UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
1600 E. LAMAR BLVD.
ARLINGTON, TX 76011-4511

March 27, 2014

Mr. Richard B. Provencher, Manager
Department of Energy
Idaho Operations Office
1955 Fremont Ave., MS 1203
Idaho Falls, ID 83415

SUBJECT: FORT SAINT VRAIN INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI) INSPECTION REPORT 07200009/2014001

Dear Mr. Provencher:

An inspection was completed of activities associated with your Independent Spent Fuel Storage Installation (ISFSI) on February 25 - 26, 2014. An exit was conducted with your staff to discuss the findings of the inspection on February 26, 2014. The focus of this safety inspection was to verify ongoing compliance with Fort Saint Vrain's site specific ISFSI license SNM-2504 and the associated Technical Specifications, the Final Safety Analysis Report (FSAR), and the regulations in Title 10 of the Code of Federal Regulations (CFR) Part 20 and Part 72.

The inspection reviewed the areas of radiation safety, quality assurance, thermal monitoring, corrective action program, safety evaluations, ISFSI facility maintenance, and how you addressed industry issues that affected your ISFSI program. The inspection reviewed changes made to your ISFSI program since the last U.S. Nuclear Regulatory Commission (NRC) ISFSI inspection. Your ISFSI operations were found to be in compliance with the applicable NRC regulations and requirements and your ISFSI facility was found to be in good physical condition. No violations of NRC regulations were identified.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure(s), and your response, will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Documents Access and 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/

D. Blair Spitzberg, Ph.D., Chief
Repository & Spent Fuel Safety Branch
Division of Nuclear Materials Safety

Dockets No: 72-09
Licenses No: SNM-2504

Enclosure:
Inspection Report 7200009/2014001
w/attachments:
1. Supplemental Information

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1. Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Dockets No.:	07200009
Licenses No.:	SNM-2504
Report No.:	07200009/2014001
Licensee:	United States Department of Energy (DOE)
Facility:	Fort Saint Vrain (FSV) Independent Spent Fuel Storage Installation (ISFSI)
Location:	16805 Weld County Road 19-1/2 Platteville, CO 80651
Dates:	February 25-26, 2014
Inspector:	Lee E. Brookhart, Senior Inspector Repository & Spent Fuel Safety Branch
Accompanying Personnel:	Eric J. Simpson, Inspector-in-Training, Repository & Spent Fuel Safety Branch
Approved By:	D. Blair Spitzberg, Ph.D., Chief Repository & Spent Fuel Safety Branch Division of Nuclear Materials Safety

Enclosure

EXECUTIVE SUMMARY

United States Department of Energy
NRC Inspection Report 07200009/2014001

The U.S. Nuclear Regulatory Commission (NRC) conducted a routine inspection of the licensee's programs and activities for safe handling and storage of spent fuel at the Fort St. Vrain (FSV) Independent Spent Fuel Storage Installation (ISFSI) on February 25 - 26, 2014. The inspection evaluated the current condition of the ISFSI loaded with spent fuel and reviewed a number of topics to evaluate compliance with the applicable NRC regulations and the provisions of their site specific license. The NRC routine inspection reviewed documentation relevant to ISFSI activities and operations that have occurred at FSV since the last ISFSI inspection that was performed in March of 2011. The documentation reviewed included quality assurance, radiological conditions, corrective actions, compliance with technical specifications, the Final Safety Analysis Report (FSAR) requirements, and industry ISFSI issues that affected the site. The ISFSI was being maintained in good physical condition. Radiological dose rates around the ISFSI were low. A review of the environmental monitoring program demonstrated that radiological exposures to offsite locations from the ISFSI were low and within the NRC requirements. The quality assurance program and corrective action program were being effectively implemented to capture and correct issues related to the spent fuel storage program. In summary, the licensee was conducting ISFSI activities in compliance with regulatory and license requirements.

Away from Reactor ISFSI Inspection Guidance (60858)

- The licensee was conducting quality assurance audits of the ISFSI program. A review of the audit reports and surveillances performed since the last inspection determined that the quality assurance group was covering risk significant areas within a broad range of topics. Any issues that were identified in the reports were entered into the corrective action program for resolution. (Section 1.2.a)

- Radiation levels around the ISFSI facility were within expected ranges for the site's ISFSI. The ISFSI facility was being maintained in good physical condition with no observable deterioration. Radiation levels inside the facility were near background and the two areas with stored sources and elevated radiation levels were properly posted. (Section 1.2.b)

- Radiation data reviewed from the 2011 through 2013 environmental reports determined that radiation levels offsite were not being significantly impacted by the ISFSI. (Section 1.2.c)

- NRC reviewed radiation and contamination survey results for the ISFSI. Radiation levels were as expected and no removable contamination was detected at FSV. NRC reviewed samples of tritium monitoring results from 2011, 2012, and 2013. In no instance was tritium above the minimum detectable level (MDL) measured in any of the sample results. Sealed source leak test results indicated that the licensee's calibration sources had remained intact and were not a source of contamination at the site. (Section 1.2.d)

- Revisions to the FSAR and changes to other major programs since the last inspection were reviewed. There were no changes made to the Radiological Environmental Monitoring Program, the Training program, the Quality Assurance Program, or Natural Gas and Oil Infrastructure near the site. Revision 10 to the FSAR was reviewed and changes made were found to meet the requirements of the Title 10 Code of Federal Regulations (10 CFR) Part 72.48 change process. (Section 1.2.e)

- Selected deficiency reports were reviewed for the period April 2011 through January 2014. A wide range of issues had been identified and resolved. None of the identified issues were significant to safety. Resolutions of the deficiency reports were appropriate for the safety significance of the issue. No adverse trends were identified during the review. (Section 1.2.f)

- Site required surveillances associated with inspection of cooling inlet and outlet screens and checks of the crane's seismic restraints had been conducted in accordance with the requirements of the Fort St. Vrain Technical Specifications and FSAR requirements. (Section 1.2.g)

- The Fort St. Vrain emergency plan was being maintained and no revisions had been made since the last inspection. Drills, exercises, and training were performed in accordance with requirements in the emergency plan. Offsite support agencies were offered opportunities to participate in license drills/exercises and there was a high level of participation. (Section 1.2.h)

- The ISFSI organization changes since the last inspection were reviewed for compliance with FSAR requirements for staffing qualifications of the new personnel. All individuals were well qualified and met the requirements of the FSAR. The Safety Review Committee (SRC) had met on an annual bases and reviewed issues consistent with requirements in the FSAR and Technical Specifications. (Section 1.2.i)

- Fort St. Vrain had implemented their Aging Management Program which was placed in the licensee's Technical Specifications and Safety Analysis Report through their 20 year license renewal process. At the time of the inspection, the licensee had performed all of the required inspections, maintenance, and repairs to the ISFSI associated with that program. (Section 1.2.j)

<u>Review of 10 CFR 72.48 Evaluations (60857)</u>

- All required safety screenings of changes to design or procedures as described in the FSAR had been performed in accordance with procedures and 10 CFR 72.48 requirements. All screenings reviewed were determined to be adequately evaluated. (Section 2.2)

Report Details

Summary of Facility Status

The Fort St. Vrain Independent Spent Fuel Storage Installation (ISFSI) is a modular vault dry store (MVDS) system developed by Foster Wheeler Energy Corporation. The facility provided storage for the spent fuel from the decommissioned Fort St. Vrain high temperature gas cooled reactor. There were 244 fuel storage containers loaded with spent fuel at the Fort St. Vrain ISFSI. The Fort St. Vrain ISFSI license was transferred from Public Service Company of Colorado to the Department of Energy (DOE) on June 4, 1999. The facility was being maintained by CH2M-WG Idaho, LLC (CWI) as the management and operations contractor for the DOE. In November of 2009, DOE submitted an application for a 20-year extension to continue to store spent fuel at the FSV ISFSI. On July 18, 2011, DOE received their 20-year license extension from the NRC which now expires on November 30, 2031. The ISFSI was being maintained under site specific license SNM-2504, dated July 18, 2011 and Final Safety Analysis Report Revision 10.

1 Away from Reactor ISFSI Inspection Guidance (60858)

1.1 Inspection Scope

An inspection of the status of the loaded fuel storage containers (FSCs) at FSV was completed to verify compliance with requirements of their specific license, their ISFSI's FSAR, and federal regulations. The inspection reviewed a broad range of topics including quality assurance audits conducted by the licensee, condition reports related to the ISFSI, environmental radiological data collected around the ISFSI for the past several years, review of the annual maintenance records, safety evaluations, and review of industry issues that affected the site's ISFSI program. A tour of the ISFSI area was performed during which inspectors observed radiological dose rates measured by the licensee around the perimeter of the ISFSI pad and within the ISFSI building.

1.2 Observations and Findings

a. Quality Assurance Audits and Surveillances

The U.S. Department of Energy Idaho Operations Office (DOE-ID) is the Nuclear Regulatory Commission (NRC) licensee for the Fort Saint Vrain (FSV) Independent Spent Fuel Storage Installation (ISFSI). As the NRC license holder, DOE-ID maintains the ISFSI Quality Assurance (QA) program and oversight program. The DOE-ID contractor CH2M-WG Idaho, LLC (CWI) is responsible for the day-to-day management and operations of the ISFSI. CWI implements its own QA program for the site.

DOE-ID and contractor CWI had performed numerous QA audits and surveillances of operations at the FSV ISFSI since the last NRC inspection in March 2011. A total of seven Audit Reports, 18 Surveillance Reports, three QA Program Annual Trending Reports, and three QA Management Assessments from 2011, 2012, and 2013 were reviewed during the inspection. Of the seven audit reports, one was a DOE audit of DOE-ID's ISFSI Quality Assurance Program, which included Fort Saint Vrain and Three Mile Island, Unit 2 (TMI-2) ISFSI Operations (in Idaho Falls, Idaho). The second of the seven audit reports was a joint DOE-ID/CWI audit of CWI's QA program related to the operations of both the FSV and TMI-2 ISFSI projects. Three of the audit reports were

joint DOE-ID/CWI audits of CWI's QA program as related to the operations of the FSV, TMI-2, and Idaho Spent Fuel Facility (ISFF) ISFSI projects, now managed under the same office. The final two audit reports reviewed were essentially CWI reissuances of two DOE-ID audit reports, previously reviewed. For the purposes of this inspection, we focused on the audit findings and observations exclusive to the FSV ISFSI Project.

Audit Report areas of focus included ISFSI Safety Analysis Reports (SARs), Organization, Quality Assurance Program, Implementing Documents, Document Control, Corrective Action, Test Control, and other ISFSI related activities. Audit issues were categorized into one of three categories: (1) Significant Conditions Adverse to Quality, (2) Conditions Adverse to Quality (CAQs), or (3) Observations and Recommendations. Significant CAQs and CAQs required formal responses in the form of Condition Action Requests (CARs) or Deficiency Reports (DRs). Those reports could be tracked through the sites corrective action program (CAP) to monitor their current status, whether resolved (closed) or still pending closure (open). None of the Audit Reports uncovered any significant findings. However, 15 CAQs were documented, leading to 15 DRs and 23 observations.

The 18 QA Surveillances performed by DOE-ID and CWI with regard to operations at the FSV, TMI-2, and ISFF ISFSIs covered operational programs such as Emergency Planning, Emergency Preparedness, Safety Review Committee, Testing, Reporting and Posting, Training, Fuel Management, and others areas. These reviewed Surveillances resulted in one significant CAQ, 16 CAQs, and 28 observations. The significant CAQ resulted in a CAR that was closed during the surveillance. This significant CAQ pertained to the proper labeling of QA records disks that contained safeguards information. The issue was immediately corrected by the licensee. The other findings from the surveillances were documented in 16 CAQs which resulted in 16 DRs.

NRC reviewed the 2011, 2012, and 2013 Quality Assurance Program Annual Trending Reports (Trending Reports) for FSV, TMI-2, and ISFF ISFSIs. The Trending Reports served to document the analysis of QA conditions adverse to quality in order to identify adverse performance trends for the DOE-ID ISFSIs during the previous year. The findings of the Trending Reports were identified during the performance of QA program oversight activities and applied to both CWI and DOE-ID ISFSI QA programs. Of those three Trending Reports reviewed, two conditions adverse to quality were identified, both during calendar year (CY) 2012. Those conditions resulted in two DRs.

Three Quality Assurance Management Assessments (QAMAs) were reviewed for 2011, 2012, and 2013. The QAMAs served to assess the adequacy of resources and personnel to achieve and assure quality at the ISFSIs managed by the DOE-ID office, including FSV. Those three audit reports did not uncover any significant conditions adverse to quality or conditions adverse to quality. However, four observations and two recommendations were made.

NRC inspectors followed-up on all Condition Action Requests (CARs) and Deficiency Reports (DRs) resulting from QA Audits, Surveillances, Trending Reports, and Quality Assurance Management Assessments to evaluate their current status. Since the audit reports and surveillances covered the combined operations of FSV, TMI-2, and ISFF ISFSIs, many of the individual audits or surveillance findings were not directly related to ISFSI operations at FSV. The CARs and DRs related to FSV ISFSI operations were evaluated to ensure that the identified problems were properly categorized based on

their safety significance. All identified deficiencies had been entered into the licensee's CAP and were resolved by the ISFSI program office. The corrective actions taken for the findings identified were appropriate for the situations. Audits and surveillances performed met the requirements of 10 CFR 72, Subpart G, the license, and FSAR.

b. Radiological Conditions and Tour of the ISFSI

A tour of the Fort Saint Vrain ISFSI facility was performed during the inspection. A recent radiological survey of the ISFSI was provided to NRC inspectors prior to their arrival at the facility. The Facility Director, ISFSI Manager, Security Manager, and others accompanied the NRC inspectors during the facility tour. A calibrated ion chamber type survey meter was provided to the NRC inspectors for measuring gamma exposure rates at selected reference areas during the site tour. No neutron measurements were taken. The tour found the charge face area of the modular vault dry store (MVDS) system to be in good condition. The security tamper seals on the 244 loaded storage positions, each of which contained a fuel storage container (FSC), were all intact. No flammable or combustible materials were observed anywhere inside or near the ISFSI facility. Radiation readings were taken and recorded on approach to the ISFSI facility and remained at background levels. Survey meter readings were taken at several locations on the ISFSI charge face area atop the stored spent fuel and the levels were not discernable from background using the ion chamber. The most elevated reading was taken adjacent to a depleted uranium shield plug that was inside a uranium shield plug handling device (SPHD) positioned on the charge face. The measurement was approximately 0.4 mR/hr. However, that reading rapidly decreased back to background when the detector was moved away from the SPHD. This shield plug is only utilized during fuel handling movements and as such remains in the shielded handling device. There were two radiological control areas inside the charge face area. One area was around a radioactive source storage locker positioned just behind the canister handling machine (CHM) near the entry point. That was where various check sources were stored. The other controlled area was the location where depleted uranium shield plugs were stored on the opposite side of the charge face from the source storage locker. Both areas were roped off and properly posted based on the stored materials and radiation levels.

Areas external to the ISFSI facility were also inspected. On the outside, the inlet and outlet screens were clear of debris, although there was a small amount of snow accumulation in the lower screen areas. The snow accumulation was not enough to significantly hinder airflow. There were areas on the external facility surface where the concrete showed signs of efflorescence along the building's east elevation. There were also signs of corrosion on some metal fixtures in external areas exposed to weather conditions and inside the truck bay. FSV ISFSI staff was aware of these conditions and had incorporated maintenance on these surfaces into their Aging Management Program which was implemented as part of the site's license renewal.

c. Radiological Environmental Monitoring Reports

Site monitoring data from the 2011, 2012, and 2013 annual radiological environmental monitoring reports for the Fort Saint Vrain ISFSI were reviewed. The data was reviewed to confirm that radiological conditions at the site had remained stable and within regulatory requirements since the last inspection. The licensee was required by Technical Specification 5.5.4(c) to submit an annual report to the NRC within 60 days

after January 1 of each year. Three reports had been submitted since the last inspection, including the 2011 report dated February 29, 2012 (ML12066A206), the 2012 report dated February 25, 2013 (ML13072A096), and the 2013 report dated February 18, 2014 (ML14052A134). The FSV Radiological Environmental Monitoring Program (REMP) was designed to monitor the predominant radiation exposure pathway for the facility: direct radiation exposure. There are no liquid or airborne effluent releases of radiation from the ISFSI. The REMP is comprised of 20 thermoluminescent dosimeters (TLDs) located along the 100 meter perimeter fence of the ISFSI. Approximately one third of the perimeter fence TLDs were changed out and processed each month. A control TLD was located at the Weld County Sheriff Office in Greeley, CO, approximately 17 miles NNE from the ISFSI. The control TLD was changed out and processed monthly.

The following table provides the annual average exposure rates reported in the annual environmental monitoring reports:

Table 1, Fort St. Vrain Annual Radiological Monitoring Program Results

YEAR	MEAN (mR/d)	CONTROL (mR/d)
2011	0.39 +/- 0.03	0.35 +/- 0.02
2012	0.37 +/- 0.02	0.35 +/- 0.02
2013	0.39 +/- 0.02	0.35 +/- 0.02

Correcting the daily exposure rates in Table 1, above, for background, shows a net exposure rate at the fence between 7.3 – 14.6 mR/year. The site boundary monitoring results for 2011, 2012, and 2013 were within the requirements of 10 CFR 72.104(a), which limits direct radiation dose to 25 mrem per year.

d. ISFSI Monitoring, Contamination Surveys, and Leak Tests of Sealed Sources

Six thermoluminescent dosimeters (TLDs) were positioned in the area above the charge face for the purpose of measuring the direct radiological impacts of the stored spent fuel to that area. The monitoring results from those TLDs also provided assurance that there was not a need for personnel radiation monitoring for ISFSI staff. The TLD monitoring results for the charge face area for November and December 2013 and January 2014 showed an average yearly exposure rate to the charge face area of 165 mR without background correction. Radiation levels are low enough that the conditions of 10 CFR 20.1502(a)(1) do not apply. As a result, individual radiation monitoring is not required for staff working at the FSV ISFSI.

NRC reviewed radiation and contamination survey results for the FSV ISFSI. Radiation levels were as expected and no removable contamination was detected at FSV. The FSAR Section 7.6.4.1, Surveys and Monitoring, indicated that tritium monitoring had been instituted within the ISFSI as a means of monitoring the effects of facility aging. Essentially, the tritium monitoring is intended to detect FSC failures or gross failures related to the FSC O-ring seals. NRC reviewed samples of tritium monitoring results from 2011, 2012, and 2013. In no instance was tritium above the minimum detectable level (MDL) measured in any of the sample results.

The floor of the interior MVDS module is sloped for drainage and is connected to a gutter that leads to a drain pipe with a valve for sampling. NRC reviewed completed copies of TPR-5613, FSV ISFSI Radiation Survey and Vault Drain System Sample Collection and

Analysis procedure, for January, May, August, and October of 2012; and January, April, July, and October of 2013. During the reviewed period, there were no occurrences of standing water in the vault drain system as documented in the reviewed inspection/survey results.

NRC reviewed the sealed source leak test results for the licensed Americium-Beryllium sealed neutron source performed on July 2011, July 2012, January 2013, July 2013, and January 2014. Those test results indicated that the source has remained intact and is not a source of contamination at the site.

e. Biennial Update Reports and SAR Revisions

Two biennial reports were reviewed. These reports provided information related to revisions made during the reporting period to the FSAR and certain programs required by the Technical Specifications. All changes discussed in the June 6, 2011 biennial report (period of June 2009 through June 2011) were previously reviewed during the last ISFSI inspection in March of 2011. The May 31, 2013, biennial report (for period of June 2011 through June 2013) included Revision 10 of the FSAR. The only change that was made in this revision was in Chapter 9. The licensee made one addition to the Section 9.8 “Aging Management” by adding a statement that one FSC will be sampled for hydrogen by no later than June 2015. This change was associated with the newly implemented Aging Management program that was required for the 20-year license extension. The 2013 biennial report continued by describing that no other changes were made to the following areas: 72.48 safety evaluations, Technical Specifications, Radiological Environmental Monitoring Program, the Training program, Quality Assurance Program, or Natural Gas and Oil Infrastructure. The licensee further stated that no additional changes were made to those programs between June 2013 and the date of the current routine ISFSI inspection.

f. Corrective Action Program

A list of deficiency report issued since the last NRC inspection in March of 2011 was provided by the licensee for ISFSI activities and the FSV site. Issues were processed in accordance with Procedure MCP-598, “Corrective Action System,” Revision 33. When a problem was identified the licensee would document the issue as a deficiency report in their Issue Communication and Resolution Environment (ICARE) system as a Deficiency Report (DR) and would assign a DR a number to track the issue.

Of the list of deficiency reports provided relating to the ISFSI, approximately 15 DRs were selected by the NRC for further review. The DRs related to a number of different topics including: issues related to previous commitments made by PSCo to the NRC, changes to the new aging management plan, and deficiencies identified during period quality assurance audits.

The DRs reviewed were well documented and properly categorized based on the significance of the issue. The corrective actions taken were appropriate for the situations. The licensee’s corrective action program met applicable regulatory, license, and FASR requirements.

g. Technical Specification Compliance and SAR Requirements

Technical Specification 3.3.1 required the licensee to conduct a leak test of one fuel storage container from each vault module every 5 years. The latest leak test was performed in 2010 and was reviewed in the last NRC ISFSI inspection. The next leak test is scheduled for 2015.

Technical Specification 3.1.1.1 required that the cooling inlet and outlet screens be visually inspected every 7 days to verify that no blockage existed. If blockage was observed on the screens, compensatory actions were required with specified time limits. Procedure records were reviewed for TS compliance for the months of June 2011, December 2011, July 2012, and December 2013. Procedure TPR-5593, "Visual Inspection of Fort St. Vrain ISFSI Cooling Inlets and Outlets/Tornado Clamp Verification," Revision 17, had been utilized to perform the visual inspections. The licensee had completed the visual inspections in a timely manner and had identified no obstructions during the months selected for review. Additionally, No obstructions were observed on the inlet and outlet screens during the tour of the facility the week of the inspection.

Safety Analysis Report Table 9.2.1 required the licensee to check the seismic restraints on the crane weekly. Records for the months of December 2013, January 2014 and February 2014 were reviewed during the inspection. Procedure TPR-5593, "Visual Inspection of Fort St. Vrain ISFSI Cooling Inlets and Outlets/Tornado Clamp Verification," Revision 17, had been utilized to perform the visual inspections. The licensee had completed the required visual check on the crane's seismic restraints as required by the FSAR with no discrepancies noted. Additionally, the crane's seismic restraints were verified as engaged during the week of the inspection.

h. Emergency Planning

Revisions to the licensee's emergency planning program since the last NRC inspection in March 2011 were reviewed. The licensee's emergency plan, PLN-143, had been not been revised since the last inspection. The licensee was in the process of revising the Emergency Plan but had not completed that revision. The current revision at the time of the inspection remained Revision 13.

Required emergency plan drills/exercises were listed in Section 6.6.1.2 of the emergency plan. Required semiannually drills included radiological/health physics drills, medical drills, and fire drills. Biennial exercises were larger drills that tested the adequacy of the implementing procedures, emergency equipment, and communications networks and ensured the emergency response personnel were familiar with their duties. Offsite response organizations were invited to participate in the biennial exercises. The licensee had successfully conducted the required exercises and drills since the last ISFSI inspection. Drill packages for the medical drill of September 1, 2011, a biennial exercise on June 5, 2012, the fire drill on November 14, 2012, the radiological/health physics drill on March19, 2013, and a natural phenomenon drill on April 8, 2013 were selected for review. The selected drills and exercises met the objectives of site Emergency Plan Section 6.6.1.2. The drill and exercise packages included a description of the drill that was conducted, a timeline, a synopsis, and an exercise critique. Drill deficiencies and areas for improvement were identified and placed into the licensee's corrective action program for resolution. Fort St. Vrain had invited several offsite support

agencies to participate in the different drills and/or exercises. The offsite agencies that participated in the 2012 biennial exercise included the Platteville/Gilcrest Fire Protection District, the Weld County Office of Emergency Management, the Weld County Paramedic Service, the Weld County Regional Communications Center, the Weld County Regional Sheriff's Center, and the NRC.

The licensee's memorandums of understanding (MOU) with offsite response agencies per Section 6.6.2.3 of their emergency plan were reviewed by the inspectors. All MOUs reviewed had not expired and were all documented as current. The licensee had five MOUs with offsite agencies. The organizations included North Colorado Medical Center, Platteville/Gilcrest Fire District, Weld County Paramedic Service, Weld County Sheriff Department, and DOE Golden Field Office.

i. Organization and Training

According to TS 5.3.1, each member of the facility staff must meet the minimum qualifications specified in the Safety Analysis Report, Section 9.1.4.1, Minimum Qualification Requirements. The listed the requirements established specific education and training requirements for positions at the FSV ISFSI. Changes to the licensee's staffing since the last inspection in March of 2011 were reviewed by the inspectors. Four position changes had occurred since the last inspection. The ISFSI Quality Assurance Manager, the FSV Facility Director, the Department Manager, and FSV Licensing Manager personnel qualifications were reviewed to verify that the newly assigned individuals met the requirements listed in the FSAR. NRC reviewed the personnel indoctrination, training, and qualification paperwork for each position and determined that the individuals hired met all applicable requirements.

Safety Analysis Report Section 9.1.3.1.1 required an ISFSI safety review committee for Fort St. Vrain. The purpose of this committee was to evaluate the performance of the staff level safety committees, review performance indicators, review 72.48 evaluations, review evaluations for the oil and gas program, review changes to the Technical Specifications, emergency procedure, and physical protection plan, approve license amendment requests, and review preparations for major changes in operations. Technical Specification 5.2.1 required that a Safety Review Committee (SRC) meeting must include a minimum of three committee members including members representing the technical disciplines appropriate for matters under consideration and the Facility Director to establish a quorum. Further, the SRC was required to meet at least once every twelve months and at least once not more than three months prior to the start of defueling operations.

The NRC inspectors reviewed the minutes from three safety review committee meetings that took place on April 27, 2011, April 12, 2012, and March 20, 2013. The meetings met the 12 month TS requirement. A review of the attendance lists for the meetings also showed that a quorum was established for each meeting. Additionally, as required by TS 5.2.1.4, the agenda topics for each meeting included performance indicators; evaluations performed pursuant to 10 CFR 72.44(e), 10 CFR 44(f), 10 CFR 72.48, etc.; proposed license amendments; selected activities of the ALARA committee/staff level document review committee; preparation for major operations for potential safety hazards; and special reviews at the direction of the Facility Director. The issues discussed in the meetings were consistent with the objectives specified in the committee's charter, the SAR, and the Technical Specifications.

j. Aging Management Program

As a condition of the FSV license renewal, DOE was required to establish an aging management program to ensure that all ISFSI structures, systems, and components (SSCs) considered important to safety remain functional through the duration of the extended licensing period. The FSV ISFSI license was renewed on July 18, 2011 and included Technical Specification 5.5.5 which required that an Aging Management Program be established as a means for monitoring and mitigating potential aging effects of the modular vault system. The aging management program is implemented at FSV through their Maintenance Management Plan (MMP), PLN-2974, Rev. 2, October 2, 2012. The specific SSCs that are inspected as part of the MMP include the fuel storage containers, fuel storage container support stools, standby storage wells, container handling machine raise/lower mechanism, container handling machine fuel storage container grapple, charge face structural steel, cask load/unload port, structural concrete of the MVDS building, and concrete fill inside the charge face structure. The inspection and maintenance of these areas was implemented through the use of Technical Procedures (TPRs). Inspection/maintenance periodicity varied from monthly, for some active components, to every 10 years for passive systems. NRC reviewed several (10) of the aging management related TPRs that were completed during the years since the last inspection. The TPRs documented the inspection and maintenance of components such as standby storage wells, container handling machine raise/lower mechanism, fuel storage container grapple, cask load/unload port shutter hatch cover, et al. None of the TPRs reviewed observed any deficiencies.

As part of the Aging Management Program, the licensee committed to the repair or additional inspection and evaluation of previously identified concrete and metal surface conditions which exceeded second tier criteria of ACI 349.3R-02, Evaluation of Existing Nuclear Safety-Related Concrete Structures. DOE also committed to the development of a concrete inspector training and qualification program in accordance with ACI 349.3R-02. Those requirements are spelled out in TS 5.5.5 and FSAR Section 9.8, Aging Management Program. These additional commitments were to be completed prior to the next MVDS concrete inspection scheduled for June 2014. NRC inspectors reviewed a pending work request, dated February 6, 2014, which would address those inspections and maintenance. At the time of the inspection, the licensee had performed all of the required inspections, maintenance, and repairs associated with their aging management program.

1.3 Conclusions

The licensee was conducting quality assurance audits of the ISFSI program. A review of the audit reports and surveillances performed since the last inspection determined that the quality assurance group was covering risk significant areas within a broad range of topics. Any issues that were identified in the reports were entered into the corrective action program for resolution.

The ISFSI facility was being maintained in good physical condition with no observable deterioration. Radiation levels inside the facility were near background and radiological areas inside the facility were properly posted.

Radiation levels around the outside of the ISFSI facility were within expected ranges for the site's ISFSI. Radiation data reviewed from the 2011 through 2013 environmental reports determined that radiation levels offsite were not being significantly impacted by the ISFSI.

NRC reviewed radiation and contamination survey results for the FSV ISFSI. Radiation levels were as expected and no removable contamination was detected at FSV. NRC reviewed samples of tritium monitoring results from 2011, 2012, and 2013. In no instance was tritium above the minimum detectable level (MDL) measured in any of the sample results. Sealed source leak test results indicated that the licensee's calibration sources had remained intact and were not a source of contamination at the site.

Revisions to the FSAR and changes to other major programs since the last inspection were reviewed. There were no changes made to the Radiological Environmental Monitoring Program, the Training program, the Quality Assurance Program, or Natural Gas and Oil Infrastructure near the site. Revision 10 to the FSAR was reviewed and changes made were found to meet the requirements of the Title 10 Code of Federal Regulations (10 CFR) Part 72.48 change process.

Selected deficiency reports were reviewed for the period April 2011 through January 2014. A wide range of issues had been identified and resolved. Resolutions of the deficiency reports were appropriate for the safety significance of the issue. No adverse trends were identified during the review.

Site required surveillances associated with inspection of cooling inlet and outlet screens and checks of the crane's seismic restraints had been conducted in accordance with the requirements of the Fort St. Vrain Technical Specifications and FSAR requirements.

The Fort St. Vrain emergency plan was being maintained, no revisions had been made since the last inspection. Drills, exercises, and training were performed in accordance with requirements in the emergency plan. Participation in drills/exercises were offered to offsite support agencies. Offsite support agencies were offered opportunities to participate in licensee drills/exercises and there was a high level of participation.

The ISFSI organization changes since the last inspection were reviewed for compliance with FSAR requirements for staffing qualifications of the new personnel. All individuals were well qualified and met the requirements of the FSAR. The SRC had met on an annual basis and reviewed issues consistent with requirements in the FSAR and Technical Specifications.

Fort St. Vrain had implemented their Aging Management Program which was placed in the licensee's Technical Specifications and Safety Analysis Report through their 20 year license renewal process. At the time of the inspection, the licensee had performed all of the required inspections, maintenance, and repairs to the ISFSI associated with that program.

2 Review of 10 CFR 72.48 Evaluations (60857)

2.1 Inspection Scope

The licensee's 10 CFR 72.48 screenings and evaluations since the last NRC safety inspection were reviewed to determine compliance with regulatory requirements.

2.2 Observations and Findings

The licensee's 10 CFR 72.48 screenings and evaluations since the last NRC routine ISFSI inspection were reviewed to determine compliance with regulatory requirements. The licensee had reported that they had not made any significant modifications to their ISFSI, container handling machine, or overhead crane since the last inspection. Additionally, no full 72.48 safety evaluations had been performed since the last NRC inspection. From the list of 72.48 screens provided by the licensee, five 10 CFR 72.48 screenings were selected for further review. The licensee utilized Procedure MCP-2925, "Screen and Evaluate Changes," Revision 18 to perform the 10 CFR 72.48 safety screenings or evaluations. None of the screenings reviewed required a full 10 CFR 72.48 safety evaluation. All screenings were determined to be adequately evaluated.

2.3 Conclusions

All required safety screenings of changes to design or procedures as described in the FSAR had been performed in accordance with procedures and 10 CFR 72.48 requirements. All screenings reviewed were determined to be adequately evaluated.

3 Exit Meeting

The inspectors reviewed the scope and findings of the inspection during an exit conducted on February 26, 2014.

SUPPLEMENTAL INSPECTION INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee Personnel

S. Ahrendts, Facility Director, DOE
T. Borst, FSV ISFSI Manager, CWI
R. Fadeley, Chief Engineer, CWI
A. Fahrenbruch, Security Coordinator, Elite Security
G. Hall, Overall ISFSI Manager, CWI
J. Kaylor, Operations Manager, CWI
M. Liming, Security Program Manager, Elite Security
J. Newkirk, FSV Safety Officer, CWI

INSPECTION PROCEDURES USED

IP 60858	Away-From-Reactor ISFSI Inspection Guidance
IP 60857	Review of 10 CFR 72.48 Evaluations

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Discussed

None

Closed

None

LIST OF ACRONYMS

ADAMS	Agencywide Documents Access and Management System
AREOR	Annual Radiological Environmental Operating Report
CAP	Corrective Action Program
CAR	Condition Action Request
CFR	Code of Federal Regulations
CWI	CH2M-WG Idaho, LLC
DOE-ID	Department of Energy Idaho Office
DNMS	Division of Nuclear Material Safety
DR	Deficiency Report
FSAR	Final Safety Analysis Report
FSC	Fuel Storage Container
FSV	Fort Saint Varin
ICARE	Issue Communication and Resolution Environment system
IN	Information Notice
ISFSI	Independent Spent Fuel Storage Installation
MDL	Minimum Detectable Level
mrem	milliRoentgen equivalent man
mR/d	milli-Roentgens per day
MVDS	Modular Vault Dry Store system
NRC	U.S. Nuclear Regulatory Commission
PA	protected area
REMP	Radiological Environmental Monitoring Program
RP	radiation protection
SAR	Safety Analysis Report
SPHD	Shield Plug Handling Device
TPR	Technical Procedure
TLD	thermoluminescent dosimeter
TS	Technical Specification