

April 10, 2001

Mr. Oliver D. Kingsley, President
Exelon Nuclear
Exelon Generation Company, LLC
1400 Opus Place, Suite 500
Downers Grove, IL 60515

SUBJECT: NRC INSPECTION REPORT 05000295/20001-002(DNMS);
05000304/2001-002(DNMS) - ZION

Dear Mr. Kingsley:

On March 13, 2001, the NRC completed an inspection at the Zion 1 and 2 reactor facilities which examined decommissioning activities. The enclosed report represents 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.

One non-cited violation was identified regarding the licensee's failure to use the corrective action program after being informed that undersized current transformers had been installed on power lines to the site. Even though the violation was not safety significant, the associated loss of electrical power event is of concern because it disclosed multiple weaknesses, including poor communications, complacency or lack of a questioning attitude, and a lack of positive control over activities with the potential to affect the Spent Fuel Nuclear Island. Programs or processes which were in place within the corporation, and at Zion, were not effectively used. In addition, there were opportunities for licensee management to recognize that a problem was developing and to address it; however, management did not pursue these opportunities.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available **electronically** for public inspection in the NRC Public Document Room **or** from the Publicly Available Records System (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/NRC/ADAMS/index.html> (the Public Electronic Reading Room).

O. Kingsley

-2-

We will gladly discuss any questions you may have regarding this inspection.

Sincerely,

/RA by M. Dapas acting for/

Cynthia D. Pederson, Director
Division of Nuclear Materials Safety

Docket Nos. 05000295; 05000304
License Nos. DPR-39; DPR-48

Enclosure: Inspection Report 05000295/2001-002(DNMS); 05000304/2001-002(DNMS)

cc w/encl: C. Crane, Senior Vice President - Mid-West Regional
H. Stanley, Operations Vice President
R. Krich, Director - Licensing
R. Helfrich, Senior Counsel, Nuclear
DCD - Licensing
J. Skolds, Chief Operating Officer
W. Bohlke, Senior Vice President, Nuclear Services
J. Cotton, Senior Vice President - Operations Support
J. Benjamin, Vice President - Licensing and Regulatory
D. Bump, Decommissioning Plant Manager
J. Ashley, Regulatory Assurance Manager
M. Aguilar, Assistant Attorney General
K. Nollenberger, County Administrator
Mayor, City of Zion
State Liaison Officer
State Liaison Officer, Wisconsin
Chairman, Illinois Commerce Commission
A. C. Settles, Illinois Department of Nuclear Safety

DOCUMENT NAME: C:\ZION2001-002a.wpd See Previous Concurrence

To receive a copy of this document, indicate in the box: "C" = Copy without enclosure "E"= Copy with enclosure "N"= No copy

OFFICE	<input type="checkbox"/> RIII	<input type="checkbox"/> RIII	<input type="checkbox"/> RIII	<input type="checkbox"/> RIII
NAME	Leemon.js	Jorgensen	Pederson	
DATE	04/09/01	04/09/01	04/09/01	

OFFICIAL RECORD COPY

Distribution:

Reading File

PUBLIC IE-01 w/encl

RIII PRR w/encl

M. Masnik, NRR w/encl

SAR, NRR w/encl

LPM, NRR w/encl

J. L. Caldwell, RIII w/encl

C. D. Pederson, RIII w/encl

RIII Enf. Coordinator w/encl

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos: 05000295; 05000304
License Nos: DPR-39; DPR-48

Report No: 05000295/2001002(DNMS); 05000304/2001002(DNMS)

Licensee: Exelon Generation Company, LLC

Facility: Zion Nuclear Plant, Units 1 and 2

Location: 101 Shiloh Boulevard
Zion, IL 60099

Dates: February 12 through March 13, 2001

Inspectors: Roy Leemon, Decommissioning Inspector, DNMS
Jeffery Roman, Illinois Department of Nuclear Safety
Jane Yesinowski, Illinois Department of Nuclear Safety
Don Funk, Physical Security Inspector, DRS

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 05000295/2001-002(DNMS); 05000304/2001-002(DNMS)

This routine decommissioning inspection covered aspects of licensee facility management and control, decommissioning support activities, spent fuel safety, and radiological safety.

During the inspection the plant was being maintained in a SAFESTOR [safe storage of the spent fuel] condition, with no other major decommissioning work activities in progress. The licensee had completed a detailed and in-depth root cause evaluation for the January 26, 2001, complete loss of electrical power to the spent fuel nuclear island (SFNI).

Facility Management and Control

- Licensee staffing levels remained adequate. Nuclear General Employee training (NGET) was being performed as required. Certified fuel handler training was being implemented. No concerns were noted regarding contingency planning for the end of the licensee's union contract.
- The licensee conducted a detailed and in-depth root cause evaluation for the complete loss of electrical power to the SFNI which occurred on January 26, 2001. The evaluation was comprehensive, appropriately identifying causal factors and corrective actions.
- The licensee identified that its procedure was not followed for initiating an action request after learning that undersized current transformers had been installed on power lines to the site. This failure to follow procedures was considered a violation. The licensee conducted a root cause evaluation and implemented corrective actions to prevent recurrence. Therefore, this non-repetitive, licensee-identified and corrected violation is being treated as a Non-Cited Violation.
- The material integrity of structures, systems, and components necessary for the safe storage of spent fuel and for the conduct of safe decommissioning activities was maintained. Plant housekeeping was good. Control room manning met regulatory requirements.
- The material condition of the Interim Radwaste Storage Facility (IRSF) was good.

Decommissioning Support Activities

- The maintenance program was functioning well. Work activities were effectively discussed and prioritized during work status meetings.

Spent Fuel Safety

- Spent fuel pool (SFP) safety was being maintained satisfactorily. The licensee added a procedural requirement for SFP anti-siphoning considerations to prevent siphoning water out of the SFP. The licensee continued tracking and trending evaporation and leakage from the SFP on a daily basis. The level of the SFP was within acceptable

activity limits. Spent fuel pool makeup provisions were maintained, and SFP chemistry parameter surveillance results were within specified limits. The SFP was analyzed for radioactive isotopes, which were at acceptable levels.

Radiological Safety

- The licensee continued to control liquid releases in accordance with the plant design basis and regulatory requirements.
- The environmental monitoring program was being properly implemented.

Report Details

Summary of Plant Activities

Since the previous inspection, the plant remained in SAFESTOR with no other major decommissioning work activities in progress. The licensee conducted a detailed and in-depth root cause evaluation for the complete loss of electrical power to the spent fuel nuclear island which occurred on January 26, 2001.

1.0 Facility Management and Control

1.1 General

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

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

The inspectors evaluated whether management systems maintained public health and safety through proper control, evaluations and management of reactor decommissioning activities. The inspectors reviewed the licensee's decommissioning organization, staffing, qualifications and training including that of contractors. The inspectors verified that NRC requirements were being met, including requirements detailed in the plant Defueled Technical Specifications (DTSS), Offsite Dose Calculation Manual (ODCM), and Defueled Safety Analysis Report (DSAR). Also, the inspectors reviewed the licensee's decommissioning plans and schedules.

1.3 Evaluation of Licensee's Staff, Organization and Training (36801, 92709)

a. Inspection Scope

The inspectors evaluated the licensee's decommissioning organization staffing and training, including Technical Specification (TS) requirements.

b. Observations and Findings

The licensee's staffing was adequate for the level of work being performed, and met TS requirements. The site training matrix was reviewed. Nuclear General Employee Training (NGET) is a yearly requirement for all personnel. The requirement and training are the same as for personnel at operating nuclear stations. Certified fuel handler training was being tracked and implemented. Certified fuel handlers are trained quarterly, and are tested every two years.

The licensee's labor union contract expires at the end of March 2001. On March 13 and 14, 2001, the inspectors reviewed the licensee's contingency plans to be implemented in the event that contract negotiations are unsuccessful and a strike occurs. The inspectors also attended a management staff meeting, where the staff discussed the contingency plans and associated individual responsibilities. The

defueled technical specification's staffing requirements and the activities that must be performed were also discussed.

Security Specialists from the NRC met with the Manager, Nuclear Security, Midwest Regional Operating group on March 27, 2001. The inspectors reviewed the adequacy of the licensee's safeguards strike contingency plan content. Specifically, the operability of required safeguards equipment and the availability of onsite shift staffing were reviewed.

c. Conclusions

Licensee staffing levels were adequate. NGET training was being conducted as required. Certified fuel handler training was being implemented. No concerns were noted regarding contingency planning in anticipation of the expiration of the licensee's union contract.

1.4 Corrective Action Program (40801)

a. Inspection Scope

The inspectors evaluated the licensee's assessment of an event involving loss of power, and subsequent loss of SFP cooling, due to the failure of undersized current transformers being used on both electrical supply lines into the plant SFNI busses.

b. Observations and Findings

Zion Abnormal Procedure 700-02, "Corrective Action Program and Action Request Process", Revision 7, dated October 4, 2000, Step D.1.2 states, "If an individual identifies a condition not requiring immediate action they shall initiate an action request (AR) and notify a supervisor (normally the initiator's supervisor) for review, OR request a supervisor to initiate an AR." Implementation of this procedure is a requirement of Technical Specification 5.5.1.

The licensee identified that on January 19, 2001, the Zion Station Electrical Engineer received voice mail regarding improperly sized current transformers on lines A 151 (South Line) and A 8251 (North Line). The Station Electrical Engineer notified the Operations and Engineering Manager of the undersized transformers. No actions were taken to document the deficiency in accordance with station procedure ZAP 700-02. There was no communication to the operating shift, the lead engineer, or the decommissioning plant manager as required by plant procedure ZAP 700-02.

On January 25 and 26, the current transformers on lines A 151 and A 8251 burnt up, which resulted in the complete loss of electrical power to the SFNI and loss of SFP cooling. During the time SFP cooling was unavailable, the SFP heated up one degree, consequently, there was no safety significance to the loss of SFP cooling capabilities. This event was discussed in NRC Inspection Report 05000295/2001-001(DNMS); 05000304/2001-001(DNMS).

The inspectors determined that corrective actions addressing the causal factors ascertained during the investigation had been entered into the corrective action program and several of the corrective actions had been completed. The following steps were taken by the licensee to address the failure to use the corrective action process:

- The decommissioning plant manager communicated the implications of this event to all Zion personnel, and emphasized his expectations that processes in place (i.e., Action Requests/Problem Identification Forms, Scheduling, Communication and Change Management Checklist) shall be used. The plant manager emphasized the importance of attention to detail and self-checking.
- The licensee uses the Management Action Response Checklist (MARC) as a guide for managers on how to discipline employees for inappropriate behavior. The MARC process was used as appropriate for individual deficiencies and failures which contributed to the event. This action was handled by the plant manager and documented in appropriate personnel files.

c. Conclusions

Procedure ZAP 700-02 was not followed for initiating corrective action after learning that undersized current transformers had been installed. Defueled Technical Specifications require that ZAP procedures be implemented. The failure to follow ZAP 700-02 is considered a violation. The licensee conducted a root cause evaluation and implemented corrective actions to prevent recurrence; therefore, this non-repetitive, licensee-identified and corrected violation is being treated as a Non-Cited Violation, consistent with Section VI.A.8 of the NRC Enforcement Policy (NCV 05000295/2001-002-01(DNMS) and NCV 05000304/2001-002-01(DNMS)).

1.5 Root Cause Evaluation for Complete Loss of Electrical power to the SFNI

a. Inspection Scope

The inspectors reviewed the licensee's root cause evaluation report for the complete loss of electrical power to the spent fuel nuclear island on January 26, 2001, and the condition reports written as result of this evaluation.

b. Observations and Findings

The licensee's information for its root cause evaluation was obtained by data collection, interviews with individuals involved in the event, and application of the barrier analysis event evaluation methodology. More than twenty inappropriate actions (IAs) or equipment failures (EFs) were identified. The more significant items were:

- 1) Formal station engineering staff review/approval of the net load information was not submitted to the project manager in the planning stage for the current transformer (CT) installation.
- 2) The Transmission and Distribution (T&D) organization did not have a single point of contact responsible for coordinating all aspects and requirements of the CT installation project.

- 3) Site personnel were not informed by the T & D organization of planned meter installation activities, and therefore, these activities were not being tracked by any station schedule or work control processes, and did not receive any risk review by station personnel.
- 4) When the CTs were tested, they failed the load test and proved to be severely overloaded, but there was not a sense of urgency to quickly resolve the situation.
- 5) The T&D Northeast Region, the Distribution Dispatch Center (DDC), the Zion Station, and the Corporate Nuclear Department were not notified the day the CTs failed the load test.
- 6) No Action Request/Problem Identification Form (AR/PIF) was written to track the identified deficiency with the undersized metering.
- 7) The Maintenance Supervisor failed to inform the Station Electrical Engineer when the East Service Building (ESB) line was removed and its load transferred to a metered line, despite being instructed to do so.
- 8) The Operations/Engineering Manager did not recognize the potential connection between the undersized metering and/or the ESB load transfer work after the first line (A 151) failed.

Fifteen causal factors (CF) were identified by the licensee. These flowed directly from the IAs and EFs in some cases. The licensee specifically designated “inattention to detail” as the root cause. Nearly two dozen corrective actions were specified by the licensee to address the various identified errors, failures and other contributing or root causes.

A number of lessons learned were identified by Zion personnel, including:

- The licensee has positive control over work that is conducted in the Zion switch-yard (i.e., permission to enter and concurrence of work activities), but the licensee did not have the same level of control over the 12 Kv feeder lines to the SFNI.
- The first line failure (A 151) was handled as a routine event by management, indicating complacency and lack of a questioning attitude.
- Internal communication of project work and associated problems needed to be improved.
- The Emergency Action Levels (EALs) need to be reviewed to ensure they are not overly restrictive.

c. Conclusions

The licensee conducted a root cause evaluation for the complete loss of electrical power to the SFNI which occurred on January 26, 2001. The evaluation was comprehensive and identified causal factors and corrective actions. At the end of the inspection period, many of the corrective actions were still outstanding. These actions will be reviewed

further during subsequent inspections, utilizing the existing Inspector Followup Item (IFI) 05000295/2001-01. (See Paragraph 1.8 below.)

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

1.6.1 General

The status of decommissioning activities 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 that the license Defueled Technical Specifications (DTS) requirements and commitments described in the Defueled Safety Analysis Report (DSAR), the Post Shutdown Decommissioning Activities Report (PSDAR) and the Emergency Plan were being met.

1.6.2 Monitored Decommissioning Activities

a. Inspection Scope

The inspectors attended licensee meetings involving the planning, reviewing, assessing, and scheduling of decommissioning activities.

b. Observations and Findings

The inspectors attended the following licensee meetings:

- Zion Station Schedule Meeting
- Zion Station Priority Meeting
- Health Physics Individual Department Meeting
- Long Term Zion Decommissioning Organization Tracking Meeting

c. Conclusions

The activities observed were conducted in accordance with license requirements and docketed commitments as stated in Title 10 of the Code of Federal Regulations (CFR), DTSSs, PSDAR, Regulatory Guide 1.33, and station procedures.

1.6.3 Plant Tours to Evaluate Material Conditions and Housekeeping

a. Inspection Scope

Plant tours were conducted to evaluate the material integrity of structures, systems, and components necessary for the safe storage of spent fuel. The inspectors also observed control room staffing and plant housekeeping.

b. Observations and Findings

The spent fuel pool area and support systems were clear and free of obstacles and hazards. No fire hazards were observed. No degradation of structures, systems, and components important to the defueled condition was observed. Monitoring systems required to maintain the SFNI were in good working order.

c. Conclusions

The material integrity of structures, systems, and components necessary for the safe storage of spent fuel and for the conduct of safe decommissioning activities was maintained. Plant housekeeping was good. Control room staffing met regulatory requirements.

1.7 Operational Safety Verification (71707)

a. Inspection Scope

The inspectors toured the interim radwaste storage facility (IRSF). This facility was actively in use during the time when the Zion plant was an operating plant. The facility had not been inspected since the plant was permanently shut down. The inspectors accompanied the Chemistry/Radiation Protection Manager on the tour.

b. Observations and Findings

This onsite facility was constructed and used for storage of low-level radioactive waste in the event it could not be shipped to a disposal site. The IRSF was used in the past, but it is not being used at the present time. The facility was in good condition and would be ready to use with minimal work; however, the licensee indicated it has no plans to return the facility to service.

c. Conclusions

The material condition of the IRSF was good. There are no plans at this time to use the IRSF.

1.8 Follow-up On Previous Inspection Findings (92700)

Closed: URI 05000295/2001-001-02, "Current transformer installation without use of the station modification and corrective action program." This unresolved item was evaluated and resulted in the Non-Cited Violation 05000295/2001-002-01; 050-00304/2001002-01, "Failure to use the corrective action program when being informed that the current transformers were undersized." This NCV is discussed in paragraph 1.4 of this report.

Open: IFI 05000295/2001-001-01, "Evaluation of the cause of loss of offsite power to the SFNI and communication weakness." This IFI was discussed with the licensee and will remain open to be reviewed further during subsequent inspections. This IFI is discussed in paragraph 1.5 above.

2.0 Decommissioning Support Activities

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

a. Inspection Scope

The inspectors 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 activities were being conducted in accordance with regulatory requirements.

b. Observations and Findings

The inspectors evaluated the effectiveness of the maintenance program relative to safe storage, maintenance, and control of spent fuel. The inspectors attended briefings to determine if maintenance activities were on schedule and if these activities were keeping pace with plant shutdown activities. The maintenance program was functioning well and work activities were effectively discussed and prioritized at work status meetings.

c. Conclusions

Regulatory requirements were being met for the activities observed, resulting in the safe storage of spent fuel and reliable operation of radiation monitoring and effluent control equipment.

3.0 Spent Fuel Safety (60801)

3.1 Spent Fuel Safety (60801)

a. Inspection Scope

The inspectors examined several parameters to assure adequate SFP level and chemistry. The inspectors reviewed plant procedure ZAP 110-02, "Procedure Process Controls," concerning the addition of a procedure change to address siphoning concerns with the SFP. Subsequently, the inspectors reviewed the most current spent fuel leak-off surveillance. The inspectors also examined the daily plant status documentation for SFP parameters including "time-to-fill" data. The previous three months' SFP chemistry surveillance results were reviewed to determine if SFP chemistry parameters were being maintained within their limits and trended. The inspectors also examined one SFP general liquid radionuclide analysis for isotopes and levels present in the SFP.

b. Observations and Findings

Spent Fuel Pool Siphon and Drain Protection

Zion Administrative Procedure, ZAP 110-02, "Procedure Process Control," Revision 11, dated February 6, 2001, was recently changed. One change listed was the addition of a definition of an anti-siphon review. This change was made to ensure that precautions are incorporated into the procedures to prevent siphoning water out of the SFP. The SFP configuration remained the same as described in previous NRC inspection reports. No SFP configuration changes have been made to alter the SFP siphon and drain protection configuration.

Spent Fuel Pool Evaporation Rate

Based on a review of SFP daily plant status records which contain fill date and time between fills data, the inspectors noted that there were no significant changes in SFP evaporative losses from those specified in Section 3.3 of NRC Inspection Report No. 05000295/2000-003; 05000304/2000-03, dated October 4, 2000. The primary source of makeup water to the SFP is the city of Zion's water supply via in-series demineralizers. Alternate SFP makeup capability is available from the onsite Condensate Storage Tanks and/or the fire protection water supply from Lake Michigan via the fire pumps. Both onsite unit refueling water storage tanks have been drained and are no longer an onsite source of water for makeup to the SFP.

The inspectors reviewed the results of the SFP heat-up test conducted on November 15, 2000. The test documented the SFP heat-up rate while the SFNI cooling tower pumps were secured. Test results were used to predict the estimated time-to-boil for the SFP. Previously, SFP time-to-boil estimates were based on analytical calculations, not actual heat-up data. Based on the test results, with an initial SFP temperature of 90°F [degrees Fahrenheit] and fuel building ventilation secured, the SFP heat-up rate was approximately 0.9°F per hour and the SFP time-to-boil was 135 hours. This data confirmed the accuracy of the calculated data.

Spent Fuel Pool Liner Leakage

Technical Staff Surveillance (TSS) 15.6.104, "Spent Fuel Pit Liner Leakage," evaluates liner leakage for the transfer canal and spent fuel pool liners. The SFP liner leakage surveillance frequency is every 6 months. The total leakage results for the October 30, 2000, surveillance was 0.0019 gpm [gallons per minute], which was less than the allowable leakage acceptance criteria. There was no change in SFP liner leakage from the previous leakage rates documented in Section 3.3 of NRC Inspection Report No. 05000295/2000-003; 05000304/2000-003, dated October 4, 2000.

The inspectors discussed a refueling gate seal leak with the operations manager and the decommissioning engineer and observed the refueling canal and gate. The licensee had recently identified a leak in the refueling gate seal on the refueling canal side. The leak is located at the top of the seal and was identified by a hissing noise. The licensee plans to repair the seal leak. The inspectors determined that there is not a concern with SFP integrity because there are two seals (the other seal on the SFP side remained intact), and the refueling canal level is at about the same level as the SFP. Instrument air keeps the intact seal pressurized with nitrogen as a backup.

SFP Chemistry

The SFP chemistry parameters, including pH, parts per million (PPM) boron, lithium, sodium, silica, fluoride, and chloride concentrations were within their respective limits for weekly surveillances from December 5, 2000, through March 6, 2001. The Radiation Protection Supervisor evaluated the surveillance results for trends and did not identify any adverse trends. The General Liquid Radionuclide Analysis SFP report for February 27, 2001, defined the isotopes present in the SFP and their levels. The total activity in the SFP was 1.27E-4 uCi/gm. Radioactive isotopes present in the SFP included cobalt-60, antimony-125, and cesium-137.

c. Conclusions

Spent fuel pool safety was being maintained satisfactorily. The licensee added a procedural requirement for SFP anti-siphoning considerations to prevent siphoning water out of the SFP. The licensee continued tracking and trending evaporation and leakage from the SFP on a daily basis. Level of the SFP was acceptable, and SFP makeup provisions were maintained. Spent Fuel Pool chemistry parameter surveillance results were within their respective specified limits. The SFP was analyzed for radioactive isotopes, which were at acceptable activity levels.

4.0 Radiological Safety

4.1 General

The inspectors reviewed exposure records for the year and observed ongoing activities in order to assess the licensee's overall radiation protection program. Specific findings are detailed in the following section.

4.2 Spent Liquid Radioactive Releases to the Environment (84750)

a. Inspection Scope

The inspectors reviewed three liquid release packages for releases during January 2001, to verify that the licensee effectively controlled, monitored, and quantified liquid releases to the environment. In addition, the inspectors discussed the liquid release process with the Radiation Protection Supervisor. The inspectors also reviewed records for the most recent calibration of the liquid effluent discharge radiation monitor that was used to monitor the release.

b. Observations and Findings

The inspectors reviewed the following release packages:

- Release No. R-01-001 discharged on January 3, 2001;
- Release No. R-01-002 discharged on January 9, 2001; and
- Release No. R-01-003 discharged on January 16, 2001.

Procedures documenting each release included:

- PT-26, Lake Discharge Tank's Lake Discharge Valve Operability Test, Revision 6,
- ZCP 421-1, Attachment A, Lake Discharge Tank Liquid Release Form, Revision 13

All three discharges were from the 0B lake discharge tank to Lake Michigan via the circulating water system and were within radiological limits. The 0B circulating water pump and, typically, one service water pump, provided the dilution flow. The lake discharge 0B radiation monitor, 0R-PR05, was on-line and functional during the releases. Radiation monitor 0R-PR05 was last calibrated on February 14, 2000, and was within its calibration frequency. The release packages were complete. Tank samples indicated parameters such as pH, total suspended solids, oil and grease, boron and tritium, were within their limits. The liquid samples were analyzed for specific radioactive nuclides and gross radioactivity. The 0R-PR05 radiation monitor set point was adjusted to ensure that release rates were within radiological limits. The monitor automatically isolates the release flowpath if the set point is exceeded. No set point was

exceeded during the releases. Procedural steps were documented and dilution flows were calculated based on total activity of the tank to be released. After April 15, 2001, until the shad spawning season is over, the licensee does not plan to use the circulating water pumps because for 2001 the shad nets were not installed around the circulating water intake structure. The licensee intends to use the service water pump(s) for dilution, with the release flowrate being quite low and the releases stretching over many days.

c. Conclusions

The licensee continued to control liquid releases in accordance with the plant design basis and regulatory requirements.

4.3 Radiological Environmental Monitoring (80721)

a. Inspection Scope

The inspectors reviewed the environmental monitoring program described in the Technical Specifications (TS) and the Offsite Dose Calculation Manual (ODCM).

b. Observations and Findings

The ODCM was comprehensive and contained the requirements listed in the Technical Specifications. The radioactive effluent release report for 1999 indicated that no abnormally high amounts of radioactivity were released during 1999. The doses to the public from all Zion Station effluent paths during 1999 were extremely low and well below all regulatory limits. The report for 2000 is being prepared at this time.

c. Conclusions

There were no deficiencies or findings identified from this inspection activity. The environmental monitoring program was being properly implemented.

5.0 Exit Meetings Summary

The inspectors presented the inspection results to members of licensee management during a meeting on March 13, 2001. 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

J. Ashley, Design Engineering
D. Bump, Plant Manager
T. Hill, Maintenance Supervisor
M. Karney, Manager, Nuclear Security, Exelon Nuclear
R. Landrum, Operations/Engineering Manager
B. Leydens, Security Manager
M. Peterson, Administrating/Training Supervisor
R. Schuster, Rad/Chem Supervisor

INSPECTION PROCEDURES USED

IP 36801	Organization, Management, and Cost Controls at Permanently Shut Down Reactors
IP 37801	Safety Reviews, Design Changes, & Modifications
IP 40801	Self-Assessment, Auditing, & Corrective Action
IP 60801	Spent Fuel Pool Safety at Permanently Shut Down Reactors
IP 62801	Maintenance and Surveillance at Permanently Shut Down Reactors
IP 71707	Plant Operations
IP 71801	Decommissioning Performance and Status Review at Permanently Shut Down Reactors
IP 80721	Radiological Environmental Monitoring
IP 83750	Occupational Radiation Exposure
IP 84750	Radioactive Waste Treatment, and Effluent and Environmental Monitoring
IP 92701	Follow-up

ITEMS OPENED, CLOSED AND DISCUSSED

Opened

05000295/2001-002-01	NCV	Failure to use the corrective action program when being informed that the current transformers were undersized
05000304/2001-002-01	NCV	Failure to use the corrective action program when being informed that the current transformers were undersized

Closed

05000295/2001-001-02	URI	Current transformer installation without use of the station modification and corrective action program
05000295/2001-002-01	NCV	Failure to use the corrective action program when being informed that the current transformers were undersized
05000304/2001-002-01	NCV	Failure to use the corrective action program when being informed that the current transformers were undersized

Discussed

05000295/2001-001-02	IFI	Evaluation of the cause of loss of offsite power to the SFNI and communication weakness
----------------------	-----	-----------------------------------------------------------------------------------------

DOCUMENTS REVIEWED

DSAR, "Defueled Safety Analysis Report"

DSEP, "Defueled Station Emergency Plan"

DTS, "Defueled Technical Specifications"

PSAR, "Post Shut-Down Activities Report"

Zion Station Work Activities Schedule

Zion Daily Plant Status Sheet

ZAP 110-02, Procedure Process Control, Revision 11

TSS 15.6.104, Determination of Spent Fuel Pit Liner and Transfer Canal Liner Leakage,

Spent Fuel Pool Heat Up Test done on November 15, 2000

SFNI and Plant Status sheets for March 12, 2001

General Liquid Radionuclide Analyses SFP Report dated February 27, 2001

SFP Chemistry data sheets from December 5, 2000, through March 5, 2001

Release No. R-01-001 discharged on January 3, 2001,

Release No. R-01-002 discharged on January 9, 2001, and

Release No. R-01-003 discharged on January 16, 2001.

PT-26, Lake Discharge Tank Lake Discharge Valve Operability Test, Revision 6

ZCP 421-1, Attachment A, Lake Discharge Tank Liquid Release Form, Revision 13

Lake Discharge (Liquid) OR-PR05, Revision 20

LIST OF ACRONYMS USED

ALARA	As-Low-As-Reasonably-Achievable
AOP	Abnormal Operating Procedure
AR	Action Request
CF	Causal Factors
CRG	Condition Review Group
CT	Current Transformer
DDC	Distribution Dispatch Center
DSAR	Defueled Safety Analyses Report
DSEP	Defueled Station Emergency Plan
DTS	Defueled Technical Specifications
EAL	Emergency Action Level
EF	Equipment Failure
ESB	East Service Building
IA	Inappropriate Action
IDNS	Illinois Department of Nuclear Safety
IFI	Inspector Follow-up Items
IP	Inspection Procedure
NGET	Nuclear General Employee Training
NRC	Nuclear Regulatory Commission
PIF	Problem Identification Form
PSDAR	Post-Shutdown Decommissioning Activities Reports
PT	Periodic Test
ODCM	Offsite Dose Calculation Manual
OSR	Onsite Review
RCR	Root Cause Report
RP	Radiation Protection
RPA	Radiologically Protected Area
RPT	Radiation Protection Technician
RWP	Radiation Work Permit
SDR	Shutdown Risk
SFNI	Spent Fuel Pool Nuclear Island
SFP	Spent Fuel Pool
SOI	System Operating Instruction
SSC	Structures, Systems, Components
T&D	Transmission & Distribution
TS	Technical Specification
TSS	Technical Staff Surveillance
ZAP	Zion Administrative Procedure