



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION III
2443 WARRENVILLE RD. SUITE 210
LISLE, IL 60532-4352

August 5, 2015

Mr. John Sauger
General Manager
Zion Restoration Project
ZionSolutions, LLC
101 Shiloh Boulevard
Zion, IL 60099

SUBJECT: NRC INSPECTION REPORT NO. 05000295/2015008(DNMS);
05000304/2015008(DNMS) – ZION NUCLEAR POWER STATION

Dear Mr. Sauger:

On June 19, 2015, the U.S. Nuclear Regulatory Commission (NRC) completed onsite inspection activities for April 1, 2015, through June 30, 2015, at the permanently shut down Zion Nuclear Power Station (ZNPS) in Zion, Illinois. The purpose of the inspection was to determine whether decommissioning activities were conducted safely and in accordance with NRC requirements. The enclosed report presents the results of this inspection, which were discussed with Mr. Gerard P. Van Noordennen and other members of your staff on July 9, 2015.

During the inspection period, the NRC inspectors reviewed the following aspects of onsite activities: safety reviews, design changes and modifications; self-assessments, audits and corrective actions; and decommissioning performance. The inspection consisted of an examination of activities at the site as they relate to safety and compliance with the Commission's rules and regulations. Areas examined during the inspection are identified in the enclosed report. Within these areas, the inspection consisted of a selective examination of procedures and representative records, observation of work activities, and interviews with personnel.

Based on the results of this inspection, the NRC identified one Severity Level IV violation of NRC requirements. However, because of the very low safety significance and because the issue was entered into your corrective action program (CAP), the NRC is treating the issue as a Non-Cited Violation (NCV), in accordance with Section 2.3.2 of the NRC's Enforcement Policy. No response is required for the NCV. However, if you contest this NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region III; and the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

J. Sauger

-2-

In accordance with Title 10 of the *Code of Federal Regulations* (CFR) 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response, will be made available electronically for public inspection in the NRC's Public Document Room or from the Publicly Available Records System (PARS) component of NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC's website at <http://www.nrc.gov/reading-rm/adams.html>.

Sincerely,

/RA/

Robert J. Orlikowski, Chief
Materials Control, ISFSI, and
Decommissioning Branch
Division of Nuclear Materials Safety

Docket No: 050-00295; 050-00304
License No: DPR-39; DPR-48

Enclosure:
IR 05000295/2015008(DNMS);
05000304/2015008(DNMS)

cc w/encl: *ZionSolutions*, Service List

J. Sauger

-2-

In accordance with Title 10 of the *Code of Federal Regulations* (CFR) 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response, will be made available electronically for public inspection in the NRC's Public Document Room or from the Publicly Available Records System (PARS) component of NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC's website at <http://www.nrc.gov/reading-rm/adams.html>.

Sincerely,

/RA/

Robert J. Orlikowski, Chief
Materials Control, ISFSI, and
Decommissioning Branch
Division of Nuclear Materials Safety

Docket No: 050-00295; 050-00304
License No: DPR-39; DPR-48

Enclosure:
IR 05000295/2015008(DNMS);
05000304/2015008(DNMS)

cc w/encl: *ZionSolutions*, Service List

DISTRIBUTION w/encl:

Darrell Roberts
Patrick Loudon
Julio Lara
Bruce Watson
John Hickman
Harral Logaras
Rick Skokowski

Alan Barker
Carole Ariano
Ken Lambert
Carmen Olteanu
Jim Clay
MCID Inspectors

ADAMS Accession Number: ML15218A359

☒ Publicly Available

☐ Non-Publicly Available

☐ Sensitive

☒ Non-Sensitive

To receive a copy of this document, indicate in the concurrence box "C" = Copy without attach/encl "E" = Copy with attach/encl "N" = No copy

OFFICE	RIII DNMS		RIII DNMS		RIII DNMS		RIII	
NAME	Blin:ps		REdwards		ROrlikowski			
DATE	08/03/15		08/04/15		08/05/15			

OFFICIAL RECORD COPY

U.S. NUCLEAR REGULATORY COMMISSION
REGION III

Docket No: 050-00295;050-00304

License No: DPR-39; DPR-48

Report No: 05000295/2015008(DNMS)
05000304/2015008(DNMS)

Licensee: *ZionSolutions*, LLC

Facility: Zion Nuclear Power Station
(permanently shut-down)

Location: Zion, Illinois

Dates: April 1, 2015 through June 30, 2015

Inspectors: Bill C. Lin, Health Physicist
Wayne J. Slawinski, Senior Health physicist
Rhex A. Edwards, Senior Health Physicist

Approved by: Robert J. Orlikowski, Chief
Materials Control, ISFSI, and
Decommissioning Branch
Division of Nuclear Materials Safety

Enclosure

EXECUTIVE SUMMARY

Zion Nuclear Power Station, Unit 1 and 2 NRC Inspection Report 05000295/2015008 (DNMS); 05000304/2015008 (DNMS)

The Zion Nuclear Power Station is a permanently shut-down and defueled power reactor facility that was maintained in a safe storage (SAFSTOR) condition with spent fuel in wet storage from 1998 through 2010. Active decommissioning began in 2011, and continued throughout this quarterly inspection period. The spent fuel transfer campaign commenced in late 2013, and was successfully completed in January 2015. This routine safety inspection reviewed the licensee's decommissioning activities related to the Unit 2 reactor vessel segmentation, Unit 1 and Unit 2 steam generator segmentation, effluent and environmental monitoring activities, and Unit 1 reactor vessel drainage and cleanup. The inspectors also reviewed the licensee's technical justifications regarding a revision to the Offsite Dose Calculation Manual (ODCM).

Organization, Management and Cost Controls

- The licensee adequately implemented organization, management, and cost controls in accordance with regulatory requirements, license conditions, and the Technical Specifications (TSs). (Section 1.0)

Safety Reviews, Design Changes, and Modifications

- The licensee adequately implemented the safety reviews, design changes and modifications in accordance with regulatory requirements, license conditions, and the Quality Assurance Project Plan (QAPP). (Section 2.0)

Self-Assessment, Auditing, and Corrective Action

- Issues were identified by the licensee at appropriate thresholds and entered into the Corrective Action Program (CAP). Issues were screened and prioritized commensurate with safety significance. Licensee evaluations determined the significance of issues, and included appropriate remedial corrective actions. (Section 3.0)

Decommissioning Performance and Status Review

- The inspectors determined that the licensee and supplemental workforce conducted decommissioning activities in accordance with the regulations and license requirements. The inspectors conducted frequent plant tours to verify the material condition of structures and systems, and the conduct of safe decommissioning. (Section 4.0)

Occupational Radiation Exposure

- Radiation Work Permits (RWP) and As Low As is Reasonably Achievable (ALARA) controls provided contamination controls and dose reduction measures appropriate for the work activities. Workers adhered to the radiological controls provided in the RWPs and ALARA plans and followed the Radiation Protection (RP) staff instruction.

Decommissioning activities were executed in general alignment with planning documents and as provided in RWPs and ALARA reviews. Radiation surveys were performed adequately to identify the hazards present. Command and control of radiologically significant activities was executed in a manner that was safe and achieved the desired result.

- A Severity Level IV violation was identified by the NRC for the failure to have sufficient information to support the changes to the licensee's ODCM dated May 12, 2015. Specifically, the licensee removed a fourteen day time constraint from Surveillance 1 of Table 12.2.1 which then would permit the licensee to perform discharges from the Lake Release Tank without the need for a radiation monitoring instrument. However, the licensee's technical justification only addressed the validity of performing the discharge by obtaining two independent samples of the tank contents and never provides the justification on the status of the radiation monitoring instrument at the Lake Release tank. By not having sufficient information, the licensee failed to follow the licensee's own QAPP protocols. (Section 5.0)

Effluent and Environmental Monitoring

- The licensee controls, monitors, and quantifies releases of radioactive materials released to the environment to ensure offsite doses are within regulatory limits and ALARA. (Section 6.0).

Solid Radioactive Waste Management and Transportation of Radioactive Materials

- Radioactive materials planned for shipment were classified and characterized appropriately in accordance with Title 10 of the Code of Federal Regulations (CFR) Parts 61.55 and 61.66 so as to meet low-level waste burial site criteria (Section 7.0).

Report Details

Summary of Plant Activities

During the inspection period, the licensee continued numerous decommissioning activities. Specifically, the licensee continued the Unit 2 reactor vessel segmentation, Unit 1 and Unit 2 steam generator segmentation, and Unit 1 cavity drain and clean up. The licensee also completed the demolition of the crib house and associated surrounding areas and performed various effluent releases and environmental monitoring activities. The licensee submitted the License Termination Plan on December 19, 2014, and the NRC hosted a public meeting to discuss the submittal on April 28, 2015.

1.0 Organization, Management, and Cost Controls at Permanently Shutdown Reactors (IP 36801)

1.1 Inspection Scope

The inspectors conducted document reviews and interviews with plant personnel to assess the licensee's performance as it related to the following areas:

- Procedures and processes the licensee established to resolve employee and safety concerns, and to assess the licensee's effectiveness at resolving identified problems;
- Implementation of CAP procedures;
- Future licensee plans for decommissioning organization and staffing would continue to meet regulatory requirements;
- Licensee appropriately implemented QAPP Manual requirements and commitments;
- Licensee continued implementation of regulatory requirements that remained applicable as described in NRC Bulletins, Generic Letters, and Orders;
- Verified that licensee programs and procedures were appropriately implemented by licensee staff. In addition, the inspectors verified that when issues were identified, licensee personnel appropriately documented the issue in the CAP.

1.2 Observations and Findings

The inspectors determined through: direct licensee observation; reviews of established licensee programs and procedures; corrective action documents; and interviews with licensee personnel that the appropriate regulatory requirements and commitments were followed.

No findings were identified.

1.3 Conclusions

The licensee adequately implemented organization, management, and cost controls in accordance with regulatory requirements, license conditions, and the QAPP.

2.0 **Safety Reviews, Design Changes, and Modifications (IP 37801)**

2.1 Inspection Scope

The inspectors conducted document reviews and interviews with plant personnel to assess the licensee's performance as it related to the following areas:

- Determination that licensee procedures and processes conform to the regulation and guidance associated with 10 CFR 50.59 and QAPP;
- Procedures that control and implement design changes and modifications to assess that the procedures provided adequate guidance for implementation, review and approval;
- Implementation of a sampling of design change modifications to verify that procedures and controls were followed; and confirm that the applicable changes were effectively implemented in the field and in plant procedures, drawings, and training programs if applicable;
- Verification that changes made under 10 CFR 50.59 did not require prior NRC approval;
- Verification that changes to preventive maintenance, corrective maintenance, and operational procedures for required equipment were implemented in accordance with the licensee's processes and procedures; and
- The inspectors verified that when issues were identified that licensee personnel appropriately documented the issue in the CAP.

2.2 Observations and Findings

The inspectors reviewed the licensee's programs for changes; attended a sampling of licensee weekly onsite safety review committee meetings throughout the inspection period to verify that requirements were met; and performed a review of procedure and modification changes on a sample of licensee-approved changes. The inspectors determine that when issues were identified, the issues were documented by the licensee in the CAP at an appropriate threshold.

No findings were identified.

Conclusions

The licensee adequately implemented the safety reviews, design changes and modification in accordance with regulatory requirements, license conditions, and the QAPP.

3.0 Self-Assessments, Audits, and Corrective Actions (IP 40801)

3.1 Inspection Scope

The inspectors conducted document reviews and interviews with plant personnel to assess the licensee's performance as it related to the following areas:

- Administrative procedures prescribed actions for the identification, evaluation and resolution of problems;
- Licensee procedures prescribed thresholds for the performance of self-assessments, audits, and surveillances;
- Licensee management reviewed self-assessments, audits, and corrective actions to remain knowledgeable of plant performance;
- Self-assessments were conducted with technically qualified personnel and sufficient independence from the licensee;
- Issues or problems were identified and corrected in accordance with the licensee's CAP through a sampling of select issues;
- Quality assurance personnel audited changes in the status of decommissioning and licensee organization; and
- Licensee management observed maintenance and surveillance activities, operations evolutions and training.

The inspectors reviewed CAP documents on a daily basis to determine: if a sufficiently low threshold for problem identification existed; the quality of follow-up evaluations including extent-of-condition; if the licensee assigned timely and appropriate prioritization for issue resolution commensurate with the significance of the issue. Issues that were repetitive and those with the potential for safety or regulatory consequence were evaluated further to assess apparent and/or common cause and significance. The inspectors also observed a sample of licensee corrective action review meetings to ascertain if the CAP procedures were implemented appropriately.

3.2 Observations and Findings

The inspectors determined that issues were identified by the licensee at an appropriate threshold within various functional areas of the site and entered into the CAP. Issues were effectively screened, prioritized and evaluated commensurate with safety significance. The scope and depth of evaluations were adequate in that the evaluations

reviewed addressed the significance of issues and assigned an appropriate course of remedial action.

The inspectors verified that self-assessments conducted during the inspection period were performed with technically qualified personnel; and when appropriate, utilized personnel independent of the licensee. Finally, the inspectors verified that quality assurance personnel continued to audit changes implemented at the plant.

No findings were identified.

3.3 Conclusions

Issues were identified by the licensee at appropriate thresholds and entered into the CAP. Issues were screened and prioritized commensurate with safety significance. Licensee evaluations determined the significance of issues and included appropriate remedial corrective actions.

4.0 **Decommissioning Performance and status reviews (IP 71801)**

4.1 Inspection Scope

The inspectors conducted document reviews, observations, and interviews with plant personnel to assess the licensee's performance as it related to the following areas:

- Status of decommissioning through the observation of licensee meetings that planned, reviewed, assessed and scheduled the conduct of facility decommissioning;
- Whether licensee activities were in accordance with license conditions and docketed commitments, as well as, within the bounds of the docketed post shutdown activity report;
- Operability and functionality of systems necessary for safe decommissioning was assessed through plant walkdowns of the following systems: radioactive effluent monitoring, radiation protection monitors and alarms, and equipment important to emergency preparedness;
- Verified pre-job briefs were conducted for facility operations including maintenance, surveillance, operations, and decommissioning activities;
- Performed plant tours to assess field conditions and decommissioning activities;
- Observed in progress field work to verify activities were conducted in accordance with approved work instructions and workers were knowledgeable of tasks.

4.2 Observations and Findings

a. Unit 2 Reactor Vessel Segmentation

The inspectors determined through plant tours and observations that the licensee was performing the reactor vessel segmentation in accordance with the approved licensee procedures and regulatory requirements. The licensee had the proper personal protection equipment (PPE) and dosimetry, and they implemented the applicable ALARA practices.

b. Unit 1 and Unit 2 Steam Generator Segmentations

The inspectors determined through plant tours and observations that the licensee was performing the steam generators segmentation in accordance with the approved licensee procedures and regulatory requirements. The licensee had the proper PPE and dosimetry, and they implemented the applicable ALARA practices. The inspectors also observed that licensee's Radiation Protection personnel performed the proper radiation and contamination surveys after each piece of the steam generators were segmented.

c. Unit 1 Cavity Drain and Cleanup

The inspectors determined through plant tours and observations that the licensee was performing the Unit 1 cavity drain and cleanup in accordance with the approved licensee procedures and regulatory requirements. The licensee had the proper personal protection equipment such as face shields, life jackets, and dosimetry, and they implemented the applicable ALARA practices such as performing the proper radiation surveys when removing items out of the water from the Unit 1 Cavity.

No findings were identified.

4.3 Conclusions

The inspectors determined that the licensee and supplemental workforce conducted decommissioning activities in accordance with the regulations and license requirements. The inspectors conducted plant tours to verify that the material condition of structures, systems and components supported the conduct of safe decommissioning.

5.0 **Occupational Radiation Exposure (IP 83750)**

5.1 Inspection Scope

The inspectors conducted document reviews, observations, and interviews with plant personnel to assess the licensee's performance as it related to the following areas:

- Planning and preparation for radiation work were adequate and if licensee management supported radiation protection planning.
- Personal dosimetry for external exposure meets requirements.

- Management and administrative controls of external radiation exposure meet requirements and are designed to make exposures ALARA.
- Processes or engineering controls are used to the extent practicable to limit concentrations of airborne radioactive materials.
- Survey and monitoring activities are performed as required.
- Control of radioactive materials and contamination meets requirements.
- Can effectively implement the ALARA program.
- ALARA related training is adequate and provided to appropriate personnel.
- Initiatives to implement operational methods and practices maintain doses ALARA.
- Issues, events, or problems are identified, resolved, and prevent future problems in the area of radiological controls.

5.2 Observations and Findings

The inspectors determined through plant tours and observations that the licensee was performing the applicable ALARA practices. Dosimetry and personal PPE were all properly worn and available for use when necessary. Licensee's radiation protection personnel followed the required licensee procedures for adequate control of radioactive materials during work evolutions and performed the required radiation and contamination surveys.

Failure to Perform Change to the ODCM in accordance with QAPP

A Severity Level IV violation was identified by the NRC for the failure of ZNPS to perform changes to the ODCM dated May 12, 2015, in accordance with the licensee's QAPP, Revision 7, Appendix B, Section 5.6.1.C.I.

License Condition number 3 of Zion NRC License DPR-39, Amendment 188 and License Condition number 3 of Zion NRC License DPR-48, Amendment 175 states in part, the licensee shall incorporate the additional administrative controls for the Zion Nuclear Power Station Title 10 of the *Code of Federal Regulations* (CFR) Part 50 licensed activities, as provided in the licensee's submittal dated March 17, 2014, as supplemented by letter dated September 10, 2014, into the Zion Nuclear Power Station Quality Assurance Project Plan (QAPP) prior to the implementation of this amendment.

Licensee's QAPP, Revision 7, Appendix B, Section 5.6.1.C.I, states when licensee's initiated changes to the ODCM, the licensee shall perform and retain records of reviews. This documentation shall contain: I. Sufficient information to support the change(s) together with the appropriate analyses or evaluations justifying the change(s).

Specifically, the licensee removed a fourteen day time constraint on Surveillance 1 of Table 12.2.1. During the previous ODCM Revision, Surveillance 1 allowed the licensee to discharge from the Lake Release Tank up to fourteen days when the Lake Release Tank radiation instrument monitor became inoperable. In order to perform the discharge, the licensee had to obtain two independent contents samples of the tank and analyze the samples prior to the discharge. After the fourteenth day, the licensee could no longer discharge from the Lake Release Tank without an operable radiation instrument monitor. However, during the ODCM revision dated May 12, 2015, the licensee removed the fourteen day time constraint for discharge to the lake when the radiation instrument monitor became inoperable and therefore allowed the licensee to perform batch discharge from the Lake Release Tank without the need for an operable radiation instrument monitor.

During interviews with licensee personnel, the licensee indicated they followed the regulatory guidance within NRC NUREG 1301. NRC NUREG 1301, Section 3.3.3.10.b states in part, restore the inoperable instrumentation to OPERABLE status within 30 days and, if unsuccessful, explain in the next Semiannual Radioactive Effluent Release Report pursuant to Control 6.9.1.4 why this inoperability was-not corrected in a timely manner. The radiation monitoring instrument is an important monitoring system designed to: provide early warning of increasing radiation activity due to a malfunction of plant equipment; monitor radioactive discharges to the environment to ensure concentrations do not exceed specified limits; and limit the inadvertent release of radioactive material from the plant so that the resulting radiation exposure to the public is as low as practicable and, in any event, well within the allowable concentration limits. The licensee's technical justification dated March 11, 2015, addressed the technical aspect of the licensee's ability to discharge the content of tank by obtaining two independent samples of the tank contents. However, the licensee did not have sufficient information regarding the status of the inoperable radiation instrument monitor and therefore failed to follow the licensee's QAPP administrative controls requirements.

The inspectors determined that the licensee did not have sufficient information to justify the changes made to the ODCM dated May 12, 2015. As such, the inspectors concluded that the failure was a performance deficiency in that the licensee did not meet the licensee's administrative controls as listed in the licensee's QAPP, Appendix B, Section 5.6.1.C.I. Specifically, the licensee did not provide information regarding the status of the inoperable instrument. Therefore, the information provided by the licensee justifying the change made to the ODCM dated May 12, 2015, did not meet the QAPP administration requirement as listed in Appendix B, Section 5.6.1.C.

The inspectors determined that the performance deficiency was more than minor because it failed to follow the administrative controls protocols as stated in the licensee's ODCM program which is in the licensee's QAPP and License Condition number 3 of their NRC license DPR-39 and DPR-48. By not following the administrative control protocol, the licensee did not perform a sufficient review of the changes to their ODCM and therefore could lead to a more significant safety concern if left uncorrected.

Consistent with the guidance in Section 1.2.6.D of the NRC Enforcement Manual, if a violation does not fit an example in the Enforcement Policy Violation Examples, it should be assigned a severity level: (1) Commensurate with its safety significance; and (2) informed by similar violations addressed in the Violation Examples. The inspectors found the issue to be similar to example 6.1.d.2 of the NRC's Enforcement Policy. As such the violation was determined to be a Severity Level IV violation.

License Condition number 3 of Zion NRC License DPR-39, Amendment 188 and License Condition number 3 of Zion NRC License DPR-48, Amendment 175 states in part, the licensee shall incorporate the additional administrative controls for the Zion Nuclear Power Station Title 10 Code of Federal Regulations Part 50 licensed activities, as provided in the licensee's submittal dated March 17, 2014, as supplemented by letter dated September 10, 2014, into the Zion Nuclear Power Station Quality Assurance Project Plan (QAPP) prior to the implementation of this amendment.

Licensee's QAPP, Revision 7, Appendix B, Section 5.6.1.C.I, states when licensee's initiated changes to the ODCM, the licensee shall perform and retain records of reviews. This documentation shall contain sufficient information to support the changes together with the appropriate analyses or evaluations justifying the changes.

Contrary to the above, the licensee's technical justification dated March 11, 2015, failed to follow the licensee's own QAPP protocols for making changes to the ODCM. The technical justification failed to have sufficient information to support the changes to the licensee's ODCM dated May 12, 2015. Specifically, the licensee removed a 14-day time constraint from Surveillance 1 of Table 12.2.1 which would then permit the licensee to perform discharges from the Lake Release Tank without the need for a radiation monitoring instrument. However, the licensee's technical justification only addressed the validity of performing the discharge by obtaining the two independent samples of the tank content and never provides the justifications on the status of the radiation monitoring instrument at the Lake Release Tank. Because this violation was of very low safety significance and it was entered into the licensee's CAP (CR 2015-000361), this violation is being treated as a Non-Cited Violation (NCV), consistent with Section 2.3.2 of the NRC Enforcement Policy. (NCV 05000295/2015008-01; 05000304/2015008-01; Failure to Perform Change to the ODCM in accordance with QAPP).

Conclusions

A NCV violation of the licensee's QAPP, Revision 7, Appendix B, Section 5.6.1.C.I was identified by the NRC Inspectors.

6.0 Effluent and Environmental Monitoring (84750)

6.1 Inspection Scope

The inspectors conducted document reviews and interviews with plant personnel to assess the licensee's performance as it related to the following areas:

- Determined whether radioactive waste treatment systems were maintained and operated to keep offsite doses ALARA;

- Determined whether the licensee effectively controlled, monitored, and quantified releases of radioactive materials in liquid, gaseous, and particulate forms to the environment;
- Determined whether the radiological environmental monitoring programs were effectively implemented to ensure effluent releases were being adequately performed as required to minimize public dose;

As part of the inspection, the inspectors verified that licensee programs and procedures were appropriately implemented by licensee staff. In addition, the inspectors verified that when issues were identified licensee personnel appropriately documented the issues in the corrective action program and adequate corrective actions were taken.

6.2 Observations and Findings

The inspectors noted during walkdowns of the radioactive effluent equipment and pathways that they were configured as described in the Offsite Dose Calculation Manual (ODCM) and were in good material condition (exception is the instrumentation relating to the Lake Release Tank). In addition, the inspectors noted during a review of the licensee's air and liquid effluent release and environmental monitoring dosimetry records, that there were no anomalous results, unexpected trends, or abnormal releases identified.

No findings of significance were identified.

6.3 Conclusions

The licensee maintained effluent monitoring and control systems as provided in the General Design Criteria. The effluent flow paths and monitoring systems reviewed aligned with descriptions in the ODCM and were functional (with the exception to the Lake Release Tank instrumentation). The effluent monitors reviewed were functional, calibrated, and alarm set points conservatively set to meet regulatory requirements. The licensee participated in an inter-laboratory comparison program in accordance with the ODCM requirements.

7.0 **Solid Radioactive Waste Management and Transportation of Radioactive Materials (IP 86750)**

7.1 Inspection Scope

The inspectors conducted document reviews, performed interviews, and observed the licensee's classification and characterization of a planned waste shipment to determine:

- Whether the licensee provided detailed instructions and operating procedures for transfer, packaging, and transport of low-level radioactive waste.
- Whether the material was properly classified, described, packaged, marked, and labeled for transportation.

- Whether the licensee used updated and audited procedures when scaling factors or correlation factors are used to quantify the concentration of hard-to-detect radionuclides.
- Whether shipments made by the licensee were in compliance with NRC and Department of Transportation regulations.

7.2 Observations and Findings

Based on the inspector's review of the licensee's waste manifest, procedures, and documentation, the licensee's properly classified, packaged, and labeled the waste shipped in accordance with the applicable regulations and requirements.

No findings were identified.

7.3 Conclusions

The licensee adequately implemented its solid radioactive waste and transportation programs in accordance with all applicable regulations.

8.0 **Exit Meeting**

The inspectors presented the results of the inspection to Mr. Gerard P. Van Noordennen and other members of your staff at an onsite exit meeting on July 9, 2015. The licensee acknowledged the results presented and did not identify any of the information discussed as proprietary.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

G. Van Noordennen, Vice President of Regulatory Affairs
J. Ashley, Zion Licensing Engineer
J. Smith, Radiological Engineer
T. Orawiec, Plant Manager
G. Tulley, Zion Manager for Industrial Safety and Health
B. Yetter, Characterization/License Termination Manager
M. Manninen, RP Technical Manager

INSPECTION PROCEDURES (IPs) USED

IP 36801	Organization and Management Controls at Permanently Shutdown Reactors
IP 37801	Safety Reviews, Design Changes, and Modifications at Permanently Shutdown Reactors
IP 40801	Self-Assessment, Auditing and Corrective Action at Permanently Shutdown Reactors
IP 71801	Decommissioning Performance and Status Reviews at Permanently Shutdown Plants
IP 83750	Occupational Radiation Exposure
IP 84750	Radioactive Waste Treatment, and Effluent and Environmental Monitoring
IP 86750	Solid Radioactive Waste Management and Transportation of Radioactive Materials

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000295/2015008-01	NCV	Failure to Perform Change to the ODCM in accordance with QAPP
05000304/2015008-01		

Closed

05000295/2015008-01	NCV	Failure to Perform Change to the ODCM in accordance with QAPP
05000304/2015008-01		

Discussed

None

PARTIAL LIST OF DOCUMENTS REVIEWED

The following is a partial 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.

- Offsite Dose Calculation Manual; Revision 7
- Offsite Dose Calculation Manual, dated December, 2013
- Zion Licenses-DPR-39, Amendment 188 and DPR-48, Amendment 175
- Quality Assurance Project Plan, Revision 7
- Technical Review Letter 008-2015, dated March 11, 2015
- Technical Review Letter 003-2015, dated January 29, 2015
- Technical Review Letter 007-2015, dated March 11, 2015
- Radiological Work Permit 2015-1-0002, Revision 1
- Radiological Survey Number 2015-2215, dated May 18, 2015
- ALARA Review 2015-1-0002, Revision 2, dated May 13, 2015
- Zion Non-Standard Lift for moving 8 filled nozzle piece boxes out of Unit 2 Containment and placed in a designated laydown area, Revision 0, dated 6/10/2015
- Air Leak Test for 8-120B Cask, Certificate of Conformance 9168, Revision 22
- Zion Condition Report 2015-000361