to include letters distributed to local emergency management for comment on emergency plan.
2	Corrected priority of emergency responders. Updated Table 3.1A and 3.1B to include credible threat. Minor editorial changes.
3	Updated Appendix B definitions. Revised Table 3.1B and Appendix C to align with most recent NRC-endorsed Guidance, NEI 99-01 Revision 6. Revised document to ensure consistency of facility Emergency Classifications (Unusual Event and Alert). Incorporated reference to HI-STORE CIS Facility FSAR to provide description of sampling and monitoring methods in Section 5.2. Sections 3 and 4 updated to clarify staffing requirements, as well as staff rolls and responsibilities. Revised Sections 5.3.6 and 6.1 to designate a contingency EOC. Updated section 4.3.12 to require notification of the New Mexico State Police and clarify NRC notification. Revised section 5.5 to reference the EPA PAG manual. Updated Section 1.2 to clarify the boundaries of the OCA and Section 5.9 to clarify that the EPZ boundary is defined by the extents of the OCA boundary. Minor revisions to clarify compliance with 10 CFR 72.32. Minor editorial changes.

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APPENDICES

Appendix A - Acronyms

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Appendix D - External Agreements

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1.0 INTRODUCTION AND FACILITY DESCRIPTION

Holtec International (Holtec) is currently seeking a Nuclear Materials License from the Nuclear Regulatory Commission (NRC) requesting authorization to construct and operate a central interim storage (HI-STORE) Facility to store 500 sealed canisters containing spent fuel and discharged reactor internal parts from commercial US nuclear power plants. This Consolidated Interim Storage (CIS) Facility would remain in operation until such time that the Department of Energy is prepared to accept Spent Nuclear Fuel (SNF) and Greater Than Class C (GTCC) wastes from commercial nuclear plant licensees. When the requested CIS Facility license is issued by the NRC, Holtec subsequently anticipates requesting an amendment to the license to request authorization to possess and store an additional 500 canisters for each of 19 subsequent expansion phases to be completed over the course of years. Ultimately, Holtec anticipates that approximately 10,000 SNF canisters would be stored at the CIS Facility upon completion of all 20 phases.

The information contained in this Emergency Response Plan (ERP) encompasses all applicable regulatory requirements. The ERP is developed to include radiological and non-radiological emergency incidents that are deemed credible when hazard analyses are applied to routine operations of the facility. In summary, the ERP delineates necessary and sufficient emergency response capabilities for managing all reasonably anticipated emergency conditions associated with the operation of the CIS Facility.

The ERP represents the program and describes the capabilities for responding to both radiological and non-radiological emergencies at the CIS Facility in Lea County, New Mexico. The ERP integrates the initial response as an element of the overall ERP. The ERP serves as the overall emergency response-governing document, which is supported by implementing procedures. As such, the ERP covers required development, coordination, planning, preparedness, drills, exercises, response and recovery planning activities.

The CIS Facility ERP is the governing document for ensuring the health and safety of site personnel and the public; and for protecting the environment in the event of an operational emergency. The ERP and its supporting documents will enable CIS Facility to respond to an emergency in a timely, efficient and effective manner resulting in the mitigation of incident consequences.

Site-wide emergency planning is consistent with comprehensive emergency management concepts. These concepts are inclusive of planning and preparedness:

- Planning involves the development and preparation of hazard assessments, emergency plans and procedures and the identification of necessary personnel and resources to provide an effective response.
- Preparedness includes the training of personnel, acquisition and maintenance of resources, and involvement in exercising of plans, procedures, personnel and resources essential for emergency response.

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1.1 Description of Licensed Activities

The HI-STORE CIS Facility is an Independent Spent Fuel Storage Installation (ISFSI) that accepts and stores Spent Nuclear Fuel and GTCC Waste from power reactors at other sites.

The Site and area near the site are depicted in Figures 1.1A through 1.1E.

1.2 Description of Facility and Site

The CIS Facility comprises approximately 300 acres within the 1,040 acre Site. The Site boundary, also referred to as Property Boundary, is shown in Figures 1.1C and 1.1D and defines the limits of the Owner Controlled Area (OCA). A plan view of the facility is shown in Figure 1.1E. The center of the 1,040 acre Site is at approximately latitude 32.571 north and longitude 103.716 west, in Lea County, New Mexico, 32 miles east of Carlsbad and 34 miles west of Hobbs (Figure 1.1B). Larger population centers are Roswell, New Mexico, 74 miles to the northwest; Odessa, Texas, 92 miles to the southeast; and Midland, Texas, also to the southeast at 103 miles. The nearest international airport is located between Midland and Odessa, Texas 98 miles to the southeast.

The CIS Facility utilizes the technology licensed in Holtec's generic Certificate of Compliance for the Holtec International Storage Module Underground MAXimum Capacity (HI-STORM UMAX) Storage System, NRC docket number 72-1040 [Ref. 1]. The HI-STORM UMAX Canister Storage System stores the canister containing SNF and GTCC entirely below-ground to serve as a "security-friendly" storage facility. The UMAX ISFSI configuration provides a clear, unobstructed view of the entire CIS Facility from any location. The above ground closure lid is a massive steel weldment filled with concrete, virtually eliminating the storage contents as a target for malevolent acts or natural phenomena. The CIS Facility does not require any utilities (water, compressed air, or electric power) for its operation post emplacement, eliminating any elements of vulnerability to overt threats. The subterranean stored contents do not have any emissions into the environment other than a very small direct radiation dose to the facility workers.

The VBS encloses the Protected Area. The VBS includes active barriers that can be opened (placed in the non-deny position) for passage of vehicles and trains into the Protected Area. Search areas for vehicles and trains are located outside the respective active barriers. The Protected Area is enclosed by a monitored perimeter barrier with isolation zones inside and outside the barrier to facilitate assessment. The Protected Area perimeter barrier has normally closed gates for passage of vehicles and trains, and turnstiles for entry and exit of personnel. Search areas for personnel are located outside the turnstiles and gates.

As shown on Figures 1.1D(a) and (b), the following other facilities are currently situated on the Site:

- A communications tower in the southwest corner of the Site

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- A producing gas and distillate well with associated tank battery are located near the communication tower
- A small water drinker (livestock) is located along the aqueduct in the northern half of the Site (expected to be removed)
- An abandoned oil recovery facility that still has tanks and associated hardware left in place in the northeast corner
- An oil recovery facility with tanks and associated hardware still in place in the far southeast corner.

Site features affecting emergency response will include the following:

- Emergency Operations Center
- Assembly Area
- Communications Console
- Assessment and Response Center
- Emergency Resource Storage Area

These site features will be located in or near the Security and Administrative Buildings which are represented by the gray boxes illustrated on Figure 1.1D(b). The emergency response features include equipment to identify, assess, notify, and mitigate any of the design bases accidents.

1.3 Description of the Area near the Site

Land uses in the area are limited to oil and gas exploration and production, oil and gas related service industries, livestock grazing, and limited recreational activity. The only nearby residents are ranchers that occupy several ranches as close as 1.5 miles away. A larger transient population exists in the form of potash mine workers, oil field workers, employees of an oil field waste treatment facility and an industrial landfill. One restaurant is nearby (3.5 miles) that serves travelers on U.S. Highway 62/180. The nearest population center is the village of Loving, New Mexico, 30 miles to the southwest.

Lands within 5 miles of the Site are privately owned, state lands, or Bureau of Land Management lands. Land use within 5 miles of the Site falls into two categories; livestock grazing and mineral extraction. The nearest residence to the Site is located at the Salt Lake Ranch, 1.5 miles north of the Site. There are additional residences at the Bingham Ranch, 2 miles to the south, and near the Controlled Recovery Inc. complex, 3 miles to the southwest. There is an average population of less than 20 residents among five ranches within a five mile radius. This is a population density of less than five residents per square mile.

Within 50 miles of the Site, except for the communities located in the area, the land use and ownership are essentially the same as within the 5 mile radius. Along with the mining, grazing, and oil/gas activity, agriculture is a major activity. An industrial railroad lies 3.8 miles to the west and a spur will be constructed to serve the Site.

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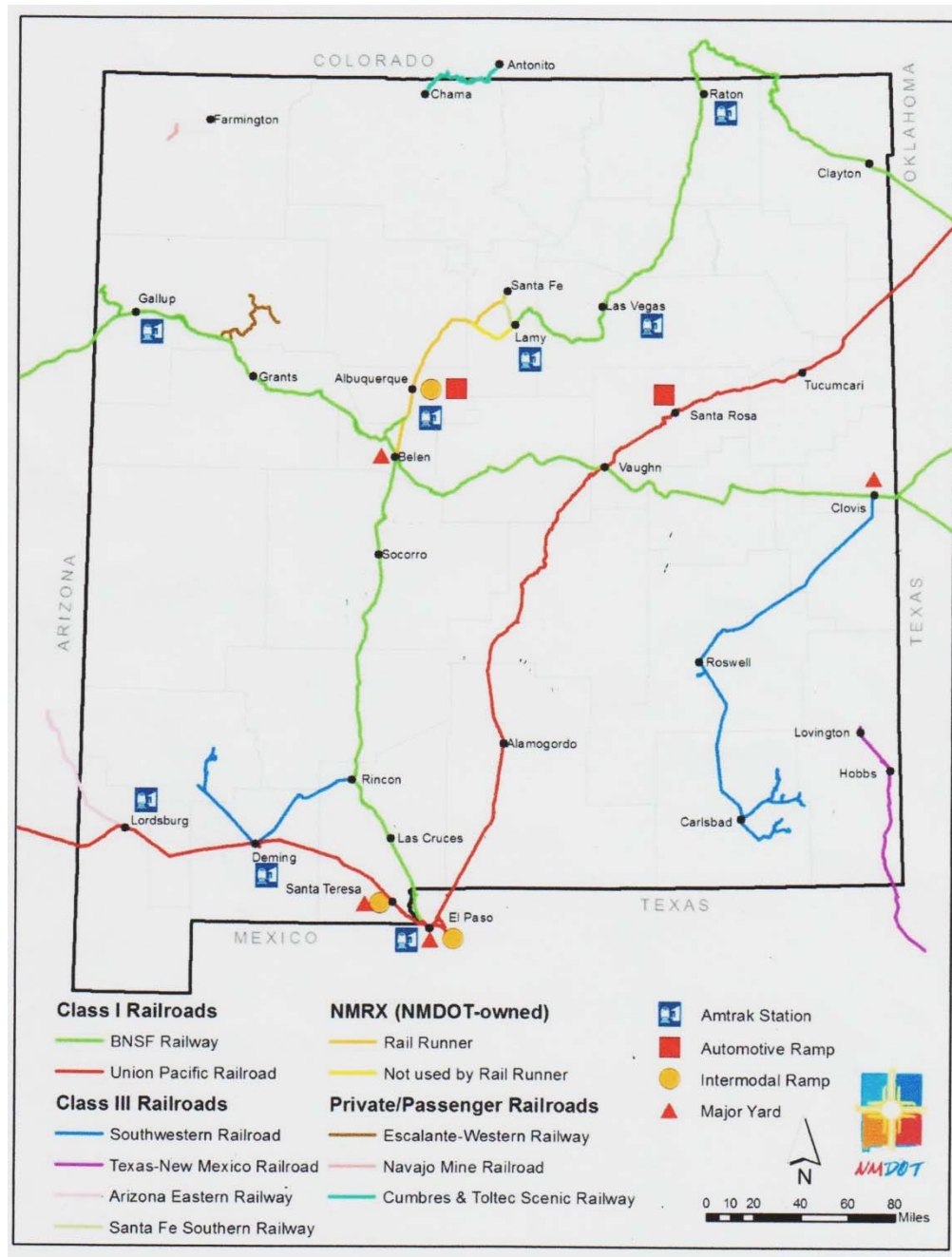


Figure 1.1A: Map of New Mexico

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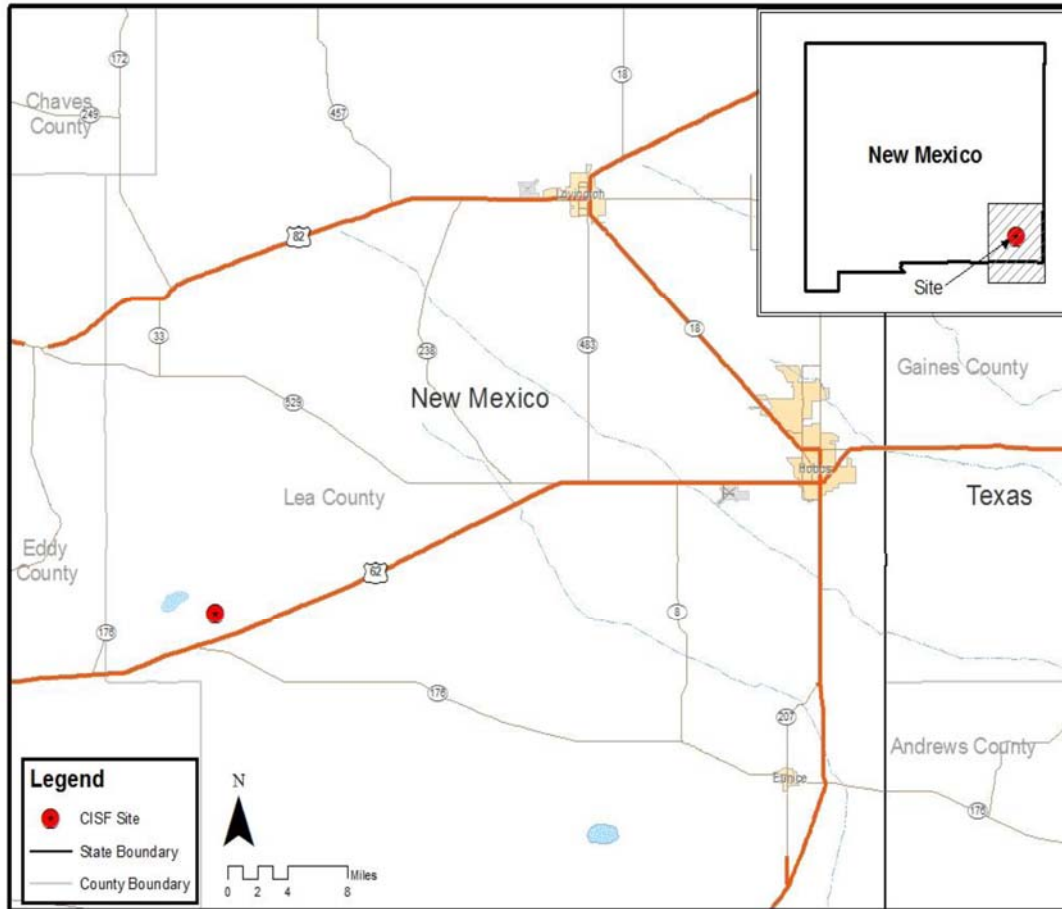


Figure 1.1B: Proposed Location of HI-STORE CIS Facility

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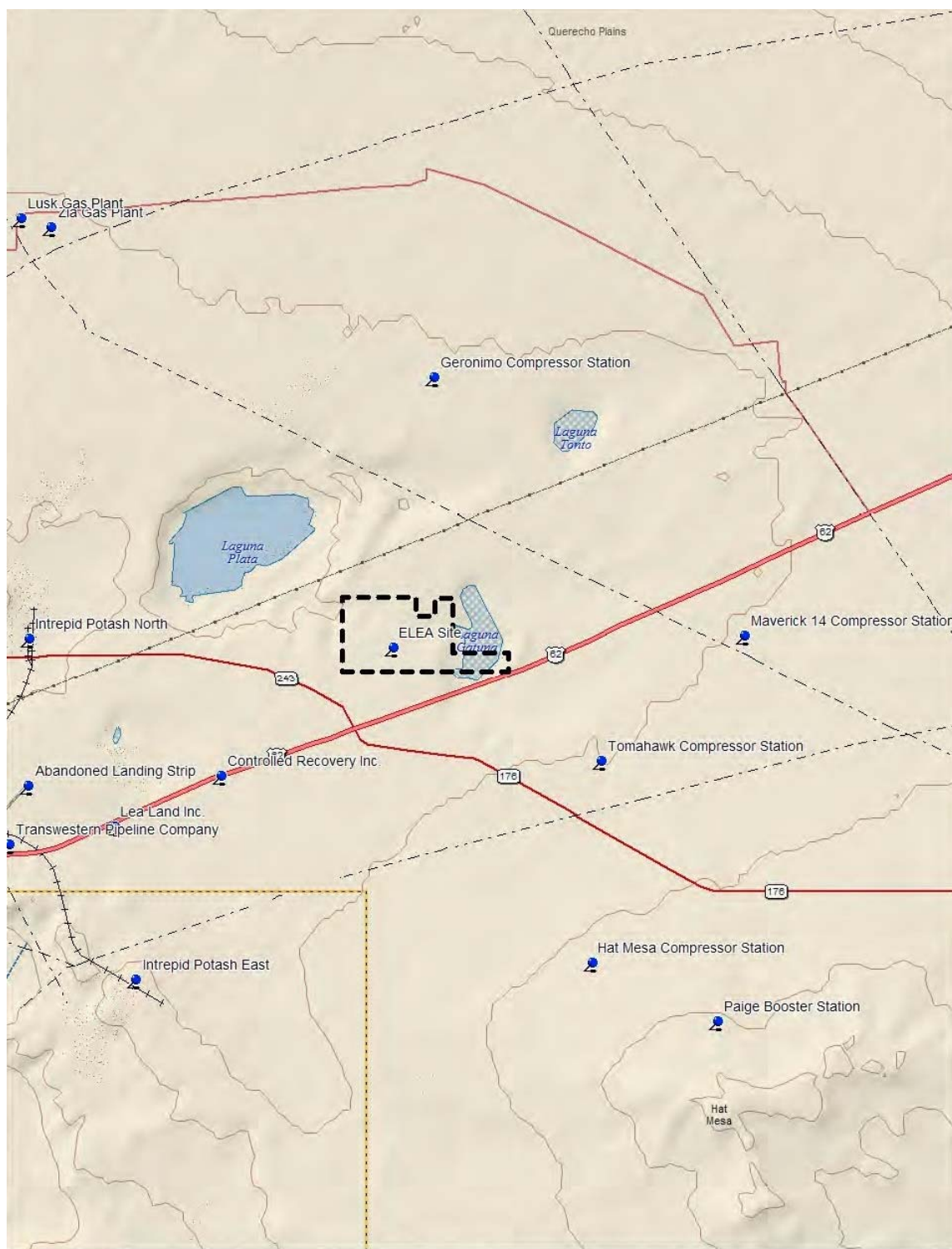


Figure 1.1C: CIS Facility Site Boundaries

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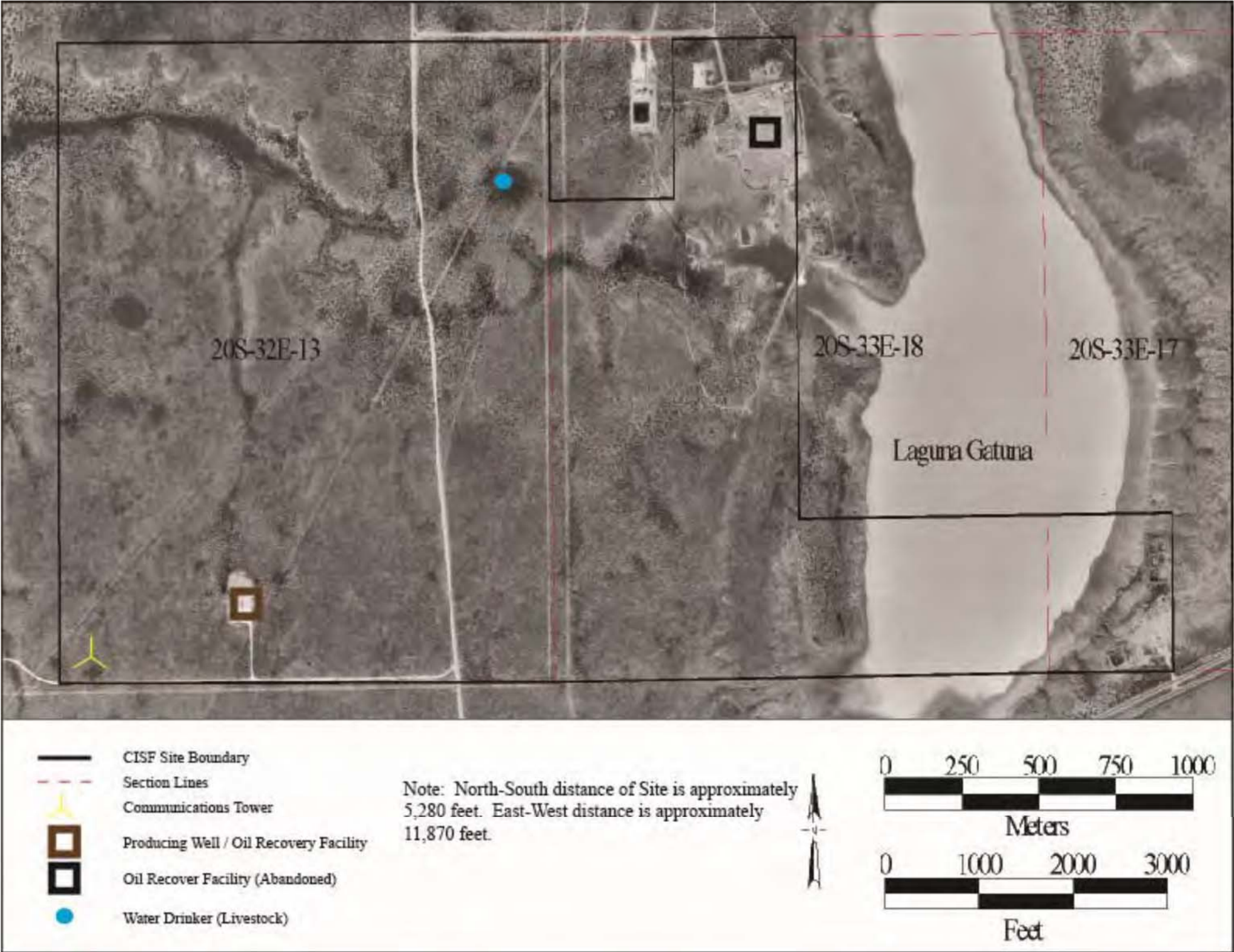


Figure 1.1D(a): Existing Local Facilities Relative to Site Boundary

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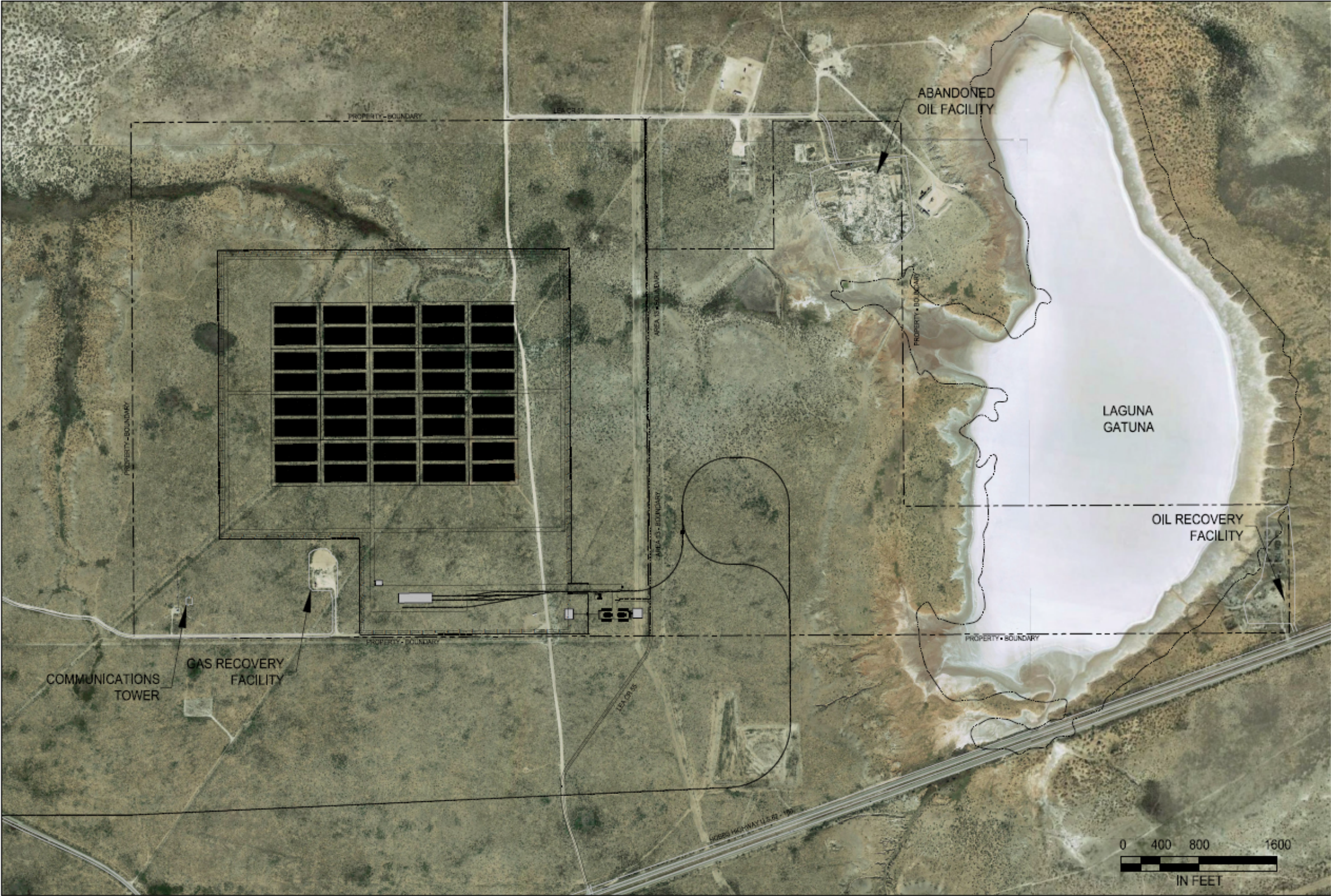


Figure 1.1D(b): Existing Local Facilities Relative to CIS Facility

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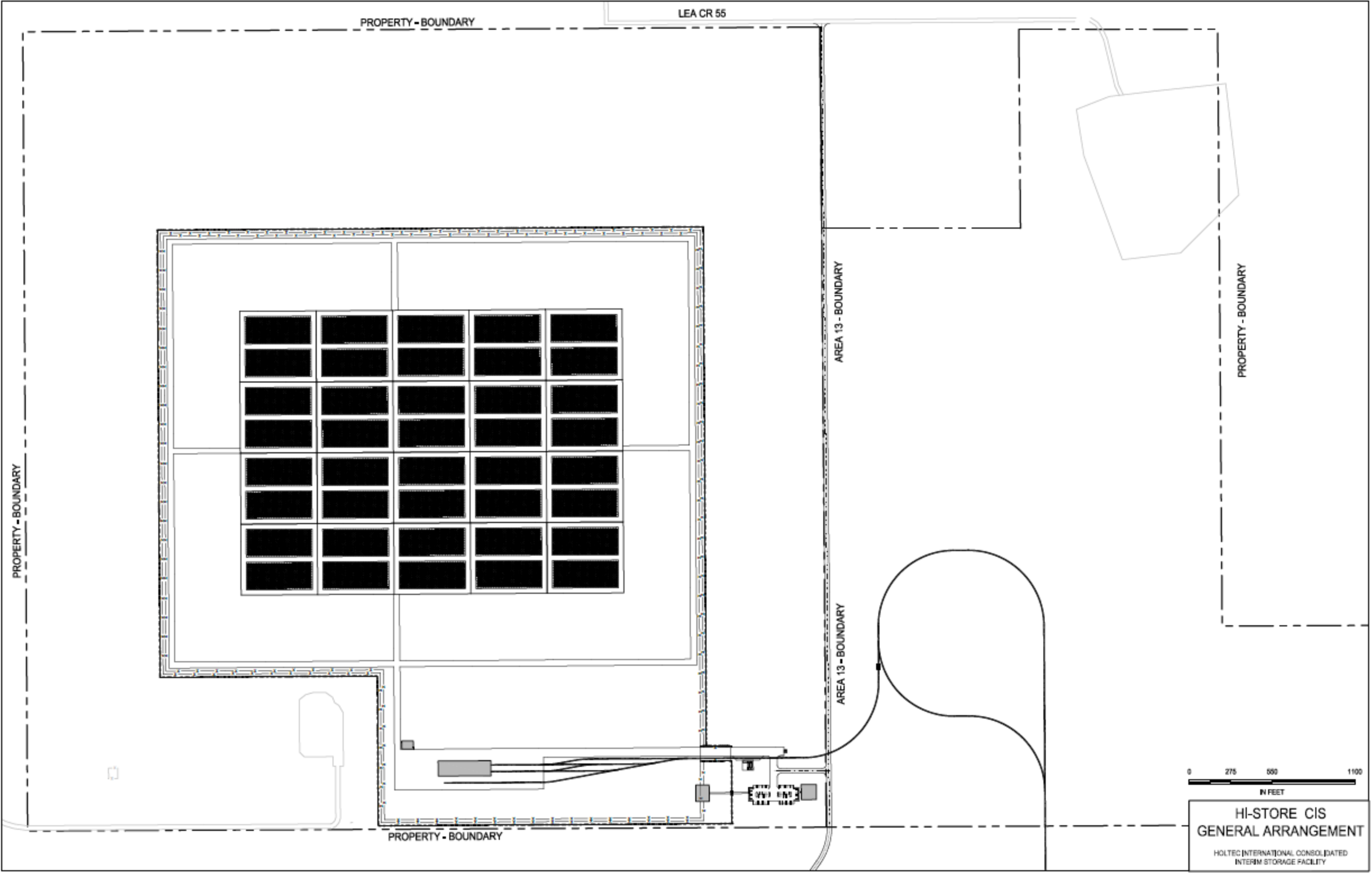


Figure 1.1E: CIS Facility Layout

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2.0 TYPES OF ACCIDENTS

The information used to develop potential operational failures leading to potential accidents is found in the CIS Facility site's documents that serve as its basis of operations. These documents include the licenses, permits, authorizations and hazard analysis performed on facility operations. Based on these potential failures protective action scenarios have been developed that serve as the baseline emergency management response actions incorporating the appropriate response equipment, on-site emergency response, off-site support and notifications.

2.1 Description of Postulated Accidents

Due to the nature of the CIS Facility equipment and operations, the credible accident scenarios are limited. The CIS Facility stores spent nuclear fuel and GTCC both of which have been non-operational for a considerable amount of time. This material has been placed in a hermetically sealed canister and has been transported in a shielded transportation cask from the reactor site to the CIS Facility for storage. At the CIS Facility the canisters are removed from the transport cask and inserted into a shielded transfer cask for relocation to the on-site subterranean UMAX VVM where the canister is lowered into place and covered with a top cover. The canisters will remain in the UMAX VVM until such time that the high level radioactive waste is transported to a deep geological storage facility.

The accident scenarios of interest to the facility are as follows:

- Fire
- Explosion
- Vehicle or Equipment Accidents
- Natural Events (tornados, lightning, earthquakes, etc.)

The Final Safety Analysis Report [Ref. 6] for the UMAX Canister Storage System (UMAX FSAR) provides the results of the evaluations performed to demonstrate that the HI-STORM system can withstand the effects of accident conditions and natural phenomena without the corresponding radiation doses exceeding the requirements of 10 Code of Federal Regulations (CFR) 72.106 [Ref. 2]. The accident events addressed include handling accidents, cask tip-over, fire, tornado, flood, earthquake, 100 percent fuel rod rupture, confinement boundary leakage, explosion, lightning, burial under debris, extreme environmental temperature, and blockage of Multi-Purpose Canister (MPC) basket air inlets.

The UMAX FSAR in conjunction with site specific evaluations demonstrate that the worst case scenario accident radiation dose rates at the site boundary do not exceed the limits permitted under the Environmental Protection Agencies Protective Action Guidelines (EPA PAG). This limits the emergency classification under NRC regulations to an Alert for all credible accident scenarios. This demonstrates that the dose requirements of 10 CFR 72.106 are satisfied.

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2.2 Detection of Accidents

Detection of accidents is dependent on personnel observation of triggered alarms in the primary alarm station. Accidents may also be detected by in-field personnel observation. Employees who detect a potential emergency shall notify his/her supervisor/manager and the Emergency Coordinator (EC) (or designee) immediately. Notification of CIS Facility Security in an attempt to notify the EC is acceptable. The notification is made in one or more of the following ways:

- Radio
- Voice
- Telephone
- Alarm Systems

The employee reporting a potential emergency is responsible (if it can be done safely) for obtaining initial information for the EC (or designee) in order to assess the degree of hazard to life, property and/or the environment. This information is used to make preliminary determinations of the necessity for declaration of an emergency and notification to regulatory agencies or to decide whether a request for assistance should be made to off-site agencies.

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3.0 CLASSIFICATION AND NOTIFICATION OF ACCIDENTS

3.1 Classification System

Emergencies will be classified according to the severity of events and the potential for impact on facility personnel, the general public, and the environment. Emergencies are classified as an Unusual Event or Alert. The criteria for each level and the expected response are included in Table 3.1A. Emergencies are classified as soon as possible to ensure adequate emergency response resources are available to protect personnel, the public and environment.

Emergency Response Plan Initiating Conditions for declaration of an Unusual Event or Alert at the CIS Facility are provided in Table 3.1B “CIS Facility Malfunction Initiating Condition Matrix”. The initiating conditions have been developed using the guidance provided by the Nuclear Energy Institute’s NEI 99-01 “Development of Emergency Action Levels for Non Passive Reactors”, revision 6 [Ref. 12]. Appendix C lists Emergency Action Levels for each Initiating Condition, which are also recommended by the NEI 99-01 guidance [Ref. 12]

3.2 Notification and Coordination

CIS Facility will notify authorities, including federal, state and local jurisdictions, as required, if an emergency occurs at the facility. Once the emergency is classified, notification will be made to off-site agencies as quickly as possible and within the time frames specified by this plan, by agreement, or by regulation. The CIS Facility EC will coordinate activation of the emergency plan, notifications, and response to an on-site event in accordance with this emergency plan.

3.2.1 Notice of Unusual Event

The purpose of declaring an Unusual Event is to notify the facility staff and ERO members of the event in order to bring them to a state of readiness to respond to further degradation. It also provides a systematic process of handling of Unusual Event information, decision-making, and notifications.

3.2.2 Alert

The purpose of declaring an Alert is to ensure that (1) emergency personnel are alerted and at their emergency duty stations to mitigate the consequences of the accident, (2) the emergency is properly assessed, (3) offsite officials are notified, and (4) steps can be taken to escalate the response quickly if necessary.

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3.2.3 On-site Notifications

CIS Facility will ensure prompt emergency response by the facilities ERO. The Site Emergency Director (SED) is ultimately responsible for managing the emergency response and will perform a complete recall of the ERO or appropriate elements within the ERO as required. The On-site Emergency Operations Center (EOC) shall serve as the single point of recall for the ERO. The SED may use any or all of the following systems to communicate the recall message:

- Facility Telephone
- Public Address System
- Electric Siren
- Intercom System
- Cell Phones/Reverse 911

3.2.4 Off-site Notifications

Emergencies involving increases in radiological dose is the primary concern at CIS Facility. Depending on the type of emergency encountered, the need for outside resources may be necessary to respond to natural phenomena, brush fires or medical emergencies, etc. The Site Emergency Director (SED) or designee, at their discretion will contact outside agencies for help in resolving the emergency. This request may include help from fire, law enforcement and/or ambulance service to the site. Potentially a request for external agency assistance may result in activation of the County EOC Facility depending on the event. The SED will be responsible for ensuring required off-site notification accuracy and timeliness.

3.3 Information to be Communicated

The SED or designee will provide clear, concise information to onsite personnel, the ERO, and offsite response organizations & agencies on the incident underway. To that end, the information from the ERO to the onsite and offsite staff and agencies will have the following attributes.

- The communications will be scripted to insure a clear description of the nature and seriousness of the incident.
- The information that will be communicated will include facility status, the nature of the incident the potential for or releases of radioactive or other hazardous materials, and recommendations for protective actions to be implemented by offsite response organizations if conditions warrant.
- Although not expected to require offsite response for any credible accident at the CIS Facility, if the need arises to issue a Protective Action Recommendation (PAR) the ERO will consult with the appropriate offsite organizations to ensure that it is the most practical and efficient course of action.

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- The emergency plan implementing procedures will contain preplanned protective action recommendations that could be made to the offsite organizations for postulated accidents.
- The emergency plan implementing procedures will instruct the ERO to make any protective action recommendations directly to State or local officials responsible for implementing the specific protective actions, if appropriate.
- The protective action recommendations will specify the size of the area where the actions are to be taken.
- A standard reporting checklist will be developed to facilitate timely notification and provide assurance that the information has been received by offsite response organizations and that it is periodically reaffirmed and updated with these agencies.
- The standard reporting checklist will be developed in cooperation with offsite officials, to ensure that it meets their information needs and that their personnel are trained to receive and relay such information.

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Table 3.1A		
EMERGENCY CLASSIFICATION		
Classification	Criteria	Response
Unusual Event	Events are in progress or have occurred which indicate a potential degradation of the level of safety of the facility or indicate a credible security threat to facility protection has been initiated. No increases of radiation dose rates requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.	Notify the facility staff and Emergency Response Organization (ERO) members of the event in order to bring them to a state of readiness to respond to further degradation. Provide systematic handling of Unusual Event information and decision-making.
Alert	Events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety of the facility or a security event that involves probable life-threatening risk to site personnel or damage to site equipment because of Hostile Action. Any increase in radiation dose rates are expected to be limited to small fractions of the EPA PAG exposure levels and not expected to require a response by an off-site response organization to protect persons off-site. An Alert requires mobilization of the On-site ERO, either in a standby mode that will activate some portions of the organization or full mobilization. However, an Alert may require off-site response organizations to respond to on-site conditions such as a fire or Hostile Action.	Activate Emergency Response Organization. Activate off-site response personnel, if required, or place them on stand-by. Conduct appropriate assessments. Mitigate the severity of the event or its consequences.

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Table 3.1B	
CIS FACILITY MALFUNCTION INITIATING CONDITION MATRIX [Ref. 12]	
Notice of Unusual Event	Alert
E- HU1 Damage to a Dry Shielded Canister CONFINEMENT BOUNDARY.	
H-HU1 Confirmed SECURITY CONDITION or threat.	H-HA1 HOSTILE ACTION is occurring or has occurred.
H-HU2 Seismic event greater than Operating Basis Earthquake levels.	
H-HU3 Hazardous event.	
H-HU4 FIRE potentially degrading the level of safety of the facility.	
	H-HA6 Primary Alarm Station evacuation resulting in transfer of plant control to alternate locations.
H-HU7 Other conditions exist which in the judgment of the Emergency Coordinator warrant declaration of an UNUSUAL EVENT (UE).	H-HA7 Other conditions exist which in the judgment of the Emergency Coordinator warrant declaration of an Alert.

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4.0 RESPONSIBILITIES

4.1 Normal Facility Organization

Normal Operations at the CIS Facility involve the receipt of spent fuel shipments from across the United States of America (USA). These shipments are expected to arrive by rail and be in the form of fuel assemblies packed and sealed in canisters that have been licensed for use by the NRC and are packed into a transport cask. Upon arrival, the rail shipment will be searched and then moved into the Cask Transfer Building. In the Cask Transfer Building the canister will be removed from the transport cask into an ISFSI compatible onsite transport cask where it will be moved over a vacant ISFSI storage location and lowered into its subterranean resting place and covered.

The day shift organization is expected to appear similar to that depicted in Figure 4.1. Emergency declarations at the CIS Facility can be made by the positions as listed in Table 4.1.

4.2 Onsite Emergency Response Organization (ERO)

In an emergency, the SED or his/her designee activates the ERP. Accordingly, the EC or designee is responsible for immediately directing and taking appropriate emergency response actions within the site boundary and for immediate notification to state and local emergency jurisdictions. The SED may delegate specific duties to other qualified personnel.

Elements of the ERO are:

- First Responders
- Site Emergency Director (SED)
- Radiation Safety Officer (RSO)
- Operations Manager
- Emergency Coordinator (EC)
- Security Manager
- Security Shift Supervisor
- Health and Safety Manager
- Logistics Member/Scribe
- Radiation Protection Technicians (RPT)
- Maintenance

4.2.1 Direction and Coordination

The overall responsibility for the direction and coordination of the Emergency response belongs to the SED. The SED or designee is the individual who is responsible for managing the activities outlined under this ERP and is responsible for maintaining and updating this ERP as information

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and conditions change. The SED delegates his duties to the on shift EC until the SED arrives on site to assume command and control of the event. The SED can be reached via telephone to assist and advise the duty EC of his recommendations.

For a list of Duties for the SED (or designee) see Section 4.3.3 below

4.2.2 Onsite Staff Emergency Assignments

The organizational position(s) assigned to the functional areas of emergency activity are listed in Table 4.2. Also, indicated in Table 4.2 is the assigned group, the basis for personnel assignment for both working and nonworking time periods, and the general description of duties, authority, and interface with other groups including outside assistance.

4.3 Emergency Program - Direction and Coordination

The facility personnel receive emergency specific training and are organized to respond to emergencies effectively. This response occurs at several levels as described in the following subsections.

4.3.1 First Responders

First responders are personnel most likely to discover an emergency. These personnel initiate the emergency response actions of the facility by notifying their supervisor/manager and the Emergency Coordinator (or designee). Personnel included in this group could be Operations personnel, RPT, Lab personnel etc. These personnel are trained so they can:

- Understand the risks presented by the hazardous and radioactive substances at the facility.
- Understand the potential outcomes associated with an emergency involving the hazardous and radioactive substances at the facility.
- Recognize the presence of hazardous and radioactive substances at the emergency scene.
- Identify the hazardous and radioactive substances involved in the emergency.
- Contain the release from a safe distance and prevent exposures to personnel.
- Utilize basic risk assessment techniques.
- Select and use appropriate personnel personal protective equipment.
- Understand the basic operational practices of the facility

4.3.2 ERO Members

Several persons within the organization acquire additional training so they can function in lead and supporting roles during the response to an emergency. This team corresponds to the function of Hazardous Materials Technicians and Hazardous Materials Specialists that are prescribed under

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the Occupational Safety & Health Administration (OSHA) Hazardous Waste Operations (HAZWOPER) Standard (i.e., 29 CFR 1920.120(q) [Ref. 4]).

Employees are selected for the emergency response organization based on knowledge, skills and abilities. These employees are given additional training facilitating the required skills that will allow them to perform safely as members of the ERO. Employees who are potential members of the ERO may be cross-trained in areas to allow flexibility in staffing of the teams. However, the staffing of the ERO will be determined by the EC. Multiple ERO members are on-site during operational hours at all times. The SED, RSO and other key ERO personnel are available by cell phone 24 hours a day.

4.3.3 Site Emergency Director (SED)

The SED, or designee, is the individual who is responsible for managing the activities outlined under this ERP and is responsible for maintaining and updating this ERP as information and conditions change. The SED delegates his duties to the on shift EC until the SED arrives on site to assume command and control of the event. The SED can be reached via telephone to assist and advise the on duty EC of his recommendations.

These duties include:

- Decision to declare an Unusual Event.
- Decision to escalate to an Alert
- Activation of onsite emergency response organization.
- Prompt notification of offsite response authorities to inform them that an Alert has been declared (normally within 15 minutes of declaring an Alert).
- Notification to the NRC Operations Center at 301-816-5100 immediately after notification of offsite authorities, and in any case within 1 hour of the declaration of an Alert. (See 10 CFR Part 20) for additional notification requirements.)
- Decision to initiate any onsite protective actions.
- Decision to request support from offsite organizations.
- Decision to terminate the emergency or enter recovery mode.

4.3.4 Emergency Coordinator (EC)

The EC or designee (see Table 4.1) is the on-site individual who is responsible for managing the activities outlined under this ERP. EC duties, authorities and responsibilities are presented in this section. The primary and alternate ECs are trained to the same standards. The EC, or alternate, is on the facility premises 24 hours a day. In the absence or unavailability of the primary EC, an alternate EC is designated as the primary EC under a delegation of authority memorandum. The ECs are thoroughly familiar with all aspects of this ERP, all the hazardous and radiological waste

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operations and activities at the facility, the location of all hazardous waste records within the facility and the facility layout. If so delegated, the EC may take on the responsibilities of the SED in addition to the responsibilities listed below.

When called to an emergency, the responsibilities of the EC are:

- Declaring an emergency
- Classifying emergencies
- Decisions regarding off-site assistance
- Activating the ERO
- Directing response activities
- Declaring a site evacuation
- Declaring an end to emergencies
- Returning authority for command and control of site activities back to Facility Management
- Emergency Reporting
- Post event assessment
- Recordkeeping

Upon arrival of the SED, the EC will conduct an orderly transfer of duties to the SED.

During the recovery phase, the EC or designee will assure that all recovered contaminated material is properly treated, stored or disposed. The EC or designee must ensure the response phase and recovery procedures are complete before any waste in the affected area is managed or treated.

4.3.5 Delegation and Assignment

The ERP identifies ECs who train to coordinate the response of the ERO to an emergency event. There will always be a delegated EC present at the facility when an event occurs.

The EC position meets the requirements of OSHA 29 CFR 1910.120(q) [Ref. 5] for an on-scene Incident Commander. Beyond acquiring the minimum skills for the first responder, and emergency response training of the emergency response organization, the EC or designee must have competency in the following areas:

- Implementation of the ERP
- Understand the risks presented by the hazardous substances present at the facility
- Interaction of emergency response at the facility with local and regional emergency response organizations
- Know and understand the importance of emergency decontamination procedures

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4.3.6 Authority

The EC has been granted the authority necessary to implement this ERP in the event of an emergency. These authorities include:

- Deploy equipment
- Direct company personnel
- Contact emergency response agencies
- Contact regulatory agencies
- Contract for commercial vendors
- Summon assistance from hospitals
- Shutdown operations and evacuate the facility

4.3.7 Health and Safety Manager

The Health and Safety Manager is responsible for:

- Identifying and evaluating hazards
- Providing directions with respect to safety of operations
- Providing directions for personal protective equipment in conjunction with the RSO

4.3.8 Radiation Safety Officer (RSO)

The RSO or designee is responsible for:

- Directing the RPTs
- Ensuring a contamination control point and radiation control area (RCA) boundary is established on the perimeter of the contaminated area
- Ensuring records are maintained for documenting personnel doses received during emergency operations
- Ensuring off-site response organizations have or are provided (if required) adequate dosimetry and briefings
- Ensuring a monitoring and decontamination station is set up to determine if personnel leaving the site were contaminated, exposed, or injured during cleanup of the radioactive materials release, and to ensure that contamination is not spread by such personnel
- Preparing reports as required
- Calculating potential off-site radiological doses

4.3.9 Security Supervision and Officers

Security Supervision and/or Officers are responsible for:

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- Controlling access to emergency scenes by off-site personnel
- Contacting the Sheriff's Department to provide armed deputies, if requested by the EC
- Performing certain EP support duties such as making internal and external notifications, personnel accountability, alarm response, etc.
- Trained and qualified Security Shift Supervisors may act as on shift EC for initial event response during nights, weekends and holidays.

4.3.10 Managers, Supervisors, and Staff

The Managers and Supervisors are responsible for:

- Area supervisors are responsible for overseeing evacuation from their work area
- Reviewing evacuation routes and expectations with employees
- Managers work with supervisors to select their designated locations, assembly points and evacuation route as directed by the EC
- Instructing employees on the evacuation protocol
- Assisting non-essential employees to designated areas of refuge and then to the exterior assembly area
- Managers, Supervisors and most employees will be active members of the CIS Facility ERO and hold active qualifications for assigned posts.

4.3.11 Local Off-site Assistance

Local Off-site agencies play a role if an emergency occurs at the CIS Facility. Listed below are certain events in which the local off-site organizations may assist the facility. Agreements reached with these organizations are presented in Appendix D.

Emergency Services

Lea County Emergency Management, located in Hobbs, New Mexico provides a variety of emergency services. This organization is responsible for planning the response to small and large-scale emergency situations for Lea County, New Mexico.

Fire and Explosion

The Maljamar Fire Department in Maljamar, New Mexico is located approximately 28 miles from the site. The Monument, New Mexico and the Eunice, New Mexico Fire Departments are located 36 miles and 38 miles respectively from the CIS Facility. Each of these departments are equipped to respond to structural fires, oil well fires, and chemical tank explosions.

Medical Care

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Carlsbad Medical Center, located in Carlsbad, New Mexico is the first choice for incidents involving radiologically contaminated individuals; unless life threatening injuries are present. Life threatening injuries would be treated at Lea Regional Medical Center or Permian Regional Medical Center.

Lea Regional Medical Center is located 36 miles to the east in Hobbs, New Mexico. The hospital is fully equipped to handle most types of emergencies and has a life flight helicopter available.

Both hospitals are trained to handle injury victims in the event of contamination with radioactive materials.

Ambulance

The City of Hobbs, New Mexico has ambulance service available for the CIS Facility. Ambulance services are capable of handling incidents involving radiologically contaminated individuals. Response time for medical assistance to the CIS Facility site is about 30 minutes.

Traffic Control

The Lea County Sheriff's department will provide traffic control and residential evacuation if required. The Sheriff's Department also provides 24-hour emergency dispatch service for all emergency response organizations.

*Note – For all other law enforcement responsibilities/capabilities, please consult the HI-STORE Safeguards Contingency Plan (HI-2177560) [Ref. 15] and Physical Security Plan (HI-2177556) [Ref. 14].

4.3.12 Activation of the ERP

The Emergency Response Plan will be activated for any declared Alert at the CIS Facility or earlier if in the judgement of the EC the situation is deteriorating towards an Alert condition.

The EC or designee is responsible for alerting local authorities to emergencies that may affect the environment or public safety outside of the facility. When the EC determines that an emergency exists, he/she will immediately:

- Determine if the emergency involves a loss of control or potential loss of control over hazardous or radioactive materials, thus requiring further classification as an Alert.
- Immediately notify appropriate local and state jurisdictions when emergency circumstances indicate potential off-site effects.

Activation of the ERP requires notification of the following:

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- Activation of the ERP for any reason is reported to the New Mexico Department of Homeland Security and Emergency Management, and New Mexico State Police.
- Immediately after notifying offsite response organizations, notify the NRC, as required by 10 CFR Part 72.32(a)(8), no later than one hour after declaration of an emergency.

Whenever an emergency notification is made, the following information will be provided:

- EC name and telephone number
- The facility name, location, and status
- The time and type of incident (e.g., radioactive release, fire)
- The type and quantity of material(s) involved, to the extent known
- The extent of injuries, if any
- The possible hazards to human health and the environment outside the facilityExtent of radioactive release to the extent known
- The possible hazards to human health and the environment outside the facility
- Recommended protective actions, if necessary

4.4 Coordination with Participating Government Agencies

Holtec will work to establish agreements with local, state, and federal government agencies as necessary for emergency response planning. Once these agreements have been put in place then detailed planning documents and operational procedures will be established to ensure agency capabilities and responsibilities are clear and emergency response measures are adequate for the CIS Facility operations.

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Table 4.1		
EMERGENCY DECLARATION AT THE CIS FACILITY		
Title	Emergency Response Assignment	On-shift or Call-in
Site Manager	Site Emergency Director (SED)	Day Shift/Call-in
Security Manager	Emergency Coordinator	Day Shift/Call-in
Operations Manager	Emergency Coordinator Backup	Day Shift/Call-in
Security Shift Supervisor	Emergency Coordinator Backup	On-Shift

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Table 4.2			
ON-SITE EMERGENCY STAFF ASSIGNMENTS			
Functional Area	Assigned Position	Basis of Assignment	Duties, Authority & Interface
Facility system operations	Operations Manager	Fuel Handling Operations Occur on Day shift only	Ensure adequate resources are available to mitigate emergency. Backup Executive Director (ED)
Fire control	Site Staff	First Responder Training	Evacuate Personnel from Area, Report Fire, Use local firefighting equipment
Personnel evacuation and accountability	Security	Access Control Leader	Account for personnel inside Protected Area.
Search and rescue operations	Security	Trained for search & rescue	Search & rescue as needed.
First aid	Site Staff	Employee Training	Administer basic first aid. Call for assistance.
Communications	Site Admin	ERO Training	Notify internal and external organizations as per Notifications procedure.
Radiological survey and assessment	RSO/RPT	Trained on Radiological Protection	Survey, assess, issue protective measure recommendations for radiological events.
Personnel decontamination	RSO/RPT	Trained on Radiological Protection	Direct actions for personnel decontamination
Facility decontamination	RSO/RPT	Trained on Radiological Decontamination	Direct actions for facility decontamination
Facility security and access control	Security	Responsible Organization	Maintain Access Control
Facility repair and damage control	Maintenance	Skills Training	Fix and repair damage
Post-event assessment	SED	Lead recovery effort	Recovery facility and assess event

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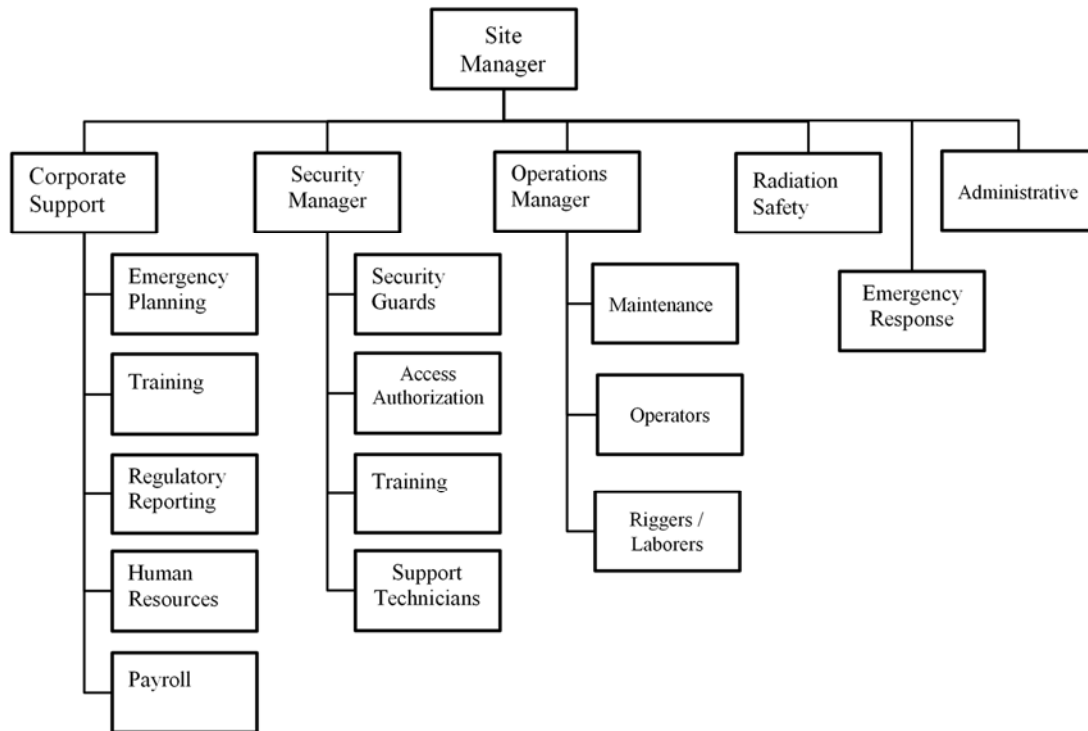


Figure 4.1: Conceptual CIS Facility Organization Chart

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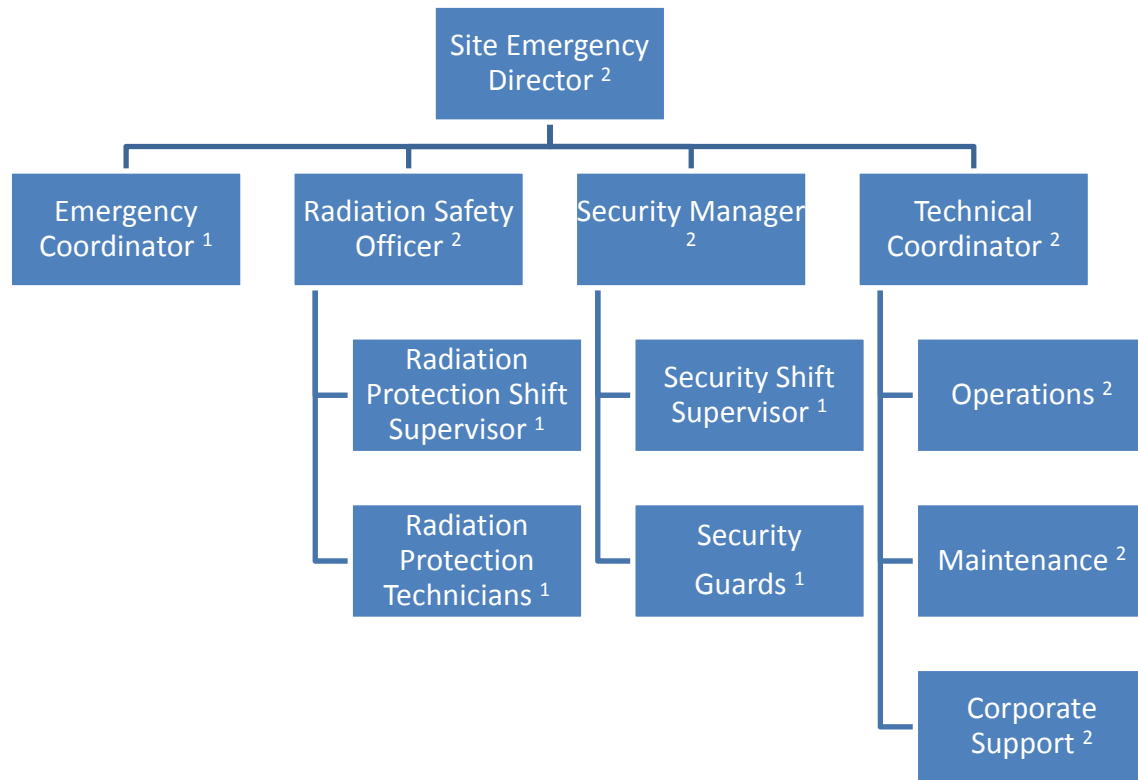


Figure 4.2: CIS Facility Emergency Response Organization

Note: (1) On-shift positions - minimum one on site at all times
 (2) Call-in Positions
 See Table 4.1 for EC augmenting positions

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5.0 EMERGENCY RESPONSE MEASURES

Consequence assessments include both initial and ongoing evaluations of the potential consequences of an accident/incident occurring at the CIS Facility site that could adversely affect on-site and off-site personnel. The emergency management program is commensurate with the hazards present and is consistent with a graded approach evaluation of those hazards. Initial assessments provide the technical basis on which emergency plans and procedures are based. On-going assessments use the same modeling tools and techniques, when performed during emergency response. On-going assessments are continually refined using real time monitoring data from field monitoring results.

5.1 Activation of Emergency Response Organization (ERO)

All CIS Facility personnel are responsible for reporting potential emergency conditions, events, and occurrences to the EC or designated alternate. Such emergency conditions, events, and occurrences are categorized and classified to ensure proper emergency response actions are taken and occurrence-reporting procedures are followed. The EC is responsible for categorizing operational emergencies. An occurrence determined to be an operational emergency is further classified as an Alert in those cases in which the release of a radiological or hazardous material is a potential or actual consequence of the emergency event. When emergency circumstances warrant, local and state jurisdictions will be notified.

Declaration of an emergency is the responsibility of the EC. An EC is on call 24 hours a day. Once it has been determined that an emergency exists, the EC activates the ERO. Under most circumstances, outside help is not summoned unless the emergency cannot be controlled by the CIS Facility ERO. The RSO is listed as an Alternate EC with the authority to assume control to institute corrective actions, including shutdown of operations when necessary in emergencies or unsafe conditions.

Whenever there is an emergency, the EC (or on-site designee when the EC is off-site) immediately activates the internal facility notification systems, when applicable, to warn all facility personnel. Whenever there is an emergency, the EC or designee is responsible for ensuring the character, exact source, amount and extent of any released material is immediately identified. This is accomplished by observation and by review of facility manifests and other facility records as required.

Whenever there is an emergency, the EC or designee immediately assesses hazards to human health or the environment that may result. This assessment considers both direct and indirect effects of the emergency (e.g., the effects of any generated toxic, irritating, or asphyxiating gases, or the effects of any hazardous surface water run-off from the water or chemical agents used to control fire- and heat-induced explosions).

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5.1.1 General Response Steps

The steps taken to implement the ERP are presented below:

- Discovery of the Event by Individual – Notification
- Note location of event and problem
- Inform the EC, Acting EC or designee - identification and assessment
- Investigate circumstances and condition of the event
- Immediately identify character, source, amount and the extent of any releases
- Ensure all personnel are protected against exposures or injury
- Assess the need for personnel evacuation

If hazards extend beyond facility boundaries or if otherwise warranted notify appropriate emergency service groups and:

- Establish a control area and mitigation plan
- Obtain medical attention for any injured persons
- For spills or material releases, contain and control
- Establish a Post-Emergency Recovery Plan
- Restrict access to affected areas
- Ensure an adequate recovery plan is in place and implemented before normal activities are resumed
- Notify public authorities that recovery operations are complete and normal operations will resume

5.1.2 Safety during Emergency Response

The EC or designee specifies the appropriate safety procedures to mitigate potential adverse effects for each category of hazards present at the scene. Appropriate personal protective equipment will be available to personnel involved in the emergency response effort.

5.1.3 Initial Response and Notification

The EC or a listed alternative is always on-call. Any personnel detecting a perceived emergency must immediately warn other employees working nearby and notify the EC. The EC then notifies other processing areas to the extent of the emergency, as deemed necessary. The EC evaluates the situation and determines whether to initiate special measures or to handle the situation through the normal line organization. If the EC determines special emergency measures are required, emergency alarm notification of personnel and evacuation procedures may be commenced.

Under normal circumstances, only Security Officers are on-site during weekends and holidays. CIS Facility Security Officers will be trained to assume the duties of initial response and

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notification during these times. Upon detecting a perceived emergency, Security personnel on duty will immediately inform the EC. After notifying the EC and receiving direction, Security Officers may call off-site emergency response organizations, as required.

5.1.4 Public Information Program

Depending on the severity of the event, the potential public impact, and the level of public interest, either the CIS Facility Site General Manager (who serves at the Public Information Officer [PIO]) or the Holtec Corporate Office are the only employees who have authority to disseminate emergency related public information. The EC will establish a liaison that will communicate real time emergency event information directly to the CIS Facility Site General Manager.

5.2 Accident Assessment

Radiological accidents at the CIS Facility are limited to:

- 1) A breach of a canister containing used nuclear fuel and the gases which would be emitted to the environment, and/or
- 2) An inadvertent exposure of an unshielded canister during transfer operations.

In either case the attendant RPT would collect real time data at or near the incident site and relay that data to the RSO and/or EC. A description of the types and methods of onsite and offsite sampling and monitoring can be found in Section 11.4 of the HI-STORE CIS Facility SAR [Ref. 11]. The RSO/EC would determine the appropriate stand-off distance from the incident to protect site workers and implement a recovery plan to mitigate the incident. Determination of projected offsite radiation exposures will be performed in accordance with written procedures. Specific training, drills, and exercises are provided on the potential site accidents to ensure the actions taken in an actual emergency are prompt and effective.

The post-emergency assessment provides the basis for decisions regarding re-entry, recovery, and the return to normal operations. The post-assessment is helpful for the analysis of actual accident conditions for the purposes of critique and lessons learned. Collection and retention of data compiled during the emergency, provides valuable assessment of the decisions and actions taken and may be required for investigation purposes.

5.3 Mitigating Actions

5.3.1 Mitigation of Fires

The UMAX Canister Storage System is a series of subterranean steel canisters that in turn contain canisters of spent fuel or other metals from formerly operating reactors. Other than being

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radioactive, these components in of themselves cannot catch fire and burn. Fires can be caused by fuel spills or brush fires around the property. Combustible materials controls will be in place to prevent the accumulation of trash or other combustible materials in the protected CIS Facility area. In no instance can a fire breach a stored canister and adversely affect its integrity.

In the event of a near site brush fire, the Lea and Eddy County Sheriff's Departments and/or the New Mexico State Police are responsible for directing traffic and limiting access of the general public to the affected area.

The Eunice Fire Department may also respond and is also known for fighting large fires and has worked with other firefighting teams in the field. Radiological response training will be offered to the Maljamar, New Mexico, Monument, New Mexico, and Eunice City Fire Department as a precaution.

CIS Facility emergency response personnel have the ability to handle small scale fires located within a confinement area. The Maljamar Fire Department and or the Monument Fire Department and or the Eunice Fire Department may be summoned if a fire is extensive, breeches a confinement barrier, or is too intense for CIS Facility employees to handle.

The fire protection systems are designed in accordance with National Fire Protection Agency (NFPA) 30 [Ref. 7] requirements. Each operational area also has standpipes (wharf hydrants) with standard hose connections and/or sprinklers. Each operational area is equipped with hand-held portable extinguishers.

CIS Facility has equipment available on-site to erect temporary berms across drainage ditches and around emergency areas as may be required for water control. After a fire has been extinguished, firewater is collected and sampled. The area that contained the fire is decontaminated if necessary and the rinse water is analyzed. If the water is contaminated, it may be treated on site per applicable permits, or the water may be taken off-site to an authorized Facility.

5.3.2 Mitigation of Spills

The vast majority of materials delivered to the CIS Facility is composed of radioactive, containerized, non-liquid solid wastes consisting of used commercial nuclear fuel assemblies and associated reactor internal components. These are not subject to any spill scenario as they are in sealed, dried canisters. Other hazardous materials may be used in small quantities during operations at the CIS Facility site. These materials (diesel fuel, cleaning agents, oils, etc.) if spilled will be cleaned up promptly. Any hazardous spill will be remediated according to all regulatory requirements. Most spills are mitigated and cleaned up following standard procedures and do not constitute an emergency. Significant spills are not expected at CIS Facility. In the unlikely event that a spill posed a potential threat to on-site personnel, the ERP would be initiated.

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5.3.3 Mitigation of On-Site Transportation Accidents

A vehicle accident may cause a fire or explosion due to rupture of the vehicle fuel tank, the spillage of liquid wastes, or mixing of incompatible wastes and/or release of hazardous and/or radioactive materials to the environment. Personnel selected for emergency response train to handle these types of emergencies. Portable fire extinguishers and extended pressurized water hoses are available throughout the site for such emergencies.

If an on-site accident involving contamination of property and facilities occurs, CIS Facility will deploy equipment to clean up the release and decontaminate the location. If an incident affecting incoming or outgoing CIS Facility materials occurs off-site, CIS Facility will, if requested, supply technical support along with monitoring equipment.

5.3.4 Mitigation of Natural Events

Evacuation and emergency response drills prepare the Facility employees to react to emergencies such as tornados. The Facility may be evacuated in advance of a tornado. In the event of a tornado where an evacuation cannot take place, waste is secured if possible and employees are directed to shelter in a substantial structure or building. Flash flooding in the Facility area is unlikely due to the relatively flat topography and absorbent native soils. During violent thunderstorms, personnel involved in working outside of an enclosed building are directed to shelter in a substantial structure or building until the storm passes. Transfer of containers between buildings is stopped and all employees are directed to remain indoors. Activities conducted within an enclosed building may continue.

5.3.5 Mitigation of Injuries

Potential of injuries during Facility emergencies include burns, cuts, broken bones and other serious physical conditions. ERO members train in first aid techniques. First aid kits are located in each operational area to help with the incidence of minor injuries. Minor injuries are evaluated and may be treated by trained personnel on site. Major injuries such as broken bones, major sprains, burns or other serious conditions are treated at the nearest medical facility as appropriate to the injury. Personnel who are chemically exposed or show signs of chemical exposure are removed from the contaminated area and transported to Lea Regional Medical Center or the Carlsbad Medical Center if necessary.

Radiological safety personnel are trained to control and mitigate radiological hazards. Injured personnel contaminated with hazardous or radioactive material and must be evacuated prior to decontamination. The injured personnel will undergo decontamination in accordance with the approved, facility specific, chemical/hazardous waste or radiation safety decontamination procedures, as appropriate.

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If a medical emergency involving radiologically contaminated individuals occurs and if the individuals cannot be decontaminated on-site or must be transported immediately due to life threatening injuries, trained CIS Facility employees will accompany the individuals to the treatment Facility and will assist in performing decontamination and contamination control activities. The primary treatment Facility for radiological contaminated individuals will be the Carlsbad Medical Center in Carlsbad, New Mexico due to its proximity to the Carlsbad Environmental Monitoring Research Center. The hospital emergency staff is trained by WIPP personnel to handle radioactive material incidents and have their own decontamination procedures. If life threatening injuries are present, the injuries always take precedence over choice of Facility.

Personnel who are severely injured and are radiologically contaminated may be covered with protective material and transported to the nearest medical Facility. Hospital personnel shall be alerted to the radiological contamination and shall employ contamination control practices during treatment of the injured. Radiological decontamination may involve removing contaminated clothing from the injured individual or sponging the individual with a wet sponge and detergent. Contaminated clothing is collected in an appropriate container, surveyed, and evaluated prior to disposal.

In the event of chemical or hazardous material contamination, medical personnel will be provided a copy of the safety data sheet (SDS) or other chemical information. Decontamination procedures may be similar to those for radiological contamination stated above. Emergency room personnel at local hospitals are trained to address chemical or hazardous contamination emergencies and will follow their own decontamination protocols.

5.3.6 Hostile Action Response

Hostile actions will be classified according to their threat level as Unusual Events or Alerts. Actions by the ERO will be coordinated with information on the nature of the event. If necessary, Site Security and or the SED will direct the ERO to the contingency area (see Section 6.1) if the location of the primary EOC is deemed to be unsafe. These and other actions will be taken as described in the Security Safeguards Contingency planning documents for the site.

5.4 Protective Actions

Protective actions are activities performed to prevent further damage to personnel and the environment after an emergency develops. Depending on severity and type, emergencies warrant different types of protective actions. The two most prevalent protective actions for CIS Facility personnel are sheltering and evacuation.

5.4.1 Onsite Personnel Evacuation and Accountability

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The EC, or designee, has the authority to order an evacuation of the site or individual buildings. The evacuation routes, on-site EOC, roles and responsibilities of all employees during an evacuation will be detailed in a site procedure. At the CIS Facility site, the following types of locations will be designated as emergency assembly and activity points:

Assembly Area: The Assembly Area for employees evacuating the site is important for personnel safety and for locating all personnel. If the site is evacuated, the initial Assembly Area is in the employee parking area unless otherwise specified by the EC.

Accountability: After CIS Facility Security, with concurrence from the EC has accounted for all employees and radiation safety personnel have monitored employees for potential contamination, employees may then proceed down the private access road to Highway. If the parking lot is impacted from the incident, the EC will direct personnel to an alternate location on-site. An assembly area will be designated for the CIS Facility upon completion of construction.

Protective actions that may be used in the event of an emergency include, but are not limited to:

- Personnel are notified of impending danger via Public Address announcement, telephone, email and radio broadcast
- Personnel are directed to shelter
- Site personnel evacuate from the affected area only
- Affected personnel evacuate to the assigned assembly point
- Personnel in vehicles are directed to remain in the vehicle, and personnel working outdoors are directed to take refuge indoors
- If a radiological release occurs, Radiation Safety personnel shall monitor all potentially contaminated persons

5.4.2 Use of Personal Protective Equipment and Supplies

All ERO personnel train in the use of appropriate personal protective equipment and supplies. Personal protective equipment and supplies used in emergencies are identical to those used in the course of CIS Facility day-to-day operations for limiting personnel exposure and contamination. The EC and RSO direct and specify the type of equipment used depending on the type and severity of the emergency.

5.4.3 Contamination Control Measures

Contamination control procedures for emergencies are identical to those used in the course of day-to-day operations for limiting personnel exposure and contamination. The EC and RSO direct and specify the methods to use depending on the type and severity of the emergency. Emergency eye washes are located in areas where chemical or material eye hazards could exist. For radiological

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contamination control, the designated personnel decontamination area is located just outside of the radiation control area. At the contamination control area, all contaminated workers must undergo decontamination prior to exiting to a clean area. Frisker stations are located at the exit of the decontamination station.

5.4.4 Shutdown of Operations

Limitations or discontinuances of certain operations may be required as a result of emergency conditions. Specifically, such action(s) may be necessary to:

- Prevent or control actual damage on-site or off-site
- Prevent or control potential damage on-site or off-site
- Protect site personnel
- Preserve public safety

There are two variations of limiting actions/discontinuances:

Temporary shutdown: Examples of temporary shutdown conditions are:

- Severe Weather: Tornado/tornado warnings, severe thunderstorms, heavy lightning, large hail, continuous rain, winter storms, severe winds
- Large fire/industrial accident with equipment or personnel disabling effects such that continued operations would subject the remainder of the Site or personnel to unnecessary danger.

Complete Shutdown: A complete shutdown of operations may occur in the event of a large-scale radiological or hazardous material spill/contamination. Shutdown operations are the responsibility of the affected building personnel. All operations personnel train to safely shutdown facilities and equipment they are qualified to operate. The EC or designee may direct temporary shutdowns and complete shutdowns.

5.4.5 Off-site Protective Actions

Off-site protective actions are not envisioned as necessary as a result of any incident at the CIS Facility. The facility receives used spent fuel assemblies and GTCC waste products in sealed canisters from nuclear facilities throughout the USA. This waste form is solid and in a stable configuration, not subject to spillage or dispersal into the environment. These canisters are removed from their shipping packaging, transported to a buried storage module, placed into that buried module and secured with a high integrity closure lid. Once in the storage module, no physical activities are performed on the stored canister during the storage period. In the unlikely event that some unforeseen incident results in radiation exposures in excess of the EPA PAG

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levels, the CIS Facility ERO will coordinate the appropriate level of protective actions personnel in any affected areas to further reduce any potential exposures.

5.5 Exposure Control in Radiological Emergencies

For events that cause an actual or projected radiological release, appropriate protective actions for on-site and off-site populations have been pre-determined based on thresholds called the EPA PAGs. A PAG is an exposure level or range beyond which protective action (an action to take to avoid or reduce the projected exposure) should be considered. The PAGs do not imply an acceptable level of risk for normal (non-emergency) conditions nor do they represent the boundary between safe and unsafe conditions. The PAG values are established to reflect a balance of the risks and costs posed to on-site personnel, public health and safety, and the environment by potential protective actions weighted against the benefits provided by these protective actions. Thus, in an actual emergency, protective actions may be taken in response to exposure levels below the applicable PAG if the situation is such that the potential benefits outweigh the associated risks and cost. Conversely, under certain circumstances (for example, evacuations in extremely inclement weather), protective actions may not be taken, even though the PAGs may be exceeded, because the benefits are not commensurate with the risks and costs associated with the protective action. Nevertheless, the PAGs provide a useful basis for planning.

The PAG thresholds of concern for CIS Facility are equal to the Early Phase PAGs established and summarized in Table 1-1 of the EPA's PAG Manual [Ref. 13]. The worst-case accident analysis of the CIS Facility operations results in a dose at the site boundary, which is a small fraction of that allowed under the lowest level of the EPA PAG Projected dose limit.

5.6 Radiation Protection Program

The on-site Radiation Protection program implemented during emergencies includes the following information:

- Methods to comply with exposure guidelines
- Identification of individuals, by position or title, who can authorize workers to receive emergency doses
- Procedures for permitting on-site volunteers to receive radiation doses in the course of carrying out lifesaving and other emergency activities
- Guidance for determining the doses and dose commitments from external radiation exposure and any internally deposited radioisotopes received by emergency personnel involved in any accidents, including volunteers and emergency workers from off-site support organizations who may receive radiation exposure while performing their duties at the licensee's Facility

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- Distribution of dosimeters, both self-reading and permanent record devices and means for assessing inhalation exposures
- Maintenance of dose and dose commitment records are for licensee and off-site support organization's emergency workers involved in any nuclear accident

A detailed description of the Facility Radiation Protection Program can be found in Section 11.4 of the HI-STORE CIS Facility SAR [Ref. 11].

5.7 Decontamination of Personnel

CIS Facility will have decontamination equipment at the Facility for use in the event that chemical or radiological decontamination practices are required in response to an emergency. Routine doffing of personal protective clothing is not emergency decontamination. Refer to approved personnel decontamination procedures for detailed radiological contamination response and documentation. Decontamination of radiological contamination will commence with dry methods in an RCA unless directed otherwise by the RSO.

First aid is the first priority for injured personnel – above decontamination. The emergency eye wash stations are intended for rinsing irritants following eye contamination with organic or corrosive liquids. 29 CFR 1910.151(c) that states "Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for the quick drenching or flushing of the eyes and body shall be provided within the work area for immediate use."

The RPT may respond to both radiological and chemical contaminations. Injured personnel that are contaminated and must be evacuated due to the severity of their injury are normally decontaminated before being evacuated from the site. Area and personnel decontamination will be performed in accordance with approved facility-specific radiation safety decontamination procedures. Decontamination may involve removing all contaminated clothing from the injured individual and dry removal/gentle sponging to remove the contamination with a wet sponge and mild detergent (radiological). All contaminated clothing is collected in a container and properly disposed.

If decontamination is not practical based on the condition of the injured, the individual is placed on plastic, life-sustaining care provided, and the individual is evacuated to the nearest/appropriate medical Facility where they are treated and hospital personnel employ contamination control practices. Medical personnel should be provided a copy of the SDS with chemical contamination. Hospital personnel are offered training in decontamination techniques and requirements, and CIS Facility radiation safety personnel will accompany the individual(s) and assist hospital personnel in decontamination activities. Conduct all personnel radiological decontamination in accordance with approved CIS Facility standard Radiation Safety procedures.

As an additional service to assist the local hospitals, the RPT collects and properly disposes of all contaminated (chemical or radiological) materials that may have been generated by treating the

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injured personnel. This may include clothing, bandages, cotton swabs, paper, plastics, etc. The same is true for any waste that may be generated by the ambulance service. The RPT also assures that the emergency rooms or any other areas that may have been contaminated by the injured personnel are decontaminated.

5.8 Medical Treatment and Transportation

OSHA approved first aid stations will be located, at a minimum, in the following areas:

- Administration Building
- Security Building
- Cask Transfer Building

The primary emergency treatment area will be located in the lunchroom in the Administration Building where all emergency treatment equipment and supplies, including one of the defibrillation machines are centrally located. The Administration Building will be used for all emergency treatment situations unless the nature of the emergency prevents it, in which case one of the first aid station locations will be used as an alternate.

The primary treatment facilities for radiological contaminated individuals will be Carlsbad Medical Center in Carlsbad, New Mexico, and/or Lea Regional Medical Center in Hobbs, New Mexico. The emergency staff at the hospital has been trained to handle radioactive material incidents and have their own decontamination procedures.

5.9 Emergency Planning Zone (EPZ)

Based on the potential consequences of postulated emergencies, the EPZ for the CIS Facility has been defined as the Owner Controlled Area.

The size of the EPZ is sufficiently large that:

- Detailed planning within the EPZ provides both an adequate basis for responding to all reasonably credible accidents and a substantial base for the expansion of response efforts in the event that this proves necessary by CIS Facility, State of New Mexico, local agencies and other organizations responsible for off-site emergency response.
- Projected maximum doses resulting from credible accidents within the site will not require protective actions to be taken outside the EPZ.

The offsite response organizations will provide the public with information on operational emergencies at the CIS Facility and, based on inputs from the site and regulatory agencies, may recommend public protective actions, such as sheltering or evacuation.

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5.10 Downgrade and Termination

Emergencies, once categorized, shall be reviewed periodically to ensure classification is commensurate with response activities. If the protective action recommendation is modified or lifted, notification will then be transmitted to all activated government agencies.

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6.0 EMERGENCY RESPONSE EQUIPMENT AND FACILITIES

6.1 Emergency Operations Center (EOC)

The EOC is the location having appropriate communications and informational materials to carry out the assigned emergency response mission. The primary EOC is the Conference Room located in the Administrative Building within the controlled area boundaries of the Facility.

When activated, the EOC has the following communications, accident assessment, and equipment capabilities:

- Radio equipment to monitor and communicate on all radio nets used at the site
- Overhead video capabilities for displaying information to occupants of the EOC
- A public address system for announcements, status reports and briefings to be heard by all EOC personnel
- An established phone line for communicating with off-site agencies
- Computer terminal with Hotspot software and access to meteorological tower and waste tracking recordkeeping data

The EC or RSO will be responsible for determining the severity of the incident. Though unlikely, the RSO or designee will monitor for conditions that may require the evacuation of the EOC. If the EOC is evacuated, the main conference room of the Security Building is designated as the contingency area for emergency response operations. This room is equipped with the same capabilities listed above.

6.2 Communications Equipment

The CIS Facility telephone system will serve as the primary means for communication. Backup communications will include radios, runners or other suitable means. The telephone system will be utilized to notify the EC that an incident has occurred. The following may be used as a primary or backup means of communications:

- Facility Telephone
- Site Public Address System
- Electric Horns
- Intercom System
- Cell Phones
- On-Site Radio Broadcast
- Dedicated EOC E-mail
- Reverse 911 calls to ERO

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The communication system, consisting of telephones, mobile phones, radios or intercom systems are used to summon first aid and security. A communication system is located in every storage or treatment area. A radio is used within the Facility. Mobile phones are also used to contact the local emergency response agencies in case all power and telephone service is lost. All communications equipment will be tested at least quarterly.

6.3 Emergency Equipment

The CIS Facility ERP is based on the philosophy that the Facility should be as self-sufficient as possible in handling on-site emergency situations. The facilities that serve in various capacities during an emergency situation are discussed in the following sections. Emergency equipment, including communications and information handling and display equipment, used or issued during emergency operations varies depending on each situation. The equipment contained in the Facility will also vary depending on the operations performed and potential emergencies that can occur.

The Facility will be equipped with all necessary communication and emergency response equipment required to respond to foreseeable emergencies including the following:

- Internal and external communication and alarm systems capable of providing immediate and highly audible emergency instruction and warning
- A telephone or other communication device available in all areas of operation that is capable of calling emergency assistance from in-house emergency response organization
- Adequate volumes of water to supply water hoses, automatic sprinklers and water spray systems
- Portable fire extinguishing systems including those using foam, inert gases or dry chemicals
- Portable spill control equipment and decontamination equipment

All emergency response equipment and communication systems will be tested as required by the equipment specifications to assure proper function at all times. Wherever radioactive material is handled, RPT personnel will be monitoring the area for indications of abnormal conditions.

A sufficient quantity of emergency response equipment will be maintained on-site in order to adequately respond to emergencies resulting from Facility operations. There will be several decontamination kits on-site. These kits will be inventoried on a monthly basis to meet the minimum equipment requirements. All applicable OSHA regulations, NFPA, National Electric Code, and National Fire Code will be followed in regard to location, testing, and maintenance of emergency equipment.

Due to the potential for radiological consequences during emergency situations, the Radiological Team Leader on the ERO has the responsibility to obtain calibrated and response checked count rate and dose rate instrumentation when responding to emergencies.

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On site Communication equipment used for emergency includes telephone land lines, wireless cell phone, satellite Wi-Fi, onsite public address system, hand held & console radios as well as electronic social media communications (Twitter, Facebook, etc.).

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7.0 MAINTAINING EMERGENCY PREPAREDNESS CAPABILITY

7.1 Written Emergency Plan Procedures

All information (emergency contact lists, equipment lists, action levels, etc.) necessary to implement this Plan will be included in a Site Emergency Procedure. This procedure will provide details for contact information and the availability of equipment. This procedure will be continually updated as information and conditions change. Copies of this procedure are to be located in the EOC, the Administration Building and the Security Building for use by the EC and the ERO.

All Emergency Response documents are approved and controlled in accordance with standard CIS Facility policy and procedures. Changes and updates to these documents can occur for the following reasons:

- Changes to emergency organizational structures
- Changes made in site operations that could impact the site emergency response model
- The Facility permits and/or licenses are revised
- The Facility operations change in a way that alters the Plan
- The ERP underperforms or fails in an emergency drill

Changes to this ERP and all Site Emergency Procedures are made in accordance with the Holtec QA program and 10 CFR 72.44(f). Written Emergency Procedures will be maintained and updated per 10 CFR 72.32(a)(14) [Ref. 2].

7.2 Training

It is the policy of CIS Facility to provide training to its personnel and to maintain emergency management response elements at appropriate readiness levels.

7.2.1 On-site Employee Training

General employee training is provided to all Facility employees who may have to take protective actions (e.g., assembly, evacuation) in the event of an operational emergency. Specialized training is provided to personnel directly involved in emergency response actions (e.g., ECs, ERO personnel, RPTs, etc.).

Training objectives are to:

- Instruct personnel regarding their responsibilities during an emergency

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- Inform personnel of any weaknesses detected during drills and exercises, changes to plans and procedures, lessons learned from emergencies at the Facility and training needed to remedy these situations
- Provide training based on employee and emergency responder tasks to be performed during an emergency

7.2.2 Emergency Response Personnel Training

ERO training is completed in accordance with requirements listed in HI-STORE CIS Facility Training and Qualification Program [Ref. 9]. Emergency response employees training includes but is not limited to Radiation Worker II, 24-hour HAZWOPER Training, how to use personal protection equipment (respirators, eye and ear protection, breathing apparatus, protective clothing) and how to perform basic first aid. Emergency response personnel are not certified fire fighters but do understand the correct methods and techniques for eliminating and responding to fire emergencies. Drills and exercises are part of the training curriculum.

At least one employee from each operational area is trained for emergency response. This ensures that at least one member of the emergency response organization can describe the waste types and hazards associated with the operational area. After the employee is qualified for emergency response activities, the employee must attend required refresher courses.

7.2.3 Off-site Response Teams

The staff at Lea Regional Medical Center in Hobbs, New Mexico and Carlsbad Medical Center in Carlsbad, New Mexico are trained to handle injury victims in the event of contamination with radioactive materials. Depending on the type of injury and contaminate of concern, the RSO and/or EC will determine where injured personnel will be sent. The Permian Regional Medical Center staff is trained on how to handle various chemicals and hazardous materials generated by the hospital. This basic training enables the staff to read and understand SDS and the hazards involved with hazardous materials. The Permian Regional Medical Center Risk Management Supervisor educates hospital staff concerning hazardous materials and standard decontamination practices. However, the Permian Regional Medical Center does not have a formal hazardous materials treatment unit to care for those individuals who may be overexposed or contaminated by hazardous materials. Permian Regional Medical Center staff employs the standard decontamination practices used throughout the health care system including rinsing the affected areas with water for fifteen minutes unless the contaminant is water reactive.

As part of the assistance agreement between the CIS Facility and Lea Regional Medical Center, Permian Regional Medical Center and Carlsbad Medical Center if any person has been exposed to hazardous materials at the CIS Facility, all information regarding the specific material will be forwarded to the hospital. The Health and Safety Manager, Radiation Safety Officer, or designee

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may also ride with injured personnel to a medical Facility to explain the type of waste the individual has come in contact with to medical professionals.

7.3 Drills and Exercises

Emergency drills and exercises are conducted systematically utilizing a “building block” concept to maintain a high state of emergency readiness, improve response capabilities and enhance worker safety through protective actions. The methodology includes classroom training; team and site-level drills and full-scale exercises that may include external agencies.

The goal of drills and exercises is to develop, maintain and demonstrate skills, expertise, and emergency response capabilities of the CIS Facility ERO and site populace. Additionally, drills and exercises build teamwork, trust and confidence.

In support of the proficiency goal, drills and exercises may:

- Reveal planning weaknesses
- Reveal resource gaps
- Improve coordination
- Clarify roles and responsibilities
- Improve individual performance and experience
- Improve operations
- Improve emergency decision making and planning skills
- Improve effectiveness and skills of the ERO
- Validate adequacy of facilities, equipment, plans, and procedures

Drills and exercises will be used as a unifying force between various emergency response units. Federal, state, and county emergency response units will be encouraged to participate in certain Facility exercises. Exercises and drills afford an opportunity to involve off-site agencies. These agencies and related personnel will be involved as much as possible to build the interactive skills of emergency response personnel.

Site-level drills involve multiple response organizations and are designed to train responders on various categories of large-scale events (e.g., fire, explosion, natural disasters, large chemical or radiological spills, or physical assault on the site) requiring practical teamwork. The goal of the emergency exercise is to validate emergency response capabilities of the Site’s emergency response personnel and the general site populace.

Exercises are conducted to ensure that proficiency is achieved and maintained by all personnel. Of note is the process of identifying, resolving and verifying effective resolution of emergency response findings.

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Semiannual communications checks with offsite response organizations and biennial onsite exercises to test response to simulated emergencies shall be conducted. Radiological/Health Physics, Medical, and Fire drills shall be conducted annually. Semiannual communications checks with offsite response organizations must include the check and update of all necessary telephone numbers.

The CIS Facility ERO will be fully exercised in those drills. Off-site response organizations will be invited to participate in the drills and exercises. Participation of off-site response organizations in drills and exercises, although recommended, is not required. CIS Facility will critique each drill and exercise using individuals not having direct implementation responsibility for the plan. Drill and exercises are evaluated in accordance with the implementing procedures for Emergency Response Training and Drills. Critiques of exercises will evaluate the appropriateness of the ERO, emergency procedures, facilities, equipment, training of personnel, and overall effectiveness of an incident response. Deficiencies found by the drill and exercise evaluations will be corrected utilizing the CIS Facility corrective action process.

7.4 Independent Audit

The Emergency Response Program will be audited annually by qualified staff. Included in this review will be the emergency plan and its procedures; training activities; emergency facilities, equipment, and supplies; and records associated with off-site support agency interface. This review is performed to ensure the overall emergency preparedness program is being adequately maintained for its intended use. The Individual(s) performing the review will not have direct responsibility for implementing the emergency response program at CIS Facility.

7.5 Maintenance and Inventory of Emergency Equipment, Instrumentation, and Supplies

Frequent inspections under the CIS Facility Health and Safety program ensure that the equipment and instrumentation are in good working condition and that an adequate stock of supplies is maintained. A quarterly inventory will be conducted to ensure all emergency equipment and supplies are intact and in good operating condition, including instrumentation for operation and calibration, demand respirators, self-contained breathing apparatus, fire-fighting equipment and gear, and supplemental lighting. Timely corrective actions are to be taken when deficiencies are found during these checks.

7.6 Letters of Agreement

Letters of agreement (Appendix D) for the CIS Facility from law enforcement and medical assistance providers describe their capabilities to evaluate and treat injuries from radiation, radioactive materials and other hazardous materials used in conjunction with a radioactive materials event.

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Upon request, CIS Facility will provide training for physicians that will include types of radiation, radiation detection and risks, signs and symptoms of radiation exposure, contamination control and methods of decontamination. The length of training will range from one to four hours depending on personnel knowledge and experience and previous training. Letters of agreement will be reviewed annually and renewed at least every 4 years.

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8.0 RECORDS AND REPORTS

Copies of this ERP and associated implementing procedures are to be controlled through the site's document control system. A copy of this ERP will be maintained at the Facility and will be provided to all local police departments, fire departments, hospitals and local emergency response teams that may be called upon to provide emergency services. The ERP will also be provided to all site personnel responsible for its implementation. When the ERP is amended for any reason, each amended section will also be submitted to appropriate agencies or emergency response authorities and to the CIS Facility site personnel responsible for its implementation.

8.1 Records of Incidents

Requirements for reporting and recording incidents of abnormal operation, equipment failure and accidents that led to a Facility emergency will be included in the CIS Facility Emergency Plan implementation procedures. These reports will be completed and maintained by the EC and will be retained as Quality Assurance records.

8.2 Records of Preparedness Assurance

All of the following additional records will be maintained and controlled through the site's document and records administration system:

- Training and retraining (including lesson plans)
- Drills, exercises and related critiques
- Inventory and locations of emergency equipment and supplies
- Maintenance, surveillance, calibration and testing of emergency equipment and supplies
- Agreements with off-site support organizations
- Reviews and updates of the emergency plan
- Notification of all personnel and off-site agencies affected by an update of the plan or its implementing procedures
- Records of quarterly communication checks with the off-site responding organizations
- Audit Results
- Regulatory Inspection Results

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9.0 RECOVERY AND FACILITY RESTORATION

Based on the nature of potential emergency events at CIS Facility, the response phase to an emergency will normally be very short when compared to the recovery phase. Recovery is defined as the actions taken, after the Facility has been brought to a stable or shutdown condition, to return the site to normal operation. Recovery is event dependent. As a result, recovery planning is initiated in the early stages of emergency response and the Recovery Plan is produced only after the consequences of a specific event are reasonably well understood.

9.1 Re-entry

Re-entry is a planned activity to accomplish a specific objective set by the EC, conducted prior to termination of emergency response, which involves re-entering a Facility or affected area that has been evacuated or closed to personnel access during the course of the emergency. Re-entry activities are to be carried out properly and safely. All re-entry actions conducted prior to the termination of the emergency must be authorized by the EC. Reentry shall be made with the utmost care given to health and safety of all emergency responders. Re-entry operations shall use radio communications and/or the "buddy system" for safety. After a Facility has been brought to a stable or shutdown condition, recovery actions are those taken to return the Facility to normal operation.

Before the initial re-entry, the following considerations shall be included in the planning:

- Assessment of hazardous material surveillance data to determine buildings potentially affected
- Review of exposure histories of personnel required to participate in re-entry operations
- Determination of equipment adequacy for monitoring and survey instrumentation
- Review of survey team plans to include:
 - Anticipated contamination levels
 - Survey equipment required
 - Shielding requirements and availability
 - Personal protective clothing and equipment required
 - Access control procedures including exposure control limits and personnel dosimetry requirements
 - Decontamination requirements
- Communications requirements Re-entry teams will be tasked with as many of the following:
 - Determine the initial required recovery operations including personnel rescue
 - Perform hazard, casualty, or damage assessment
 - Conduct comprehensive surveillance of facilities
 - Isolate and post areas
 - Assess conditions of building equipment and structures
 - Re-establish building security
 - Restore or operate equipment (as qualified) to provide vital services for the building

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- Perform materials control and accountability functions (as qualified)

Re-entry will include the use of appropriate protective clothing and respiratory protection and shall include specific criteria for aborting re-entry.

9.2 Recovery

Recovery is the final phase of the emergency management cycle. Recovery continues until all systems return to normal or near normal. The recovery process will be addressed at the time of the incident. It will be situation dependent in establishing the restoration to a safe pre-emergency environment. The applicable Director of Operations, or his / her designee, will serve as the Recovery Manager. Recovery team(s) will be established by the Recovery Manager to restore all vital systems back to normal operation. Examples of these systems include water, electrical power and communications. Some of these systems will be restored shortly after the accident/incident and may not be included in the recovery process.

Recovery includes those actions necessary to return an incident and the surrounding environment to pre-emergency conditions. Exposure levels are established for estimating dosage and for protecting workers and the general public from hazardous exposure during recovery activities. The EC is responsible for determining when an emergency situation is sufficiently stable to enter the recovery phase. The EC, through the PIO, disseminates information regarding the relaxation of public protective actions. The recovery organization develops and coordinates plans and schedules for recovery operations.

The CIS Facility Site Manager shall ensure the following items are addressed prior to initiating the Recovery Plan:

- Recovery strategy
- Recovery tasks and assignments
- Regulatory notifications and follow-ups
- Insurance and risk management notification
- Logistical support needs
- Off-site logistical support needs
- Appointment of a Recovery Manager

9.3 Reporting and Investigating Incidents

The facility utilizes procedures for both the reporting and investigating of incidents. CIS Facility procedures for Incident Reporting and Investigation establish uniform guidelines to ensure incidents are evaluated and controls are implemented to reduce or prevent future occurrences. Site Emergency Response procedures prescribe actions emergency response personnel take when responding to emergencies at the CIS Facility.

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HI-STORE CIS Facility Emergency Response Plan**10.0 COMPLIANCE WITH COMMUNITY RIGHT-TO-KNOW ACT**

The CIS Facility will certify it has met its responsibilities under the Emergency Planning and Community Right to Know Act of 1986, Title III, Pub.L.99-499 [Ref. 10] with respect to hazardous materials at the Facility prior to operations.

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11.0 REFERENCES

1. NRC, 10 CFR 72 Certificate of Compliance No. 1040, Amendment No. 2, issued to Holtec International, Effective December 7, 2016, including attached Appendix A - Technical Specifications for the HI-STORM UMAX Canister Storage System and attached Appendix B - Approved Contents and Design Features for the HI-STORM UMAX Canister Storage System, with accompanying NRC Safety Evaluation Report.
2. 10 CFR Part 72, Licensing Requirements for the Independent Storage of Spent Nuclear Fuel, High-Level Radioactive Waste, and Reactor-Related Greater Than Class C Waste.
3. 10 CFR Part 20, Standards for Protection Against Radiation.
4. OSHA Regulations, 29 CFR Part 1920, Procedure for Variations from Safety And Health Regulations Under the Longshoremen's and Harbor Workers' Compensation Act.
5. OSHA Regulations, 29 CFR Part 1910, Occupational Safety And Health Standards.
6. Holtec International, Holtec Final Safety Analysis Report on the HI-STORM UMAX Canister Storage System, Holtec Report HI-2115090, Revision 3, June 29, 2016.
7. National Fire Protection Association, NFPA 30, Flammable and Combustible Liquids Codes.
8. 10 CFR Part 73, Physical Protection of Plants and Materials.
9. Holtec International, Holtec International & Eddy Lea Energy Alliance Underground Consolidated Interim Storage Facility - Training and Qualification Program, Report HI-2177562, Latest Revision
10. Emergency Planning and Community Right to Know Act of 1986, Title III, Pub.L.99-499.
11. Holtec International, Holtec Final Safety Analysis Report on HI-STORE CIS, Holtec Report HI-2167374, Latest Revision
12. Nuclear Energy Institute, "Development of Emergency Action Levels for Non Passive Reactors", NEI 99-01, Revision 6, November 2012
13. "PAG Manual: Protective Action Guides and Planning Guidance for Radiological Incidents" Office of Radiation and Indoor Air Radiation Protection Division, USEPA, 2017
14. Holtec International, Holtec International & Eddy Lea Energy Alliance (ELEA) Underground Consolidated Interim Storage Facility - Physical Security Plan, Holtec Report HI-2177559, Latest Revision
15. Holtec International, Holtec International & Eddy Lea Energy Alliance (ELEA) Underground Consolidated Interim Storage Facility – Safeguards Contingency Plan, Holtec Report HI-2177560, Latest Revision

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HI-STORE CIS Facility Emergency Response Plan**APPENDIX A - ACRONYMS**

CEDE	Committed Effective Dose Equivalent
CFR	Code of Federal Regulation
CIS FACILITY	Consolidated Interim Storage Facility
EC	Emergency Coordinator
ED	Executive Director
EOC	Emergency Operations Center
EPA or USEPA	Environmental Protection Agency
EPZ	Emergency Planning Zone
ERO	Emergency Response Organization
ERP	Emergency Response Plan
GTCC	Greater Than Class C
HAZWOPER	Hazardous Waste Operations
HI-STORM UMAX	Holtec International Storage Module Underground MAXimum Capacity
ISFSI	Independent Spent Fuel Storage Installation
NFPA	National Fire Protection Agency
NRC	Nuclear Regulatory Commission
MPC	Multi-Purpose Canister
OCA	Owner Controlled Area
OSHA	Occupational Safety & Health Administration
PAG	Protective Action Guide
PAR	Protective Action Recommendation
PIO	Public Information Officer
RCA	Radiation Control Area
RPT	Radiation Protection Technician
RSO	Radiation Safety Officer
SED	Site Emergency Director
SDS	Safety Data Sheet
SNF	Spent Nuclear Fuel
USA	United States of America
VBS	Vehicle Barrier System
VVM	Vertically Ventilated Module
WIPP	Waste Isolation Pilot Plant

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APPENDIX B - DEFINITIONS

Agency - Any organization that acts in the place of a government and by its authority (e.g., the Federal Emergency Management Agency is an agency of the Federal Government).

Alert - An Alert is an emergency class within the operational emergency. Events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety of the facility or a security event that involves probable life-threatening risk to site personnel or damage to site equipment because of hostile action. Any increase in radiation dose rates are expected to be limited to small fractions of the EPA PAG exposure levels and not expected to require a response by an off-site response organization to protect persons off-site. An Alert requires mobilization of the On-site ERO, either in a standby mode that will activate some portions of the organization or full mobilization. However, an Alert may require off-site response organizations to respond to on-site conditions such as a fire or Hostile Action.

Consequence Assessment - A consequence assessment is the evaluation and interpretation of radiological or other hazardous materials measurements and other information to provide a basis for decision-making.

Corrective Actions - Corrective Actions are measures taken to terminate or mitigate the consequence of an emergency at or near the source of the emergency.

Dosimetry - The theory and application of the principles and techniques involved in measuring and recording radiation doses.

Drill - A supervised, hands-on instruction period intended to test, develop, and/or maintain a specific emergency response capability. A drill is often a component of an exercise.

Emergency - An emergency is the most serious event and consists of any unwanted operational, civil, natural-phenomenon, or security occurrence that could endanger or adversely affect people, property, or the environment.

Emergency Equipment - Any equipment that may be required to measure, control, or mitigate the consequences of an emergency situation.

Emergency Action Level - Specific, predetermined, observable criteria used to detect, recognize, and determine the emergency class of Operational Emergencies. An EAL can be an instrument reading, an equipment status indicator, a measurable parameter for Facility or off-sitemap discrete, observable event, results of analysis, or another observed phenomenon that indicates entry into a particular emergency class.

Emergency Class - The class further differentiates an emergency by the degree of severity, depending on the actual or potential consequence of the emergency situation. For the Operational Emergency subcategories, the classes are: Notice of Unusual Event, and Alert.

Emergency Coordinator - The EC directs initial emergency response at the Facility and is responsible for overall control, mitigation, and recovery from emergency events until such time that the Site Emergency Director (SED) assumes command and control of the emergency response.

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Emergency Management - Elements of Emergency Management include the development, coordination, and direction of planning, preparedness, and readiness assurance activities.

Emergency Operations Center - A central Facility from which management and support personnel carry out coordinated emergency response activities. The EOC may be a dedicated Facility or office, conference room, or other pre-designated location having appropriate communications and informational materials to carry out the assigned emergency response mission. EOC is located, when possible, in a secure and protected location.

Emergency Management Plan - A brief, clear and concise description of the overall emergency Response Organization, designation of responsibilities, and procedures, including notifications, involved in coping with any or all aspects of a potential credible emergency.

Emergency Planning Zones - Off-site zone established as a contingency for planning in the event of a release of hazardous materials.

Emergency Response - Emergency Response Actions encompass implementation of planning and preparedness during an emergency involving the effective decisions, actions, and application of resources that should be accomplished to mitigate consequences and recover from an emergency.

Emergency Response Organization - The Emergency Response Organization consists of a designated group(s) of personnel responsible for coping with and minimizing or mitigating the effects of any emergency.

Emergency Response Planning Guidelines - A hazardous material personnel exposure level or range which, when exceeded by a short term or acute exposure, may cause irreversible or other serious health effects in humans. The ERPGs are approved by a committee of the American Industrial Hygiene Association.

Essential Personnel - Personnel who have assigned duties that prevent their immediate departure from the site during an evacuation.

Evacuation - An evacuation of personnel from all areas of the site within the secured, fenced boundary.

Exercise - A scheduled and planned large-scale activity that tests the integrated capability and most aspects of the emergency management program associated with a particular Facility

Federally Permitted Release - Any release that satisfies the definition of "federally permitted release" as stated in 40 CFR 302.3.

Hazard Assessment - Used as the foundation for emergency planning purposes; includes the identification of any hazards and targets unique to a Facility, analyses of potential accidents or events, and evaluation of potential accident or event consequences.

Hazardous Materials - Any solid, liquid, or gaseous material that is toxic, flammable, radioactive, corrosive, chemically reactive, or unstable upon prolonged storage in quantities that could pose a threat to life, property, or the environment. This definition is an omnibus term used to include both "hazardous materials" as defined by the Hazardous Materials Transportation Act and "hazardous substances" as defined by Comprehensive Environmental Response, Compensation, and Liability

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Act.

Hazardous Substances - Any pollutant identified by the Federal water pollution or hazardous air pollution rules, or the Toxic Control Act; any other substances the EPA designates as posing a substantial danger when released into the environment.

Hazardous Waste - Those solid wastes designated by Occupational Safety and Health Administration 40 Code of Federal Regulations 261 due to the properties of ignitability, corrosivity, reactivity, or toxicity.

Health Physicist - A health field professional whose area of expertise deals with radiation protection.

Incident - An occurrence that requires action by the Emergency Response Organization.

Ingestion Exposure Pathway - The pathway in which exposure occurs after ingestion of contaminated water or foods such as milk, fresh vegetables, or aquatic foodstuffs.

Non-Essential Personnel - Non-essential personnel are site personnel whose assistance has been deemed unnecessary to mitigate the emergency by the EC.

Notice of Unusual Event - An Alert is an emergency class within the operational emergency. Events are in progress or have occurred which indicate a potential degradation of the level of safety of the facility or indicate a credible security threat to facility protection has been initiated. No increases of radiation dose rates requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.

Safety Data Sheets - Written information provided by manufacturers and compounders (blenders) of chemicals, with minimum information about: chemical composition, physical and chemical properties, health and safety hazards, emergency response, and waste disposal of the material.

Protective Action - Physical measures, such as evacuation or sheltering, taken to prevent potential health hazards resulting from a release of hazardous materials to the environment from adversely affecting employees or the off-site population.

Protective Action Guide - The Protective Action Guide is a radiation personnel exposure level index or range beyond which protective action may be considered. PAG values should reflect a balance of risks and costs to Facility personnel, public health and safety, and the environment weighed against the benefits obtained from protective actions.

Radiation Safety Technician - A Radiation Safety Technician is an employee who performs qualitative and quantitative radiological evaluations.

Release - A release is any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or otherwise disposing of substances into the environment. This includes abandoning/discarding any type or receptacle containing substances or the stockpiling of a reportable quantity of a hazardous substance in an unenclosed containment structure. A radiological release (accidental or unplanned) is defined as a release of a quantity of radioactive material that can result in a dose rate to the public in excess of 2 mrem in any one hour.

Reportable Quantity - For any CERCLA hazardous substance, the quantity established in Table

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302.4 and Appendix B of 40 CFR Part 302, the release of which requires prompt notification unless federally permitted.

Recovery - Actions taken after a Facility has been brought to a stable or shutdown condition to return the Facility to normal operation.

Respirator - A respirator is a device to filter contaminants from breathing air.

Response - Response refers to all actions taken to cope with and minimize the effects of any emergency.

Safety Device/System - This term is intended to mean all permanently installed safety-related equipment that related to processes, other major equipment, major personnel hazards, etc. It is not intended to include boundary ropes, chains, goggles, handrails, and any other of a host of minor items that could be included under literal compliance. Problems with minor items fall under this reporting system when they result in consequences of a level with reportable criteria.

Security Emergencies - Security Emergencies include any disruption of the routine operation of the Facility or event that jeopardized the health and safety of personnel such as bomb threats, civil demonstrations, or hostage situations.

Self-Contained Breathing Apparatus - Self-Contained Breathing Apparatus is self-contained device that supplies breathing air in hazardous atmospheres.

Shutdown - A shutdown is a complete or partial shutdown of manufacturing or utilities operations.

Source Term - Source term is defined as the amount of radioactive material available for release.

Spill - Includes, but is not limited to, any spilling, leaking, pumping, pouring, emitting, or dumping of oil or other hazardous materials.

Spill Control Material - Material use to stabilize, absorb, and/or neutralize releases of hazardous materials to minimize hazards and to facilitate cleanup.

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HI-STORE CIS Facility Emergency Response Plan**APPENDIX C – FACILITY EMERGENCY ACTION LEVELS**

Classification	Initiating Condition	Emergency Action Level
Unusual Event	E- HU1 - Damage to a Dry Shielded Canister CONFINEMENT BOUNDARY.	(1) Damage to a loaded cask CONFINEMENT BOUNDARY as indicated by an on-contact radiation reading greater than (2 times the site-specific cask specific technical specification allowable radiation level) on the surface of the spent fuel cask.
Unusual Event	H-HU1 - Confirmed SECURITY CONDITION or threat.	(1) A SECURITY CONDITION that does not involve a HOSTILE ACTION as reported by the security shift supervisor.
		(2) Notification of a credible security threat directed at the site.
		(3) A validated notification from the NRC providing information of an aircraft threat.
Alert	H-HA1 - HOSTILE ACTION is occurring or has occurred.	(1) A HOSTILE ACTION is occurring or has occurred within the OWNER CONTROLLED AREA as reported by the security shift supervisor.
		(2) A validated notification from NRC of an aircraft attack threat within 30 minutes of the site.
Unusual Event	H-HU2 - Seismic event greater than OBE levels.	(1) Seismic event greater than Operating Basis Earthquake (OBE)
Unusual Event	H-HU3 - Hazardous event.	(1) A tornado strike within the OCA.
		(2) Movement of personnel within the PROTECTED AREA is impeded due to an offsite event involving hazardous materials (e.g., an offsite chemical spill or toxic gas release).
		(3) A hazardous event that results in on-site conditions sufficient to prohibit the plant staff from accessing the site via personal vehicles.
Unusual Event	H-HU4 - FIRE potentially degrading the level of safety of the facility.	(1) A FIRE is NOT extinguished within 15-minutes of ANY of the following FIRE detection indications: - Report from the field (i.e., visual observation) - Receipt of multiple (more than 1) fire alarms or indications - Field verification of a single fire alarm

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		<p>(2) a. Receipt of a single fire alarm (i.e., no other indications of a FIRE). AND b. The FIRE is located within ANY of the following buildings: - Security Building - Cask Transfer Building AND c. The existence of a FIRE is not verified within 30-minutes of alarm receipt.</p> <p>(3) A FIRE PROTECTED AREA not extinguished within 60-minutes of the initial report, alarm or indication.</p> <p>(4) A FIRE within the PROTECTED AREA that requires firefighting support by an offsite fire response agency to extinguish.</p>
Alert	H-HA6 - Primary Alarm Station evacuation resulting in transfer of plant control to alternate locations.	(1) An event has resulted in plant control being transferred from the Primary Alarm Station to the Secondary Alarm Station.
Unusual Event	H-HU7 - Other conditions exist which in the judgment of the Emergency Coordinator warrant declaration of an UNUSUAL EVENT (UE).	(1) Other conditions exist which in the judgment of the Emergency Coordinator indicate that events are in progress or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection has been initiated. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.
Alert	H-HA7 - Other conditions exist which in the judgment of the Emergency Coordinator warrant declaration of an Alert.	(1) Other conditions exist which, in the judgment of the Emergency Coordinator, indicate that events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life-threatening risk to site personnel or damage to site equipment because of HOSTILE ACTION. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels.

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HI-STORE CIS Facility Emergency Response Plan**APPENDIX D - EXTERNAL AGENCY AGREEMENTS**

Pursuant to the requirements of 10 CFR 72.32(a)(14), Holtec has solicited comments and Memoranda of Understanding (MOUs) from the offsite response organizations expected to respond in case of an accident on this Emergency Response Plan. The attached documents illustrate these MOUs.

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Post Office Box 1569
 Carlsbad, NM 88221-1569
 (575) 887-1191
 1-800-658-2713
 www.cityofcarlsbadnm.com

DALE JANWAY
 MAYOR

MICHAEL HERNANDEZ
 CITY ADMINISTRATOR

Memorandum of Understanding between the City of Carlsbad, NM AND Holtec International

The purpose of this Memorandum of Understanding is to provide for the cooperation and coordination between the City of Carlsbad, NM and Holtec International. Holtec International is currently seeking licensure through the U.S. Nuclear Regulatory Commission for a proposed interim storage facility for spent nuclear fuel, designated HI-STORE. In the event of an emergency, the City of Carlsbad, NM is available to provide Police, Fire and their Emergency Services for citizens who may be employed by, contracted by, or visiting the facility.

Therefore, during the construction, operations and decommissioning of the storage facility, the following is agreed to:

1. City of Carlsbad, NM agrees to work with Holtec International in coordinating emergency plans and procedures for assistance during construction, operation and decommissioning phases of the HI-STORE facility in Carlsbad, NM and regional area.
2. In the event of an emergency at the facility, Carlsbad, NM will coordinate with the Holtec and local emergency response organizations to establish responses as needed.
3. If at any time Carlsbad, NM, in their judgement, determines they do not have the time resources to respond to the request for services from Holtec due to other obligations or events, (Organization name) will be held harmless of any consequences
4. The City of Carlsbad, NM will be invited to participate in joint training and emergency preparedness drills and exercises.
5. All City of Carlsbad equipment, property, and personnel will remain under the operational control of their respective units.
6. This agreement will be reviewed periodically. Either party may terminate this agreement with a ninety-day written notice to the other party.

COUNCILORS

Ward 1
LISA A. ANAYA FLORES
EDDIE T. RODRIGUEZ

Ward 2
J J CHAVEZ
LEO B. ESTRADA

Ward 3
JASON G. SHIRLEY
JUDI WATERS

Ward 4
WESLEY A. CARTER
MARK WALTERSCHEID

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In Witness whereof, the parties have executed this Memorandum of Understanding on the date indicated.

Name (Print): Dale Janway
 Signature: [Signature]
 Title: Mayor, City of Carlsbad, NM
 Date: 1/30/2019

Name (Print): S. J. Meyer
 Signature: [Signature]
 Title: Program Director
 Date: 31 Jan 19

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**STATE OF NEW MEXICO
COUNTY OF EDDY**

**AGREEMENT A-19-06
MEMORANDUM OF UNDERSTANDING BETWEEN
EDDY COUNTY FIRE SERVICE AND
HOLTEC INTERNATIONAL**

THIS AGREEMENT is made and entered into by and between the County of Eddy Fire Service, hereinafter referred to as the "COUNTY", and "Holtec International", hereinafter referred to as "Holtec". The purpose of this Memorandum of Understanding is to provide for the cooperation and coordination between Eddy County Fire Service and Holtec International.

Holtec International is currently seeking licensure through the U.S. Nuclear Regulatory Commission for a proposed interim storage facility for spent nuclear fuel, designated HI-STORE. In the event of an emergency, Eddy County Fire Service will be available to provide additional response/resources to Holtec International and other responding agencies for citizens who may be employed by, contracted by, or visiting the facility.

Therefore, during the construction, operations and decommissioning of the storage facility, the following is agreed to:

1. Eddy County Fire Service agrees to work with Holtec International and other responding agencies in coordinating emergency plans and procedures for assistance during construction, operation and decommissioning phases of the HI-STORE facility at the Holtec International & Eddy Lea Energy Alliance Facility.
2. In the event of an emergency at the facility, Eddy County Fire Service will coordinate with Holtec and local emergency response organizations to establish additional resources/response as needed.
3. If at any time Eddy County Fire Service, in their judgement, determines they do not have the time and/or resources to respond to the request for services from Holtec due to other obligations or events, Eddy County Fire Service will be held harmless of any consequences.
4. Eddy County Fire Service will be invited to participate in joint training and emergency preparedness drills and exercises.
5. All Eddy County Fire Service equipment, property, and personnel will remain under the operational control of their respective units.
6. This agreement will be reviewed periodically. Either party may terminate this agreement with a ninety-day written notice to the other party.

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**STATE OF NEW MEXICO
COUNTY OF EDDY**

**AGREEMENT A-19-06
MEMORANDUM OF UNDERSTANDING BETWEEN
EDDY COUNTY FIRE SERVICE AND
HOLTEC INTERNATIONAL**

In Witness whereof, the parties have executed this Memorandum of Understanding on the date indicated.

EDDY COUNTY BOARD OF COMMISSIONERSName (Print): Rick J. RudometkinSignature: [Signature]Title: County ManagerDate: January 29, 2019**HOLTEC INTERNATIONAL**Name (Print): [Signature]Signature: [Signature]Title: Program DirectorDate: 31 Jan 19

Please email back to Adam Bitar

a.bitar@holtec.com

If you have any questions please call (856)797-0900 ext 3626

Thank you

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HI-STORE CIS Facility Emergency Response Plan



5419 North Lovington Highway
P.O. Box 5000
Hobbs, New Mexico 88240
505-492-5000
www.learegional.com

Memorandum of Understanding Between

Lea Regional Medical Center AND HOLTEC International

The purpose of this Memorandum of Understanding is to provide for the cooperation and coordination between Lea Regional Medical Center and HOLTEC International.

Holtec International is currently seeking licensure through the U.S. Nuclear Regulatory Commission for a proposed interim storage facility for spent nuclear fuel, designated HI-STORE. In the event of an emergency, there is a potential need for hospital medical services for citizens who may be employed by, contracted by, or visiting the facility.

Therefore, during the construction, operations, and decommissioning of the storage facility in Lea County, the following is agreed to:

1. Lea Regional Medical Center agrees to work with HOLTEC International in coordinating emergency plans and procedures for assistance during the construction, operation, and decommissioning phases of the HI-STORE facility in Lea County.
2. In the event of an emergency at the facility, Lea Regional Medical Center will coordinate with HOLTEC and local emergency response organizations to establish hospital medical services as needed.
3. If at any time Lea Regional Medical Center, in their judgment, determines they do not have the resources to respond to the request for services from HOLTEC due to other obligations or events, Lea Regional Medical Center will be held harmless of any consequences.
4. Lea Regional Medical Center will be invited to participate in joint training and emergency preparedness drills and exercises.
5. All Lea Regional Medical Center equipment, property, and personnel will remain under the operational control of their respective units.
6. This agreement will be reviewed periodically. Either party may terminate this agreement with a ninety day written notice to the other party.

In witness whereof, the parties have executed this Memorandum of Understanding on the date indicated.

Tim Thornell

Name (Print)

Signature

CEO

Title

Date

Ed

Name (Print)

Mayer

Signature

Program Director

Title

January 22, 2019

Date

Digitally signed by Ed Mayer
DN: cn=Ed Mayer, o=Holtec
International, ou=Program
Director, complementary=Dry
Storage Unit, c=USA,
email=emayer@holtec.com, c=US
Date: 2019.01.22 20:57:28 -0700

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Memorandum of Understanding between (Lea county Emergency Management) AND Holtec International

The purpose of this Memorandum of Understanding is to provide for the cooperation and coordination between (Emergency Management) and Holtec International.

Holtec International is currently seeking licensure through the U.S. Nuclear Regulatory Commission for a proposed interim storage facility for spent nuclear fuel, designated HI-STORE. In the event of an emergency, (Emergency Management) is available to provide (Fire, EMS and Emergency Management) for citizens who may be employed by, contracted by, or visiting the facility.

Therefore, during the construction, operations and decommissioning of the storage facility, the following is agreed to:

1. (Emergency Management) agrees to work with Holtec International in coordinating emergency plans and procedures for assistance during construction, operation and decommissioning phases of the HI-STORE facility in (Location of Organization).
2. In the event of an emergency at the facility, (Emergency Management) will coordinate with the Holtec and local emergency response organizations to establish (Fire, EMS and Emergency Management) as needed.
3. If at any time (Emergency Management), in their judgement, determines they do not have the time resources to respond to the request for services from Holtec due to other obligations or events, (Emergency Management) will be held harmless of any consequences
4. (Emergency Management) will be invited to participate in joint training and emergency preparedness drills and exercises.
5. All (Emergency Management) equipment, property, and personnel will remain under the operational control of their respective units.
6. This agreement will be reviewed periodically. Either party may terminate this agreement with a ninety-day written notice to the other party.

In Witness whereof, the parties have executed this Memorandum of Understanding on the date indicated.

Name (Print): Ed Mayer
 Signature: [Signature]
 Title: Program Director
 Date: 3-19-19

Name (Print): Lorenzo Velasquez
 Signature: [Signature]
 Title: Emergency Manager
 Date: 1-30-2019

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Memorandum of Understanding between Lea County Sheriff's Office AND Holtec International

The purpose of this Memorandum of Understanding is to provide for the cooperation and coordination between Lea County Sheriff's Office and Holtec International.

Holtec International is currently seeking licensure through the U.S. Nuclear Regulatory Commission for a proposed interim storage facility for spent nuclear fuel, designated HI-STORE. In the event of an emergency, Lea County Sheriff's Office is available to provide law enforcement services for citizens who may be employed by, contracted by, or visiting the facility.

Therefore, during the construction, operations and decommissioning of the storage facility, the following is agreed to:

1. Lea County Sheriff's Office agrees to work with Holtec International in coordinating emergency plans and procedures for assistance during construction, operation and decommissioning phases of the HI-STORE facility in Lea County.
2. In the event of an emergency at the facility, Lea County Sheriff's Office will coordinate with the Holtec and local emergency response organizations to provide Law Enforcement services as needed.
3. If at any time Lea County Sheriff's Office, in their judgement, determines they do not have the time resources to respond to the request for services from Holtec due to other obligations or events, Lea County Sheriff's Office will be held harmless of any consequences.
4. Lea County Sheriff's Office will be invited to participate in joint training and emergency preparedness drills and exercises.
5. All Lea County Sheriff's Office equipment, property, and personnel will remain under the operational control of their respective units.
6. This agreement will be reviewed periodically. Either party may terminate this agreement with a ninety-day written notice to the other party.

In Witness whereof, the parties have executed this Memorandum of Understanding on the date indicated.

Name (Print): Corey Hutto

Signature: [Signature]

Title: Sheriff

Date: 1/30/19

Name (Print): Ed Mayer

Signature: [Signature]

Title: Program Director

Date: 31 Jan 19

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Name (Print): Ed Mayer
Signature: _____
Title: Program Director
Date: January 30, 2019

HI-STORE CIS Facility Emergency Response Plan

Please email back to Adam Bitar

a.bitar@holtec .com

If you have any questions please call (856)797-0900 ext 3626

Thank you

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