February 29, 2000

Mr. Oliver D. Kingsley
President, Nuclear Generation Group
Commonwealth Edison Company
ATTN: Regulatory Services
Executive Towers West III
1400 Opus Place, Suite 500
Downers Grove, IL 60515

SUBJECT: NRC INSPECTION REPORT 50-295/99004(DNMS); 50-304/99004(DNMS)

Dear Mr. Kingsley:

On February 22, 2000, the NRC completed an inspection at your Zion 1 and 2 reactor facilities which examined decommissioning activities. The enclosed report presents the results of that inspection.

During this inspection, activities in the areas of facility management and control, decommissioning support, spent fuel safety, and radiological safety were examined.

Overall performance in these areas was good. Routine activities were being conducted and verified to ensure that the condition of the plant and important safety systems were well maintained.

No violations or deviations were identified during this inspection.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be placed in the NRC Public Document Room.

Sincerely,

/s/ B. L. Jorgensen

Bruce L. Jorgensen, Chief
Decommissioning Branch

Docket Nos. 50-295; 50-304
License Nos. DPR-39; DPR-48

Enclosure: Inspection Report 50-295/99004(DNMS);
50-304/99004(DNMS)

See Attached Distribution

February 29, 2000

Mr. Oliver D. Kingsley
President, Nuclear Generation Group
Commonwealth Edison Company
ATTN: Regulatory Services
Executive Towers West III
1400 Opus Place, Suite 500
Downers Grove, IL 60515

SUBJECT: NRC INSPECTION REPORT 50-295/99004(DNMS); 50-304/99004(DNMS)

Dear Mr. Kingsley:

On February 22, 2000, the NRC completed an inspection at your Zion 1 and 2 reactor facilities which examined decommissioning activities. The enclosed report presents the results of that inspection.

During this inspection, activities in the areas of facility management and control, decommissioning support, spent fuel safety, and radiological safety were examined.

Overall performance in these areas was good. Routine activities were being conducted and verified to ensure that the condition of the plant and important safety systems were well maintained.

No violations or deviations were identified during this inspection.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be placed in the NRC Public Document Room.

Sincerely,

/s/ B. L. Jorgensen
Bruce L. Jorgensen, Chief
Decommissioning Branch

Docket Nos. 50-295; 50-304
License Nos. DPR-39; DPR-48

Enclosure: Inspection Report 50-295/99004(DNMS);
50-304/99004(DNMS)

See Attached Distribution

DOCUMENT NAME: G:\SEC\ZIO99004.dnm.wpd
To receive a copy of this document, indicate in the box:"C" = Copy without enclosure "**E**"= Copy with enclosure"**N**"= No copy

OFFICE	RIII		RIII		RIII		RIII	
NAME	Kulzer:djp		Leemon		Madeda		Jorgensen	
DATE	02/28/00		02/28/00		02/28/00		02/29/00	

OFFICIAL RECORD COPY

cc w/encl: D. Helwig, Senior Vice President
H. Stanley, PWR Vice President
C. Crane, BWR Vice President
R. Krich, Vice President, Regulatory Services
DCD - Licensing
R. Starkey, Decommissioning Plant Manager
T. Marini, Regulatory Assurance Supervisor
M. Aguilar, Assistant Attorney General
K. Nollenberger, County Administrator
Mayor, City of Zion
State Liaison Officer
State Liaison Officer, Wisconsin
Chairman, Illinois Commerce Commission

Distribution:
Docket File w/encl
PUBLIC IE-01 w/encl
RIII PRR w/encl
S. Richards, NRR w/encl
M. Masnik, NRR w/encl
D. Scaletti, NRR w/encl
SAR, NRR (e-mail)
LPM, NRR w/encl
J. L. Caldwell, RIII w/encl
C. D. Pederson, RIII w/encl
RIII Enf. Coordinator, RIII w/encl
IEO (e-mail)
DOCDESK (E-Mail)
Greens w/o encl

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos:	50-295; 50-304
License Nos:	DPR-39; DPR-48
Report No:	50-295/99004(DNMS); 50-304/99004(DNMS)
Licensee:	Commonwealth Edison Company
Facility:	Zion Nuclear Plant, Units 1 and 2
Location:	101 Shiloh Boulevard Zion, IL 60099
Dates:	December 2,1999 - February 22, 2000
Inspectors:	R. J. Leemon, Decommissioning Inspector, DNMS R. B. Landsman, Project Engineer, DNMS E. L. Kulzer, Radiation Specialist, DNMS
Approved By:	Bruce L. Jorgensen, Chief Decommissioning Branch Division of Nuclear Materials Safety

EXECUTIVE SUMMARY

Zion Nuclear Plant, Units 1 and 2
NRC Inspection Report 50-295/99004(DNMS); 50-304/99004(DNMS)

This routine decommissioning inspection covered aspects of licensee facility management and control, decommissioning support activities, spent fuel safety, and radiological safety. Overall, the licensee performed well in these areas.

The major decommissioning activities included:

1. Completion of the spent fuel pool (SFP) nuclear island.

2. Implementation of the Y2K program.

Facility Management and Control

- Fundamental SAFSTOR regulatory bases were established by issuance of the defueled technical specifications, post-shutdown activities report, and revised fire plan. Effective implementation was ongoing.

- The material integrity of structures, systems, and components necessary for the safe storage of spent fuel and conduct of safe decommissioning was being maintained. Plant housekeeping was very good and was monitored by plant management.

Decommissioning Support Activities

- Surveillance activities were being performed as required and a conservative approach was being used by the licensee to determine the time to boil if spent fuel pool cooling was lost.

- Plant status information was transferred effectively and shift turnovers were conducted professionally.

- The new spent fuel pool cooling and ventilation system will maintain the spent fuel pool nuclear island above freezing and is adequate to retain the integrity of the fuel.

- The licensee actions were appropriate to provide confidence that Y2K related problems would not result in any safety concerns to the fuel stored onsite. A very knowledgeable Zion Y2K Project Manager with a very detailed Y2K Rollover Guide Book describing activities for the evening of the 31st gave structure to the activities performed New Year's Eve and afterward.

Spent Fuel Safety

- The systems that monitor and cool the SFP can accommodate conditions that would challenge fuel pool level or cooling and thus protect fuel integrity.

- The safety of the stored spent fuel was being maintained by the new SFP cooling and ventilation systems. Temperature was being controlled at about 86°F.

Radiological Safety

- The radiological safety program was effective in minimizing unnecessary dose. As-Low-As-Reasonably-Achievable reviews were conducted prior to work activities and radiation protection coverage was good. Pre-job briefings addressed the radiological challenges of the SFP work activities, and other jobs being performed.

Report Details

Summary of Plant Activities

Since the previous inspection, new fuel previously stored in the spent fuel pool (SFP) was removed, decontaminated, transferred to the new fuel vault and then shipped back to the vender. Modified SFP systems were placed in service which established a "spent fuel nuclear island (SFNI)." These new systems appeared adequate to maintain water level and temperature within safe limits.

1.0 Facility Management and Control

1.1 General

The inspectors conducted frequent reviews of ongoing plant activities and attended licensee meetings and reviews addressing these activities, in order to assess overall facility management and controls. Specific events and findings are detailed in the sections below.

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

a. Inspection Scope

The inspector verified that NRC requirements were being met, including requirements detailed in the plan Technical Specifications (TSs), Offsite Dose Calculation Manual (ODCM), and Post Shutdown Decommissioning Activities Report (PSDAR). The inspector's reviews also included the Emergency Preparedness (EP) and Fire Protection (FP) plans.

b. Observations Findings

On December 30, 1999, the NRC issued the Zion Nuclear Power Station Permanently Defueled Technical Specifications (DTSs). The Zion Station personnel implemented the DTSs on January 17, 2000.

On February 14, 2000, the Zion Nuclear Power Station PSDAR was issued.

The inspector discussed the emergency plan, EP training, and staffing the EP call out list with the EP coordinator. The EP organization was adequately trained and staffed, and the required number of personnel will be on call during staff down-sizing.

The fire plan has been changed from requiring an onsite fire brigade to one requiring an incipient fire brigade. The fire plan now relies on the Zion Fire Department to respond to fire alarms. This response has been tested.

The inspector discussed the plant present and future organization with plant management. All staff members are aware of the final organization. The staff size is now about 150 people and will be down-sized to about 50 people by July 1, 2000. This will be the size of the Zion staff for the SAFSTOR period.

c. Conclusions

Fundamental SAFSTOR regulatory bases were established by issuance of the defueled TSs, PSDAR, and revised FP. Effective implementation was ongoing.

1.3 Decommissioning Performance and Status Review at Permanently Shut Down Reactors (71801)

1.3.1 General

The status of decommissioning and the licensee's conduct of decommissioning activities, in accordance with licensed requirements and commitments, were evaluated. Control and conduct of facility decommissioning activities were examined to verify the license, DTSs requirements, and commitments described in the Defueled Safety Analysis Report (DSAR) and the PSDAR.

1.3.2 Monitored Decommissioning Activities

The inspectors attended licensee meetings where the planning, reviewing, assessing, and scheduling of decommissioning activities were observed. The inspector ascertained that activities were in accordance with licensed requirements and docketed commitments as stated in 10 CFR and DTSs and PSAR.

Decommissioning activities monitored were:

- Characterization of and removal of activated hardware from the SFP.
- Planning activities for ongoing maintenance.
- Transferring slug from a chemical tank into a Radwaste receiving tank.

The DTSs specify that the SFP level shall be equal to or greater than 23 feet over the top of irradiated fuel assemblies seated in the storage racks. During discussions with the operating staff, review of the shift supervisor's status board, Auxiliary Building Operator Weekly Checksheet, station procedures and SFP level indicating ruler, the inspector determined that the SFP level is indicated and recorded in feet above sea level (example: 614 feet 8 inches). The abnormal operating procedure for low SFP level had one statement, "TECH SPEC LIMIT: 613 ft 1½ inches." The inspector had no concern that the level of water in the SFP was below DTS limit; however, the inspector was unable to validate that the checksheet and procedures correctly correlate that 23 feet above the fuel and elevation 613 feet 1½ inches were the same height. After discussions with management, they agreed there was a need for consistent, verified terms, and this was entered into the corrective action system. This is Inspection Follow-up Item 50-295/99004-01(DNMS).

1.3.3 Plant Tours to Evaluate Material Conditions and Housekeeping

a. Inspection Scope

Plant tours were performed to evaluate the material integrity of structures, systems, and components necessary for the safe storage of spent fuel and conduct of safe decommissioning, and to evaluate plant housekeeping.

b. Observations and Findings

The material integrity of plant systems and housekeeping continued to be very good. Management indicated that the material condition of the floor in the SFNI will be improved further when the dedicated cooling system modification close out is completed. After conducting plant tours, the inspectors discussed the findings with plant management, who were actively monitoring the status of the facility. As issues arose, they were resolved.

c. Conclusions

The material integrity of structures, systems, and components necessary for the safe storage of spent fuel and conduct of safe decommissioning was being maintained. Plant housekeeping was very good and was monitored by plant management.

1.4 Onsite Follow-up, Written Reports of Non-routine Events at Power Reactor Facilities (92700)

1.4.1 **(Closed) IFI 50-295/1994009-01 and 50-304/19994009-01(DNMS) "Service Water Concerns:** The spent fuel cooling system is now being cooled by cooling towers that are supplied water by the city water system. The status of the service water system heat exchangers and throttled valve position have no bearing on the safe storage of spent fuel in the SFP. Therefore this item is not applicable to a permanently shutdown/decommissioning reactor. This item is closed.

The inspectors reviewed these open items against the following criteria: (1) the issue is not applicable to a permanently shutdown/decommissioning reactor, (2) the issue does not raise potentially generic concerns (including 50.54(f) commitment), (3) the issue does not involve any pending enforcement action or open investigation, (4) the issue does not involve any indication of willful violations, and (5) the issue does not involve a potential non-willful Severity Level III or higher enforcement action. The licensee's corrective actions for the items listed above were of concern only for power operations and are therefore administratively closed.

2.0 Decommissioning Support Activities

2.1 Maintenance and Surveillance at Permanently Shut Down Reactors (62801)

a. Inspection Scope

The inspection evaluated maintenance and surveillance of structures, systems, and components that could affect the safe storage of spent fuel and reliable operation of radiation monitoring equipment. Direct observations, reviews, and interviews of licensee personnel were conducted to assess whether maintenance and surveillance were performed in accordance with regulatory requirements and resulted in the safe storage of spent fuel and reliable operation of radiation monitoring and effluent control equipment. This included the proper implementation of DTSs and 10 CFR 50, Appendix B requirements. The inspectors also evaluated SFP operations including SFP heat up rate, SFP instrumentation, alarms, and leakage detection, SFP chemistry and criticality controls.

b. Observations and Findings

The inspectors reviewed SFP surveillance parameters including boron concentration, temperature, water level, and radioactivity levels, and verified that no leakage was coming from the SFP and the SFP area criticality monitor was functioning. Water chemistry and cleanliness controls were excellent. Water chemistry was maintained by keeping a SFP demineralizer train operating at all times. The surface was kept clean by means of a floating skimmer.

Foreign material controls were in use in and around the SFP. The SFP area was a foreign material exclusion area; nothing loose is allowed in the area. This was further assured by having a waist-high clear plastic fence around most of the pool area.

The SFP heat up rate was reviewed with the shift supervisor. The estimation of pool heat up time to boiling had many conservative elements in the calculations, resulting in a longer time to boiling than the graphs indicated. Operations used the time obtained from the graphs for time to boil, which would be approximately 74 hours after spent fuel cooling and the SFP ventilation system were lost. At present, if only SFP cooling were lost it would be greater than 160 hours for the time to boil.

c. Conclusions

The inspectors concluded that the SFP surveillance activities were being performed as required and that a conservative approach was being used by the licensee to determine the time to boil if spent fuel pool cooling was lost.

2.2 Operational Safety Verification (71707)

a. Inspection Scope

The inspectors conducted reviews of ongoing decommissioning activities; monitored control room staffing, interactions between the operations crews, and shift turnovers; and reviewed station logs and procedures. Specific events and findings are detailed below.

b. Observations and Findings

The inspectors observed that the unit shift supervisors maintained command and control of the station, conducting detailed turnovers that included participation of all members of the crew, and shift crew members were requested to provided feedback on the goals and tasks for the shift.

c. Conclusions

Plant status information was transferred effectively and shift turnovers were conducted professionally.

2.3 Cold Weather Preparations (71714)

a. Inspection Scope

The inspection evaluated the new SFNI cold weather program.

b. Observations and Findings

During the inspection on December 2, 1999, the inspector determined that the station auxiliary boiler is not needed for the new island because the new heating ventilation and air conditioning (HVAC) system has been energized and is all electric with heating elements in the duct work. Additional electric space heaters have also been installed in the spent fuel building for heat if needed. All outside pool cooling water piping and reservoirs have been insulated and heat traced to prevent freezing.

c. Conclusions

The new system will maintain the SFNI above freezing and is adequate to retain the integrity of the fuel.

2.4 Re-Examination of Year 2000 (Y2K) Program Activities at Selected Decommissioning Reactors - Temporary Instruction (TI) 2561/003)

a. Inspection Scope (TI 2561/003)

The inspection evaluated whether the licensee's Y2K program activities, including implementation of contingency plans for both internal and external risks during Y2K critical dates, is appropriate to provide confidence that Y2K related problems would not result in any safety concerns.

b. Observations and Findings

During the December 8-9 inspection, the inspector completed the following TI three phase checklist: Y2K Program; Confirmation of Y2K Program Implementation Activities; and, Contingency Plans for External Hazards.

2.4.1 Y2K Program

2.4.1.1 Management Planning

- The licensee developed a multi-plant "Corporate Nuclear Generation Group Year 2000 Project Plan," to which Zion was complying. This plan was modeled after the industry Nuclear Utilities Strategic Management Group (NEI/NUSMG) 97-07 plan. Corporate established a separate Y2K team headed by a Y2K Senior Manager . The plan documented the approach used, the project objectives, the resources necessary, and the project oversight and status requirements.

- The licensee's plan required that Quality Assurance (QA) measures (10 CFR 50, Appendix B) be applied throughout the Y2K effort. Furthermore, the licensee hired an outside contractor to perform independent QA oversight of each licensee site. He reviewed component evaluation packages of computer

hardware and software, and other equipment that uses embedded devices (micro-processors).

- Zion had a Y2K Project Manager onsite in the engineering department organization.

2.4.1.2 Documentation

- Zion would have used existing facility procedures to change equipment, however, no equipment design changes were identified. Some software programs were remediated or replaced utilizing existing facility procedures.

- Zion initially established a global asset list on site. The list was pared down to a priority asset list based on equipment important to the defueled condition, equipment used to support the switchyard, and equipment important to the synchronous condenser. Also, a priority software asset list was established. A component evaluation package for each asset was developed and certified as completed per the Y2K program.

2.4.1.3 Y2K Project Plan

- The Y2K Project Plan was approved by senior corporate nuclear generation managers and the Zion Station Site Vice President. The five phase plan included; general awareness and preliminary inventory, detailed inventory and assessment, remediation, testing of embedded and non-embedded systems (software), certifying Y2K compliance, and developing contingency plans.

- Zion's priority lists for software and embedded assets provided appropriate identification of individual assets such as: name, model or version number, description, use and classification, vendor or manufacture, and system or device owner. Each asset has been given a unique identification number.

2.4.2 Confirmation of Y2K Program Implementation Activities

2.4.2.1 The "global asset list" was pared down by system engineers familiar with the systems using project instructions. Extractions, manipulations, and exclusions performed on the data was to be recorded on Initial Data Screening Reports; however, there was no document justification to this step to serve as a record of how data was pre-screened in preparation for system engineer interviews and walk-throughs with personnel familiar with facility operations and/or design experience, as well as those with experience in identifying potential Y2K issues, to review, categorize, and classify applications, systems, or components affected by the Y2K problem. This established the embedded priority asset list and the software priority asset list. In changing plant configuration to the SFNI concept, all SFNI assets except the plant security assets and the SFNI area radiation monitors were purchased new and were specified as being Y2K compatible. The security software and embedded systems were evaluated in the assessment and found to be Y2K compatible without modifications. The SFNI area radiation monitors were deemed not to provide any control function and were deleted from the Y2K assessment. However, they were deleted without any document justification as required by project instructions. Documenting the justification for the extractions, exclusions, etc., including

deletion of the SFNI radiation monitors, is considered an inspector follow-up item: 50-295\(99004-02(DNMS)). It should be noted that the existing radiation monitors have no micro-processors in them that would make them inoperable during the Y2K event. They are however in the Defueled Technical Specifications (DTS) with action statements if they were to become inoperable. Also, there is a new radiation monitor in the new SFNI HVAC system which is Y2K compatible.

2.4.2.2 The licensee used "Detailed Assessment Disposition Reports" for each item on the priority lists. Included in the reports were guidelines and instructions in the form of checklists such as:

- Assessment Closure Form
- Year 2000 Impact Sign off
- Disposition Evaluation Document
- Walkdown Data Sheet
- System Summary Form
- Vendor's Position Form
- Test Summary Form
- Unaffected Asset Form
- Multiple Asset Form

2.4.2.3 The licensee used confirmatory testing to verify compliance on assets that were determined to be the responsibility of the vendor for evaluation and/or remediation,

2.4.2.4 The licensee's status/decision regarding the disposition of each asset is documented on the priority lists with all items being ready as of June 25, 1999.

2.4.2.5 The licensee completed all testing using test procedures established by the Y2K Program on all applicable assets by October 15, 1999. Included in this was testing various other critical dates to see if the existing or new application correctly handled the date and can successfully roll over to the next date. Dates such as February 28, 2000, February 29, 2000, March 1, 2000, December 31, 2000, and January 1, 2001, were also tested successfully.

2.4.2.6 The licensee had or has developed contingency plans for all assets that were deemed important to the defueled condition. Even though components and software were dispositioned as Y2K compliant or ready, additional actions were developed to verify the equipment worked properly after midnight on December 31,1999.

2.4.3 Contingency Plans for External Hazards

2.4.3.1 Because the licensee has consolidated the site to the SFNI, a new Abnormal Operating Procedure 8.6 was developed for the SFNI loss-of-power event. The procedure describes three methods to use to restore power depending on the SFNI conditions. The first is to attempt to restore power from either of the two 2-KV Zion lines. Next is to obtain an emergency generator from offsite and connect it using the prewired cables located in the west wall of the fuel building. Last is to restore power from any 480-V active bus in the balance-of-plant. After power is restored to one of the two SFNI buses, the procedure directs the staff to place a cooling tower loop back in service.

2.4.3.2 The licensee's Y2K plan had several backup communications if the primary (phone) lines did not work. These included:

- An open phone bridge conference call was set up from 8:00 p.m., on the 31st to 4:00 a.m., on the 1st between all sites and Corporate.
- The licensee's e-mail system does not use phone lines, it has its own separate computer system local area network.
- Each site had several cell phones to use.
- Each site had radio capability.

2.4.3.3 Along with the required TS Shift Supervisor, the licensee supplemented its staff with identified personnel on the critical dates with the minimum required defueled emergency manning requirements; an emergency director and a radiation protection director. The site computer supervisor and duty engineer were also available for call out. Besides New Years, the licensee is considering whether to supplement staff on February 28, 2000; February 29, 2000; March 1, 2000; December 31, 2000; and January 1, 2001.

The named emergency director was briefed by the Corporate Director using a very detailed Y2K Rollover Guide Book prepared by Corporate. The book described activities for the evening of the 31st which gave structure to the activities performed New Years Eve. After New Years Eve, lessons-learned were incorporated into the subsequent dates.

c. Conclusions

The licensee actions were appropriate to provide confidence that Y2K related problems would not result in any safety concerns to the fuel stored onsite. A very knowledgeable Zion Y2K Project Manager with a very detailed Y2K Rollover Guide Book describing activities for the evening of the 31st gave structure to the activities performed New Years Eve and afterward.

2.5 Zion Physical Security(81018)

The Zion physical security program was recently modified to provide protection to the spent fuel pool nuclear island. This area is monitored from a remote on site location. The security program consists of a computer access control system, intrusion alarms, assessment devices, and a uniformed security organization. This security program ensures the safe storage of spent nuclear fuel.

3.0 Spent Fuel Safety (60801)

a. Inspection Scope

The inspection evaluated the SFP and fuel pool safety. Factors considered in the evaluation included: siphon and drain protection; SFP instrumentation, alarms and leakage detection; SFP chemistry and cleanliness control; criticality controls; and SFP operation and power supplies. The inspector also evaluated fuel pool safety as it related to the SFP cooling and ventilation modifications.

b. Observations and Findings

The licensee had finished work on converting the spent fuel pool area into a clear SFNI.

The inspectors conducted a walkdown of the SFNI with the operation manager. During this walkdown the inspectors independently verified SFP level, temperature, radiation monitors, foreign material exclusion, and selective local valve position. The inspector found no areas of concern.

As a result of installation of the new cooling system, the existing component cooling water system that previously supplied the spent fuel pool heat exchangers with cooling water was isolated from the heat exchangers and the new secondary loop cooling water was routed to the shell side of the heat exchangers.

Control room annunciation for abnormal secondary loop cooling system conditions is provided. Cooling tower fan operation is automatic based on spent fuel pool temperature. A cooling tower by-pass line was provided for when heat removal is not required to maintain the temperature of the SFP in the normal range (less than 120°F.) Cooling tower reservoir heaters were provided to prevent freezing in the outside towers.

SFNI electrical power is supplied from two new 12 kV independent Zion City Power Lines. Two new 480 volt step-down transformers have also been installed on power poles near the two cooling towers. The new system's electrical supply is independent from the 345 kV plant switch-yard ring bus and is not routed through any other electrical system onsite. The SFNI is no longer dependent on the station's auxiliary power system.

The auxiliary building ventilation system was isolated from the fuel building, both supply and exhaust ducts. The new fuel building ventilation system is operated via local controls in the fuel building. Effluent from the new system is monitored from a new radiation monitor installed in the exhaust duct. All exhaust air is filtered through a HEPA filter prior to discharge; no charcoal filters are used. Heating is supplied via heating elements in the supply duct and auxiliary heaters located throughout the fuel building. The Zion Station hot water heating system is no longer required to heat the SFNI.

A new municipal Zion City water line has been installed to provide make-up water to the SFP and the cooling towers. SFP boration will be accomplished by manually mixing boric acid when necessary. An underwater SFP demineralizer was installed to maintain the quality of SFP water. This allowed the old demineralizer system to be abanded. The secondary side of the cooling system also has a demineralizer to maintain water quality to protect the material condition of the SFP heat exchangers.

c. Conclusion

The safety of the stored spent fuel is being maintained by the new SFP cooling and ventilation systems.

4.0 Radiological Safety

4.1 General

The inspector conducted reviews of ongoing activities in order to assess the overall RP program. Specific findings are detailed in the sections below.

4.2 Occupational Radiation Exposure (83750)

Numerous aspects of licensee processes to minimize occupational radiation exposure were selectively examined in order to evaluate overall radiation safety and to provide for early identification of potential problems. Areas examined included: audits and appraisals; planning and preparation; training and qualifications of personnel; external exposure control; internal exposure control; control of radioactive materials and contamination; surveys and monitoring; and maintaining occupational exposure as-low-as-reasonably-achievable (ALARA).

No concerns were identified in the examination of these areas.

4.3 Observed ALARA Practices

a. Inspection Scope

The inspectors observed ALARA practices while reviewing two maintenance operations.

b. Observations and Findings

The inspectors observed two pre-job briefs that involved maintenance operations that included draining a chemical tank and removing material from the spent fuel pool. The latter briefing did not mention the radiation exposure dose that could be found in the area of the SFP and pool did not state acceptable radiation levels for articles taken out of the SFP. However, this activity had been ongoing and personnel were familiar with expected and unexpected radiation levels.

The second pre-job brief discussed radiation levels and discussed several potential problems including: communications, lead shielding, leaks and securing the area during breaks. Several practice runs were made before the actual event took place.

During the work done on draining the tank the lead shielding was used and good communication among the work groups kept exposures low when problems (blockages) occurred.

c. Conclusion

ALARA practices were satisfactorily performed.

5.0 Exit Meetings Summary

The inspectors presented the inspection results to members of licensee management during meetings on February 17 and 22, 2000. The licensee acknowledged the findings presented. The licensee did not identify any of the documents or processes reviewed by the inspectors as proprietary.

PARTIAL LIST OF PERSONS CONTACTED

K. Ainger, Licensing Director
J. Ashley, Design Engineering
D. Bump, Maintenance and Rad/Chem Manager
R. Landrum, Operations Manager
T. Marini, Manager, Regulatory Assurance
R. Schuster, Rad/Chem Supervisor
P. Simpson, Regulatory Services
R. Starkey, Plant Manager
R. Thornton, Shift Supervisor
M. Weis, Business Manager
J. Zeszutek, Regulatory Assurance

INSPECTION PROCEDURES USED

IP 36801:	Organization, Management, and Cost Controls at Permanently Shut Down Reactors
IP 37801:	Safety Review, Design Changes, and Modifications at Permanently Shut Down Reactors
IP 60801:	Spent Fuel Pool Safety at Permanently Shut Down Reactors
IP 62707	Maintenance Observation
IP 62801:	Maintenance and Surveillance at Permanently Shut Down Reactors
IP 71707:	Operational Safety Verification
IP 71801:	Decommissioning Performance and Status Review at Permanently Shut Down Reactors
IP 83750:	Occupational Radiation Exposure
IP 92700:	Onsite Follow-up, Written Reports or Non-routine Events at Power Reactor Facilities

ITEMS OPENED, CLOSED AND DISCUSSED

Opened

50-295/99004-01	IFI	Disparate SFP level limit terminology

Closed

50-295/304-94009-01	IFI	Service water concerns
50-295/295-94009-01	IFI	Service water concerns

Discussed

None

LIST OF ACRONYMS USED

ALARA	As-Low-As-Reasonably-Achievable
DTS	Defueled Technical Specifications
IFI	Inspector Follow-up Items
IP	Inspection Procedure
NEI/NUSMG	Nuclear Utilities Strategic Management Group
NRC	Nuclear Regulatory Commission
PSDAR	Post-Shutdown Activities Reports
RP	Radiation Protection
SFP	Spent Fuel Pool
SFNI	Spent Fuel Pool Nuclear Island
TS	Technical Specification
Y2K	Year 2000

DOCUMENTS REVIEWED

PSAR, “Post Shut-Down Activities Report”

DTS, “Defueled Technical Specifications”

DSAR,”Defueled Safety Analysis Report”

ODCM, “Offsite Dose Calculation Manual”

DSEP, “Defueled Station Emergency Plan”

RWP No. 005004 (Revision 0) “Plant Tours and Inspections”

RWP No. 005100 “Perform Tank and Sump Cleaning”

RWP No. 005104 “Move and Remove Equipment from Spent Fuel Pool”

Top-Level Corporate NGG Organization Chart

Long Term Zion Decommissioning Organization Chart

Auxiliary Building Operator Weekly Checksheet

AOP, “Spent Fuel Pit Level Low”

AOP, “Spent Fuel Pit Level High”

AOP-6.4, “Loss of Spent Fuel Pit Cooling”

SOI-75-A, “Placing A Spent Fuel Pit Cooling Loop In Service”

SOI 75-B, “Removing A Spent Fuel Pit Cooling Loop From Service”

Zion Station SFNI Security System Description (Safeguards Information)