



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION IV
1600 E LAMAR BLVD
ARLINGTON, TX 76011-4511

May 18, 2015

Rafael Flores, Senior Vice President
and Chief Nuclear Officer
Attention: Regulatory Affairs
Luminant Generation Company LLC
Comanche Peak Nuclear Power Plant
P.O. Box 1002
Glen Rose, TX 76043

**SUBJECT: COMANCHE PEAK NUCLEAR POWER PLANT, UNITS 1, 2, AND
INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI)
INSPECTION REPORT 05000445/2015009, 05000446/2015009, AND
07200074/2015001**

Dear Mr. Flores:

This letter refers to a routine inspection conducted on April 20-24, 2015, of the dry cask storage activities associated with your Independent Spent Fuel Storage Installation (ISFSI). The enclosed inspection report documents the inspection results which were discussed on April 23, 2015 with Mr. Ken Peters, Site Vice President and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspection reviewed compliance with the requirements specified in the Holtec International HI-STORM 100 Certificate of Compliance No. 1014 and the associated Technical Specifications, the HI-STORM 100 Final Safety Analysis Report (FSAR), and Title 10 of the Code of Federal Regulations (CFR) Part 72, Part 50, and Part 20. Within these areas, the inspection included a review of radiation safety, cask thermal monitoring, quality assurance (QA), your corrective action program, safety evaluations, observations of dry fuel loading activities, and changes made to your ISFSI program since the last routine ISFSI inspection that was conducted by the U.S. Nuclear Regulatory Commission (NRC). The ISFSI facility was found to be in good physical condition. No violations of NRC regulations were identified.

In accordance with title 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response, if you choose to provide one, will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Document Access Management System (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response should not include any personal, privacy, or proprietary information so that it can be made available to the public without redaction.

Should you have any questions concerning this inspection, please contact the undersigned at 817-200-1191 or Mr. Lee Brookhart at 817-200-1549.

Sincerely,

/RA/

Ray L. Kellar, P.E., Chief
Repository & Spent Fuel Safety Branch
Division of Nuclear Materials Safety

Dockets: 50-445, 50-446, 72-74
Licenses: NPF-87, NPF-89

Enclosure:
Inspection Report 05000445/2015009;
05000446/2015009; 07200074/2015001

w/attachments:
1. Supplemental Information
2. Loaded Casks at Comanche Peak Nuclear
Power Plant ISFSI

cc w/encl: Electronic Distribution

R. Flores

-2-

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DISTRIBUTION:

See next page

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FINAL: R:_Reactors_CPSES\2015\CP 2015009-LEB.docx

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OFFICE	RSFS	RSFS	RSFS:C		
NAME	LEBrookhart	EJSimpson	RLKellar		
SIGNATURE	/RA/	/RA/	/RA/		
DATE	05/18/2015	05/18/2015	05/18/2015		

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Letter to Rafael Flores from R. Kellar, dated May 18, 2015.

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INSPECTION REPORT 05000445/2015009, 05000446/2015009, AND
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U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket: 05000445, 05000446, 07200074

Licenses: NPF-87, NPF-89

Report Nos.: 05000445/2015009, 05000446/2015009, and 07200074/2015001

Licensee: Luminant Generation Company LLC

Facility: Comanche Peak Nuclear Power Plant Units 1, 2, and
Independent Spent Fuel Storage Installation (ISFSI)

Location: FM-56, Glen Rose, Texas

Dates: April 20-24, 2015

Inspectors: Lee Brookhart, Senior Inspector

Accompanying
Personnel: Eric Simpson, RIV RSFS, Inspector-in-Training

Approved By: Ray L. Kellar, P.E., Chief
Repository & Spent Fuel Safety Branch
Division of Nuclear Materials Safety

Enclosure

SUMMARY OF FINDINGS

IR 05000445/2015009, 05000446/2015009, and 07200074/2015001; 04/20–24/2015;
Comanche Peak Nuclear Power Plant Units 1, 2, and Independent Spent Fuel Storage
Installation (ISFSI); Routine ISFSI Inspection Report

The report covers an announced inspection by one regional inspector and one inspector-in-training. The significance of any Part 50 findings are indicated by their color (Green, White, Yellow, or Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process." The cross-cutting aspect is determined using IMC 0310, "Components Within the Cross-Cutting Areas." Findings for which the significance determination process does not apply may be Green or be assigned a severity level after the NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 5, dated February 2014. In accordance with the NRC Enforcement Policy, all of the Part 72 ISFSI inspection findings follow the traditional enforcement process and are not disposition through the Reactor Oversight Process or the Significance Determination Process.

A. NRC-Identified Findings and Self-Revealing Findings

No findings were identified.

B. Licensee-Identified Violations

None.

PLANT AND ISFSI STATUS

Comanche Peak Nuclear Power Plant's (CPNPP) Independent Spent Fuel Storage Installation (ISFSI) stored 21 loaded Holtec HI-STORM 100 casks at the time of the routine inspection. Comanche Peak was in the middle of a six cask loading campaign and were performing the loading operations associated with cask number 22 at the time of the routine inspection. The licensee utilized a general Part 72 license in accordance with the Holtec HI-STORM 100 System, approved under Certificate of Compliance 1014 License, Amendment 7 and Final Safety Analysis Report (FSAR), Revision 9. The version of the Holtec systems used at the CPNPP included the MPC-32, a 32 fuel bundle multi-purpose canister (MPC), and the HI-STORM 100S Version B overpack. The ISFSI pad was approximately 262 feet long by 102 feet wide and was designed to accommodate 84 storage casks. The storage casks were located outside the Part 50 facilities protected area within its own protected area.

REPORT DETAILS

4. OTHER ACTIVITIES

40A5 Other Activities

.1 Operations of an Independent Spent Fuel Storage Installation at Operating Plants (60855.1)

a. Inspection Scope

(1) Quality Assurance (QA) Audits and Surveillances

An on-site review of the QA audit and QA surveillance reports related to dry cask storage activities at the CPNPP ISFSI was performed by NRC inspectors. Since the last NRC ISFSI inspection in September 2013, CPNPP had issued two Nuclear Oversight Evaluation Reports. The first report was issued as evaluation number EVAL-2013-008, "Fuel Management During UFO2." This audit reviewed dry cask storage controls, dry cask storage operations, cross functional areas, and training related to the second dry fuel storage campaign conducted at CPNPP during 2013. All of the areas evaluated were found to have been either effectively or adequately implemented by the auditing staff. Two minor issues were identified during the audit that resulted in condition reports (CRs) being placed into the CPNPP corrective actions program (CAP).

The second report was issued as evaluation number EVAL-2013-009, "Core Performance Engineering and Fuel Management." Four of the audit report's 11 evaluated areas overlapped with the dry fuels program. The overlapping areas included: 1) special nuclear material accountability program during movement and transference and the inventory system; 2) fuel handling during outage and dry cask storage operations; 3) quality management system, including procedure and document effectiveness; and 4) software quality assurance. All four of the areas that included dry fuel storage were found to have been effectively implemented and managed. Several CRs and recommendations related to this audit were generated and placed into the site's CAP. However, no significant deficiencies were identified that related to dry cask storage operations at CPNPP.

NRC inspectors reviewed two QA surveillances documented by the Nuclear Oversight Office related to dry fuel storage activities. The first surveillance was performed on the lifting and rigging practices of contract personnel moving dry cask storage equipment inside the fuel building in the 2013 campaign and resulted in no findings. The second surveillance was performed on the rigging and maintenance activities associated with the preparation and movement of dry cask storage equipment for the 2015 campaign that resulted in two CRs being placed into the CAP. Both CRs issues were properly addressed by the licensee.

The NRC inspectors reviewed 19 vendor surveillances and their evaluations that were performed by the Holtec Users Group's QA inspector at the Holtec Manufacturing Division facility located in Turtle Creek, PA. There were four instances where unsatisfactory conditions were identified that impacted materials being manufactured for use in dry fuel storage at CPNPP. All four conditions were corrected as part of "in process work" prior to being accepted for use at CPNPP.

The QA audit reports, surveillances, and vendor surveillances resulted in several CRs. There were no significant CRs related to dry cask storage activities at CPNPP. NRC inspectors reviewed the corrective actions resulting from the CRs to ensure that the identified deficiencies were properly categorized based on their safety significance and properly resolved. All identified deficiencies had been properly categorized and resolved by the licensee.

(2) Radiological Conditions Related to Stored Casks

The CPNPP ISFSI was located approximately 0.6 miles east-southeast of the two unit reactor site. The ISFSI resides in its own protected area (PA), outside the reactor's PA. The ISFSI pad is roughly 102 feet wide and 262 feet long with the capacity to hold 84 HI-STORM 100S spent fuel storage casks configured in a 6 by 14 array. The ISFSI outer fence was properly posted as a Radiological Controlled Area/Radioactive Materials Area. No flammable or combustible materials, debris, or vegetative growth were observed on or in close proximity to the ISFSI pad. Twenty-one casks were loaded with spent fuel at the time of the inspection. The current ISFSI loading campaign planned to add three additional casks to the pad this year, bringing the total to 24. The NRC inspector found all 21 casks to be in excellent physical condition with no visible signs of degradation.

Inspectors reviewed the radiological conditions at the CPNPP ISFSI through documentation of the most recent radiological survey and three years of thermoluminescent dosimeter (TLD) monitoring data from around the ISFSI. There were TLD monitoring locations, roughly centered, on all four sides of the ISFSI outer fence.

A dry cask loading supervisor and two radiation protection (RP) technicians accompanied the NRC inspector during a walk-down of the ISFSI pad. A radiological survey was performed by one RP technician with a telescoping Geiger-Mueller detector to record gamma exposure rates in milliroentgens per hour

(mR¹/h). The RP technician also carried a small portable instrument that measured gamma exposures in microroentgens per hour (μR/h). The NRC inspector verified that both instruments were properly calibrated under the licensee's program. Survey measurements were taken around the ISFSI outer fence, around the perimeter of the ISFSI pad, at selected areas between casks, and at TLD monitoring locations.

General area gamma background readings outside of the radiation controlled area (RCA) prior to entry were 6 μR/h. Upon arrival at the ISFSI site entry location at its west fence, ambient radiation levels rose to near 20 μR/h. The 21 storage casks were situated along the northern edge and northeast corner of the ISFSI pad. Radiation readings taken along the fence-line showed levels ranging from 21 μR/h, at locations distant from the spent fuel casks, to 94 μR/h on the east fence-line closer to the storage casks. General area measurements on the pad ranged from 260 μR/h, at the radiation area boundary rope, to 2.2 mR/h, between casks. Based on the exposure rate measurements and radiological postings displayed inside and outside of the ISFSI outer fence, all postings met the requirements of 10 CFR Parts 20.1902(a) and 20.1902(e). The measurements taken by the RP technician and witnessed by the NRC inspector confirmed the measurements recorded on the most recent ISFSI site survey. The radiological conditions in and around the ISFSI were as expected for the age and heat-load of the 21 currently loaded spent fuel storage casks.

The licensee provided personnel dose information associated with the 11 casks loaded during the previous and current ISFSI loading campaigns of 2013 and 2015. The results of the worker accumulated dose per cask could be tracked to the functional group that the dose was assigned to. The cask loading contractor accrued the majority of the dose, ranging from 81 – 90% of the dose for the current campaign. The loading of the most recent 11 casks presented occupational exposures that ranged from 0.114 to 0.195 person-rem per cask (see Attachment 2 of this report), averaging 0.146 person-rem. This value was below the average seen on the first loading campaign of 0.182 person-rem per cask. CPNPP's RP group has continued to implement improved practices to lower personnel dose and keep dose As Low as Reasonably Achievable (ALARA).

(3) Environmental Radiological Monitoring Program

The primary purpose of the CPNPP Radiological Environmental Monitoring Program (REMP) was to evaluate the radiological impacts that reactor operations and stored radioactive materials have on the local environment. The REMP focused on measuring airborne (gaseous and particulate), liquid effluent, and direct radiation levels at or near the site boundary and at selected offsite locations. By design, there were no airborne or liquid effluents released from CPNPP ISFSI. However, the ISFSI was responsible for measurable direct radiation levels produced on-site.

¹ For the purposes of making comparisons between NRC regulations based on dose-equivalent and measurements made in Roentgens, it may be assumed that one Roentgen equals one rem. (<http://www.nrc.gov/about-nrc/radiation/protects-you/hppos/qa96.html>)

The REMP monitored direct radiation impacts locally and offsite using TLDs. The ISFSI site was also monitored using TLDs. The monitoring data for the ISFSI and the REMP were handled by two different site programs for different purposes. The ISFSI-specific TLD monitoring was performed by the General Area Monitoring Program (GAM) to track radiological exposures at the ISFSI boundary and to ensure that NRC occupational limits for unmonitored individuals were not exceeded.

TLDs were placed at four monitoring locations on the ISFSI outer fence, where they could be easily accessed outside of the ISFSI boundary. The monitoring results from 2012, 2013, and 2014 for those locations were reviewed by NRC inspectors. The TLDs were collected and replaced quarterly. That data has been compiled into a yearly format, displayed in a milliroentgens per year (mR/yr) in Table 1, below.

Table 1 TLD Monitoring Results for CPNPP ISFSI in mR/yr²

TLD #	Location	2012	2013	2014
101	North Fence	210	438	832
102	East Fence	311	639	780
103	South Fence	418	181	353
104	West Fence	331	44	53

The NRC Inspector verified the radiation exposure rates at each TLD monitoring location during the ISFSI walk-down. The highest reported and measured dose rate was recorded at the ISFSI north fence monitoring location, 832 mR/yr. Applying an occupational occupancy factor of 2.3×10^{-1} (2000 work hours per year onsite divided by 8760 total hours in a year) to that dose resulted in an occupational value of approximately 190 mrem per year. As a result, all accessible areas of the ISFSI fall below the 10 CFR 20.1502(a)(1) limit for unmonitored individuals, which is 500 mrem per year.

The REMP monitoring was performed to provide an annual assessment of CPNPP's total impacts to the local environment. Those impacts included the direct radiation contributions of the ISFSI. The yearly results of the REMP were issued in the CPNPP Annual Radiological Environmental Operating Report (AREOR). The NRC inspectors reviewed the CPNPP AREORs for 2013 (ML14127A068), issued April 24, 2014 and 2014 (ML15133A101), issued April 30, 2015.

The ISFSI was located approximately 0.6 miles from the center of the Units-1 and -2 reactor buildings in the in the east-southeast REMP monitoring sector. Only one of the 43 total REMP TLD monitoring sites was located at a site boundary location in reasonably close proximity to the ISFSI: monitoring site R-11, located 0.5 miles from the reactor site in the east sector.

² The data compiled for this table was from sources where monitoring periods overlapped. As such certain monitoring periods may be slightly higher or lower than represented here. The relative differences between monitoring locations, however, are valid.

Table 2, REMP Monitoring Results near CPNPP ISFSI in mR/yr

TLD#	Station and Location	2013	2014
R-11	East Sector, 0.5 miles from reactor	50	50
Control Locations	Various	49	49

Average background (control) dose measurements for both 2013 and 2014 were 49 mR/yr. Correcting for background, between the control locations and R-11, shows only a slight increase in ambient radioactivity at monitoring location R-11 of 1 mrem/yr each year. This value was well below the 10 CFR 72.104 (a) dose standard, which limits total radiation from the ISFSI to less than 25 mrem per year above background at the owner controlled boundary. Offsite doses due to the radiological influence of the ISFSI were well below regulatory limits.

(4) Records Related to Fuel Stored in the Casks

NRC inspectors reviewed the records for one randomly selected previously loaded dry fuel storage cask at CPNPP to assess data retrievability of ISFSI records. In addition, NRC performed a review of the dry fuel storage records for six casks loaded at the ISFSI, since the last NRC ISFSI inspection, to determine whether adequate descriptions of the spent fuel was documented as a permanent record as required by 10 CFR 72.212(b)(12). The spent fuel contents of the six most recently loaded HI-STORM casks (prior to the current loading campaign) were recorded in two documents, "Cask Acceptability Report and Comprehensive Assembly Specifications Supplement," NUC-212-3, Rev. 0 and NUC-212-4, Rev. 4, respectively. These documents contained MPC loading maps and fuel assembly specific information such as qualification data, identification, decay heat (kW), cooling time (years), average U-235 enrichment (%), burn-up values (MWd/MTU), and other information. A complete set of forms was reviewed for seven of the 21 casks loaded at CPNPP. Some of that fuel data is tracked along with other information on Attachment 2 of this inspection report. The licensee was in compliance with all applicable Technical Specifications and FSAR requirements for spent fuel stored at their ISFSI and all regulatory requirements for retrievability of cask records.

(5) Technical Specification A.3.1.2, Cask Temperature Monitoring

Technical Specification (TS) A.3.1.2 required either a daily inspection of the inlet and outlet vents for blockage or daily verification that the temperature difference between the HI-STORM outlet temperature and ISFSI ambient temperature was ≤ 155 degrees F for all casks loaded under Certificate of Compliance 1014, Amendment 7. The licensee performed either vent inspections or temperature surveillances daily and the data was recorded daily on form OPT-102A-1, Rev. 37. NRC inspectors reviewed documentation for the (randomly selected) months of November 2013 and June of 2014. Of the months selected for review, the licensee typically met the technical specification requirement by the daily review of temperature monitoring data, with only one instance where the licensee performed vent inspections on a single cask. The worksheet associated with that cask noted that the vents were visually verified to be clear of any blockages.

No issues were identified with CPNPP compliance to the TS A.3.1.2 surveillance requirement for temperature monitoring.

(6) Corrective Action Program

A list of CRs issued since the last NRC inspection conducted in September 2013, was provided by the licensee for the cask handling crane and the ISFSI operations. Issues were processed in accordance with Procedure STA-422, "Processing Condition Reports," Revision 32. When a problem was identified the licensee would document the issue as a CR in the licensee's corrective action program.

Of the list of CRs provided relating to the ISFSI and the cask handling cranes, 30 documents were selected by the NRC inspectors for further review. The CRs were related to a variety of issues. The CRs reviewed were well documented and properly categorized based on the safety significance of the issue. The corrective actions taken were appropriate for the situations. Based on the level of detail of the corrective action reports, the licensee demonstrated a high attention to detail in regard to the maintenance and operation of their ISFSI program and the cask handling crane. No NRC safety concerns were identified related to the CRs reviewed.

(7) Preparation of Loading Activities

The inspectors requested documentation related to maintenance of the fuel building cask handling crane, the annual maintenance of the licensee's special lifting devices, and the calibration of various gauges associated with the loading activities.

Documents were provided that demonstrated the fuel building cask handling crane was inspected on an annual basis in accordance with the requirements of the American Society of Mechanical Engineers (ASME) B30.2 prior to the 2015 loading campaign. CPNPP utilized Work Order (WO) 4772141, dated January 15, 2015, to perform the annual maintenance on January 6, 2015.

The annual maintenance as required by American National Standards Institute (ANSI) N14.6 for special lifting devices was completed for the following special lifting devices: the HI-TRAC lifting trunnions, lift yoke, lift yoke extension, and the HI-STORM lifting brackets. Documentation reviewed included WO 4877704, WO 4877724, and WO 4878574. All equipment passed the visual inspection, the dimensional testing, and either the magnetic particle or liquid penetrant non-destructive examination (NDE).

Calibration documentation of the hydrostatic pressure gages and the forced helium dehydration drying system gages were reviewed to ensure the equipment had been properly calibrated prior to the loading operations. All calibration certificates reviewed through WO 4877661 demonstrated that the gages were properly calibrated prior to the loading campaign.

(8) HI-STORM and ISFSI Yearly Maintenance

Final Safety Analysis Report (FSAR), Section 9.2, "Maintenance Program," specified the HI-STORM maintenance schedule in Table 9.2.1. Among other tasks,

the schedule required an annual visual inspection of the storage cask's external surfaces and identification markings for signs of damage or degradation. NRC inspectors reviewed the documentation related to the annual visual examination of Comanche Peak's HI-STORM casks for 2014. Those documents included work order #4757002 and included filled out copies of Dry Cask Storage Procedure DCS-110, "HI-STORM In-service Annual Inspection and Maintenance," Rev. 3. In 2014, 14 out of 18 HI-STORM over-packs required the vent screens to be removed and replaced to facilitate painting to address rust stains leaching from open threaded holes in the HI-STORM vent openings. The NRC inspectors determined that the licensee's yearly maintenance activities and records met the requirements of the Holtec FSAR. The casks were also visually inspected as part of the NRC ISFSI pad walk-down. All casks appeared to be in good physical condition.

(9) Cask Loading Observations

Various loading activities were observed by the NRC inspectors during the course of the routine ISFSI inspection. CPNPP was in the process of transporting the already loaded canister #21 to the ISFSI pad on Monday April 20, 2015. Inspectors observed the vertical cask transporter (VCT) transport the cask to the ISFSI pad. Additionally, personnel in the fuel handling building were preparing to load fuel assemblies into canister #22 on that Monday. NRC inspectors observed the loading and other associated activities with canister #22 throughout the remaining work week. The NRC inspectors observed the fuel movement activities to place spent fuel assemblies into canister. The licensee's staff was experienced in moving the spent fuel assemblies and was proficient in locating the correct assembly, verifying the assembly, moving the assembly from the rack to the canister, and inserting the assembly into the assigned canister slot.

Selected welding and non-destructive examination activities were observed during the loading activities associated with canister #22. An automated welding process was used to weld the canister lid. The automated welding machine used one weld head to weld the lid to shell weld utilizing a Gas Tungsten Arc Welding process. The welders operated the equipment remotely in a low dose rate area. Hydrogen monitoring was performed during the welding of the root weld and additional passes until the lid to shell weld was completed. NRC inspectors observed the non-destructive dye penetrant exams conducted on the lid-to-shell weld, the welds on the vent and drain port covers, and the closure lid weld. The NDE examinations did not identify any welding defects.

Other activities that were observed by NRC inspectors during the loading of canister #22 included the draining of the MPC, drying of the MPC using forced helium dehydration, lifting the transfer cask and fully loaded MPC out of the cask loading pit, and downloading of the MPC into the HI-STORM storage cask. The licensee's cask handling crane was able to handle the heavy load without any observed problems.

b. Findings

No findings were identified.

.2 Review of 10 CFR 72.212(b) Evaluations at Operating Plants (60856.1)

a. Inspection Scope

The 10 CFR 72.212 Evaluation Report was reviewed to verify site characteristics were still bounded by the Holtec HI-STORM 100 cask system's design basis.

Comanche Peak's 10 CFR 72.212 Evaluation Report at the time of the inspection was Revision 8, dated April 16, 2015. Three revisions had been performed to the 72.212 Evaluation Report since the last NRC routine ISFSI inspection and were reviewed during this inspection. The associated 10 CFR 72.48 screenings for each revision were reviewed. All screenings were determined to be adequate and changes to the 72.212 report were found to be still bounded by the Holtec design basis.

b. Findings

No findings were identified.

.3 Review of 10 CFR 72.48 Evaluations (60857)

a. Inspection Scope

The licensee's 10 CFR 72.48 screenings and evaluations for ISFSI program changes since the last NRC routine ISFSI inspection were reviewed to determine compliance with regulatory requirements. CPNPP had performed thirteen 72.48 screens associated with changes to ISFSI equipment or operations. The licensee had performed one 72.48 full safety evaluations for the ISFSI since the last NRC inspection in September of 2013. This evaluation was performed to address a calculation error on a previous 72.48 evaluation for the use of the wheeled VCT that was used at CPNPP. The results of the site-specific fire accident showed that the MPC confinement boundary remained intact and the potential loss of shielding due to fire damage to the overpack remained small. The fuel cladding and MPC confinement boundary continued to meet the existing numerical design basis limits for performance as described in the Holtec FSAR.

Inspectors reviewed the thirteen 72.48 screens provided by the licensee. The licensee utilized Procedure STA-707, "10 CFR 50.59 and 72.48 Reviews," Revision 20 to perform the 10 CFR 72.48 safety screenings. None of the screenings reviewed required a full 10 CFR 72.48 safety evaluation. All screenings were determined to be adequately evaluated.

The NRC inspectors determined that the licensee had made no 10 CFR 50.59 screenings or evaluations associated with the fuel building cask handling crane since the last inspection.

b. Findings

No findings were identified.

40A6 Meetings, Including Exit

Exit Meeting Summary

On April 23, 2015, the inspectors presented the inspection results to Mr. Ken Peters, Site Vice President, and other members of the licensee staff. The licensee acknowledged the inspection details presented. The inspector asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

SUPPLEMENTAL INSPECTION INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

B. Henley, Project Manager
T. Hope, Manager of Regulatory Affairs
J. Hull, Refueling Work Window Manager
D. Keating, Ops Procedures
C. Lemons, Engineering
T. McCool, Engineering
K. Peters, Site Vice President
M. Ragan, Outage Management
J. Seawright, Regulatory Affairs

INSPECTION PROCEDURES USED

IP 60855.1	Operations of an ISFSI at Operating Plants
IP 60856.1	Review of 10 CFR 72.212(b) Evaluations at Operating Plants
IP 60857	Review of 10 CFR 72.48 Evaluations

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Discussed

None

Closed

None

LIST OF DOCUMENTS REVIEWED

The following is a list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspectors reviewed the documents in their entirety, but rather, that selected sections of portions of the documents were evaluated as part of the overall inspection effort. Inclusion of a document on this list does not imply NRC acceptance of the document or any part of it, unless this is stated in the body of the inspection report.

4OA5.1 Other Activities

Drawings

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
15-04-0127	Survey – Dry Cask Storage Pad	4/06/2015
15-04-0446	Survey – Dry Cask Storage Pad	4/20/2015

Procedures

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
DCS-100	Dry Fuel Storage Campaign Guidelines	Revision 5
DCS-110	HI-STORM Annual Inspection and Maintenance	Revision 3
DCS-201	Transporting Loaded and Unloaded HI-STORM	Revision 6
DCS-202	MPC Preparing for Loading	Revision 3
DCS-203	MPC Handling and Fuel Loading Operations	Revision 6
DCS-204	MPC Closure Operations	Revision 6
DCS-205	Stack-up and Transfer of Loaded MPC	Revision 7
DCS-301	Dry Cask Storage Equipment Malfunction, Loop, LOCA, and Contingencies guidance	Revision 6
HSP-504	Procedure to Perform Closure Welds on MPC and MPC Lid	Revision 24
HSP-506	Liquid Penetrant Examination For MPC Welding	Revision 10
HSP-507	Visual Weld Examination for MPC Field Welding	Revision 6
OPT-102A	Mode 1 and 2 Shiftly Surveillances (60 days worth)	Revision 37
STA-422	Processing Condition Reports	Revision 32
STA-707	10 CFR 50.59 and 72.48 Reviews	Revision 20

Design Basis Documents

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
	10 CFR 72.212 Evaluation Report Docket # 72-74	Revision 8
	Certificate of Compliance 72-1014 HI-STORM 100 Cask System	Amendment 7
	Holtec International Final Safety Analysis Report for the HI-STORM 100 Cask System	Revision 9

Miscellaneous Documents

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
Multiple	Resident Vendor Surveillance Trip Plan/Report (19)	Multiple
Multiple	Evaluation of HMD Surveillance Reports (14)	Multiple
SURV-2015-0066	Conduct of Maintenance; INPO 12-013 QAS	03/17/2015
SURV-2015-0057	Conduct of Maintenance; INPO 12-013 QAS	03/05/2015
EVAL-2013-008	Fuel Management During UFO2	11/16/2013
EVAL-2013-009	Core Performance Engineering and Fuel Mgmt	02/06/2014
	GAM Report for 2011-2012	04/26/2015
	GAM Report for 2012-2013	10/03/13
	GAM Report for 2013-2014	08/28/14
	GAM Report for 2014	05/05/15
RPI-710-2	2013 Annual Radiological Environmental Operating Report	04/06/2014
RPI-710-2	2014 Annual Radiological Environmental Operating Report	04/15/2015
	UFO3 Does Trend Chart	
NUC-212-3	Cask Acceptability Report – Cask 7	Rev. 0
NUC-212-3	Cask Acceptability Report – Cask 13	Rev. 0
NUC-212-3	Cask Acceptability Report – Cask 14	Rev. 0
NUC-212-3	Cask Acceptability Report – Cask 15	Rev. 0
NUC-212-3	Cask Acceptability Report – Cask 16	Rev. 0
NUC-212-3	Cask Acceptability Report – Cask 17	Rev. 0
NUC-212-3	Cask Acceptability Report – Cask 18	Rev. 0
NUC-212-4	Comprehensive Assembly Specification Supplement For Cask 7	Rev. 3
NUC-212-4	Cask Acceptability Report, attachment for Cask 13	Rev. 4
NUC-212-4	Cask Acceptability Report, attachment for Cask 14	Rev. 4
NUC-212-4	Cask Acceptability Report, attachment for Cask 15	Rev. 4
NUC-212-4	Cask Acceptability Report, attachment for Cask 16	Rev. 4
NUC-212-4	Cask Acceptability Report, attachment for Cask 17	Rev. 4
NUC-212-4	Cask Acceptability Report, attachment for Cask 18	Rev. 4

72.48 Screenings and 72.48 Evaluations

FDA-2009-000859-02-02	FDA-2009-000859-29-01	FDA-2009-000859-13-07
FDA-2009-000859-38-01	FDA-2009-000859-39-00	FDA-2009-000859-40-00
FDA-2009-000859-41-00	FDA-2009-000859-42-00	FDA-2009-000859-43-00
FDA-2009-000859-44-01	FDA-2009-000859-45-00	FDA-2009-000859-46-00
FDA-2009-000859-47-00	EV-CR-2013-009020-2	EV-CR-2014-005590-2

Work Orders

WO 4877661	WO 4878574	WO 4877724	WO 4877704
WO 4757002			

CRs

CR-2013-002706	CR-2013-009512	CR-2013-009593	CR-2013-009651
CR-2013-009670	CR-2013-009733	CR-2013-010033	CR-2013-010165
CR-2013-010181	CR-2013-010623	CR-2013-010859	CR-2013-011604
CR-2013-011638	CR-2014-000974	CR-2014-002549	CR-2014-004570
CR-2014-005583	CR-2014-007671	CR-2014-010189	CR-2014-000974
CR-2014-006381	CR-2014-006535	CR-2015-000246	CR-2013-009276
CR-2013-009364	CR-2013-009418	CR-2013-009666	CR-2013-010054
CR-2013-010722	CR-2014-000970	CR-2014-000971	

LIST OF ACRONYMS

ADAMS	Agencywide Documents Access and Management System
AREOR	Annual Radiological Environmental Operating Report
ASME	American Society of Mechanical Engineers
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CPNPP	Comanche Peak Nuclear Power Plant
CR	Condition Report
DNMS	Division of Nuclear Material Safety
F	Fahrenheit
FSAR	Final Safety Analysis Report
GAM	General Area Monitoring
IMC	Inspection Manual Chapter
IP	inspection procedure
ISFSI	Independent Spent Fuel Storage Installation
kW	kilowatt
mR	milliRoentgen
micro(μ)R/h	microRoentgen per hour
MPC	multipurpose canister
mrem	milliRoentgen equivalent man
MWD/MTU	megawatt days/metric ton uranium
NDE	non-destructive examination
NRC	U.S. Nuclear Regulatory Commission
PA	Protected Area
QA	quality assurance
RCA	Radiological Controlled Area
REMP	Radiological Environmental Monitoring Program
RP	radiation protection
TLD	thermoluminescent dosimeter
TS	Technical Specification
VCT	Vertical Cask Transporter
WO	work order

ATTACHMENT 2:

LOADED CASKS AT THE COMANCHE PEAK NUCLEAR POWER PLANT ISFSI

LOADING ORDER	MPC SERIAL No.	HI-STORM No.	DATE ON PAD	HEAT LOAD (Kw)	BURNUP MWd/MTU (max)	MAXIMUM FUEL ENRICHMENT %	PERSON-REM DOSE
1	MPC-156	Serial No. 465	02/28/12	17.813	42,278	4.50	0.332
2	MPC-158	Serial No. 467	03/12/12	24.842	49,268	4.82	0.359
3	MPC-157	Serial No. 553	04/02/12	25.031	49,518	4.82	0.315
4	MPC-202	Serial No. 550	04/09/12	25.133	49,561	4.82	0.195
5	MPC-199	Serial No. 549	04/14/12	25.216	49,509	4.82	0.230
6	MPC-196	Serial No. 557	05/07/12	25.470	49,750	4.82	0.116
7	MPC-195	Serial No. 556	05/14/12	25.378	49,961	4.82	0.120
8	MPC-200	Serial No. 551	05/21/12	27.203	49,584	4.82	0.098
9	MPC-198	Serial No. 552	06/18/12	27.657	49,888	4.80	0.549
10	MPC-197	Serial No. 729	9/04/13	22.283	49,949	4.74	0.191
11	MPC-307	Serial No. 730	9/16/13	22.225	49,814	4.82	0.110
12	MPC-289	Serial No. 731	9/23/13	22.949	49,691	4.82	0.135
13	MPC-304	Serial No. 732	10/07/13	27.534	49,216	4.82	0.170
14	MPC-291	Serial No. 733	10/12/13	27.883	49,173	4.80	0.195

LOADING ORDER	MPC SERIAL No.	HI-STORM No.	DATE ON PAD	HEAT LOAD (Kw)	BURNUP MWd/MTU (max)	MAXIMUM FUEL ENRICHMENT %	PERSON-REM DOSE
15	MPC-308	Serial No. 734	10/29/13	27.805	49,964	4.9	0.131
16	MPC-309	Serial No. 554	11/04/13	27.939	49,921	4.9	0.135
17	MPC-194	Serial No. 555	11/11/13	27.512	48,909	4.9	0.126
18	MPC-201	Serial No. 466	11/16/13	27.997	49,430	4.9	0.128
19	MPC-306	Serial No. 758	4/16/15	23.572	49,848	4.9	0.114
20	MPC-292	Serial No. 757	4/14/15	24.259	49,037	4.95	0.116
21	MPC-288	Serial No. 754	4/20/15	28.313	49,428	4.82	0.170
22	MPC-293	Serial No. 755	5/05/15	27.836	49,246	4.82	0.182

- NOTES:**
- Heat load (kW) is the sum of the heat load values for all spent fuel assemblies in the cask
 - Burn-up is the value for the spent fuel assembly with the highest individual discharge burn-up
 - Fuel enrichment is the spent fuel assembly with the highest individual “initial” enrichment percent of U-235

All casks were loaded and are currently maintained under Certificate of Compliance 1014, License Amendment 7 and the Final Safety Analysis Report, Revision 9