

October 23, 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 50-10/2000014(DNMS)

Dear Mr. Kingsley:

On October 12, 2000, the NRC completed an inspection at your Dresden Station Unit 1 which examined decommissioning activities. The enclosed report presents the results of that inspection.

During the period covered by this inspection, activities in the areas of facility management and control, decommissioning support activities, spent fuel safety, and radiological safety were examined. No safety or regulatory issues were identified. Overall, the performance of the reactor decommissioning program was good.

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We will be glad to discuss any questions you may have regarding this inspection.

Sincerely,

**/RA/**

Bruce L. Jorgensen, Chief  
Decommissioning Branch

Docket No. 50-10  
License No. DPR-2

Enclosure: Inspection Report 50-10/2000014(DNMS)

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cc w/encl: R. P. Tuetken, General Manager,  
Decommissioning Projects and Services  
K. A. Ainger, Director of Dresden 1 and  
Zion Decommissioning and Licensing  
C. Crane, Senior Vice President, Nuclear Operations  
H. Stanley, Vice President, Nuclear Operations  
D. Helwig, Senior Vice President  
R. Krich, Vice President, Regulatory Services  
DCD - Licensing  
N. Leech, Decommissioning Plant Manager  
J. M. Heffley, Site Vice President  
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SRI, Dresden, w/encl

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-10  
License No: DPR-2

Report No: 50-10/ 2000014 (DNMS)

Licensee: Commonwealth Edison Company

Facility: Dresden Station Unit 1

Location: 6500 N. Dresden Road  
Morris, IL 60450

Dates: August 30- October 12, 2000

Inspectors: R. J. Leemon, Radiation Specialist  
P. M. Ray, Project Manager

Approved by: Bruce L. Jorgensen, Chief  
Decommissioning Branch  
Division of Nuclear Materials Safety

## EXECUTIVE SUMMARY

### Dresden Station Unit 1 NRC Inspection Report 50-10/2000014(DNMS)

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

#### Facility Management and Control

- The licensee was performing well in managing decommissioning activities.
- 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 good and was monitored by plant management.

#### Decommissioning Support Activities

- The maintenance program was functioning well and work activities were effectively discussed and prioritized at scheduling meetings.
- Dresden Procedure RS-AND-104 contained appropriate instructions to ensure 10 CFR 50.59 regulatory requirements were addressed in screenings and safety evaluations. Selected screenings that did not result in 10 CFR 50.59 safety evaluations were reviewed. The conclusions reached that 10 CFR 50.59 evaluations were not required were appropriate. Selected 10 CFR 50.59 safety evaluations reviewed appropriately addressed the regulatory requirements of 10 CFR 50.59 and properly concluded that the activities did not involve an unreviewed safety question or require a Technical Specification or license change.

#### Spent Fuel Safety

- The SFP was being maintained within regulatory requirements, thus maintaining the safety of the spent fuel.
- The tritium well's sample results were within regulatory limits and did not indicate SFP leakage.

#### Radiological Safety

- The RP Program was determined to be effective in carrying out its function of minimizing occupational exposure and ensuring radiological safety.

## Report Details

### Summary of Plant Activities

Dresden Unit 1 major activities during this inspection focused on the radwaste vault cleanup demobilizing project.

#### **1.0 Facility Management and Control**

##### 1.1 General

The inspectors conducted 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)

The inspectors evaluated proper control, evaluations and management of reactor decommissioning activities. The inspectors reviewed the licensee's decommissioning organization and staffing. 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 observed or reviewed the licensee's decommissioning planning and scheduling. The licensee was performing well in managing decommissioning activities.

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

###### 1.3.1 General

The status of SAFSTOR and the licensee's conduct of SAFSTOR activities, in accordance with licensed requirements and commitments, were evaluated. Control and conduct of facility SAFSTOR activities were examined to verify the license, DTS requirements, and commitments described in the DSAR and the PSDAR were being met.

###### 1.3.2 Monitored Decommissioning Activities

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

Meetings attended by the inspectors were as followed:

- Unit 1 Daily Management Meetings
- Unit 1 Daily Scheduling Meeting
- Unit 1 Daily HP Briefing
- Dry Cask Issues List Status Meeting

The inspectors ascertained that activities were in accordance with licensed requirements and docketed commitments as stated in 10 CFR, DTSS, PSDAR, Regulatory Guide 1.33, and station procedures.

### 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 SAFSTOR activities, and to evaluate plant housekeeping. The inspectors accompanied the operation manager on tours of all accessible areas of Unit 1 including Unit 1 Containment.

#### b. Observations and Findings

The spent fuel pool area and support systems areas were clear and free of obstacles and hazards. No fire hazards were observed. No degradation of structures, systems, and components important to the SAFSTOR condition were observed. Generally, the plant was maintained in good condition and all radiological areas were adequately marked.

The inspector noted a small quantity of water seepage at the concrete foundation seam between the wall and floor on the north side of the 488 foot elevation in the Unit 1 Containment. Radiation protection survey results support that the moisture likely originates from a non-contaminated source, probably from condensation formation in the sphere driven by seasonal temperature changes.

The ventilation in the sphere has been secured as part of the SAFSTOR Dormancy Plan. Seasonal temperature changes cause condensation to collect on the interior of the un-insulated sphere shell. Over an extended period of time, this condensation has collected in the gap between the sphere shell and structural concrete. The moisture then has penetrated the concrete and seeps out at the seam on the 488 foot elevation.

This water does not come from a piping system, nor is it a radiological hazard.

#### 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 good and was monitored by plant management.

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

Closed IFI 50-10/2000-009-01: Permanent action to address staffing of Unit 1. DDP-01, Administrative Control Program for Dresden Unit 1, Revision 8, Paragraph F.2.3.b was modified to address the permanent staffing requirement for Unit 1. This inspector follow-up item is closed.

## 2.0 Decommissioning Support Activities

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

#### 2.1.1 General

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. This included the proper implementation of DTSS, DSAR, and 10 CFR 50, Appendix B requirements. The inspectors also evaluated SFP operations including SFP instrumentation, alarms, and leakage detection, SFP chemistry and criticality controls.

#### 2.1.2 Maintenance and Surveillance (62801)

##### a. Inspection Scope

The inspectors evaluated the effectiveness of the maintenance program relative to safe storage and control of spent fuel.

##### b. Observations and Findings

The NRC inspectors attended maintenance briefings to determine if maintenance activities were on schedule and were keeping pace with plant shutdown activities.

##### c. Conclusions

The maintenance program is functioning well and work activities were effectively discussed and prioritized at scheduling meetings.

### 2.2 Safety Reviews, Design Changes, and Modifications (37801)

#### a. Inspection Scope

The inspector reviewed several safety screenings associated with procedural changes and plant modifications to assess licensee conclusions regarding the need for 10 CFR 50.59 safety evaluations. The inspector also reviewed several 10 CFR 50.59 safety evaluations to determine if adequate assessments of the issues were completed. The inspector reviewed the following document as part of this assessment:

- Nuclear Generation Group procedure, "10 CFR 50.59 Safety Evaluation Process RS-AND-104," Revision 0

#### b. Observations and Findings

Procedure RS-AND-104 contained the licensee's administrative requirements associated with safety screenings and 10 CFR 50.59 evaluations. The instructions contained in RS-AND-104 and the associated forms addressed the appropriate questions to determine if a 10 CFR 50.59 safety evaluation would be required. The

instructions and forms used for 10 CFR 50.59 evaluations addressed the regulatory requirements of 10 CFR 50.59. A list of qualified evaluators and qualified independent safety reviewers was issued by the training department, and included training durations.

The inspector reviewed several safety screenings that concluded a 10 CFR 50.59 evaluation was not required, these included:

- Screening associated with unit 1 fuel grapple crane bridge motor drive;
- Screening associated with road map of configuration changes to Unit 1;
- Screening associated with unit 1 "A" REDT check valve installation;
- Screening associated with underwater plasma arc qualification;
- Screening associated with unit 1 compliance with the maintenance rule; and
- Screening associated with unit 1 transfer of electrical loads from transformer 12 to transformer 13.

The screenings were accomplished by personnel trained in accordance with RS-AND-104 who were within their training duration. The screenings ensured the activities did not involve a change to the facility as described in the safety analysis report (SAR) or other licensing basis document, a change to a procedure described in the SAR or other licensing basis document, or represent a test not previously described in the SAR. The inspector determined that the licensee's conclusions that the above activities did not require a 10 CFR 50.59 evaluation were appropriate.

The inspector also reviewed the following 10 CFR 50.59 evaluations to assess the licensee's conclusions:

- Safety Evaluation 2000-01-015, associated with the unit 1 HI-STAR cask loading operation;
- Safety Evaluation 2000-01-017H, associated with the unit 1 cask handling crane modification testing;
- Safety Evaluation 2000-01-030, associated with the unit 1 HI-STAR cask unloading operation;
- Safety Evaluation 2000-01-031, associated with the unit 1 installation of the Independent Spent Fuel Storage Installation;
- Safety Evaluation 2000-01-051, associated with the unit 1 HI-STAR cask unloading operations; and
- Safety Evaluation 2000-01-060H, associated with the unit 1 cask handling crane modification related to rotary upper limit switches.

The inspector verified that the evaluator and the reviewer were trained in accordance with RS-AND-104 and were within their training duration. The inspector determined that

the licensee's conclusions that the above activities did not involve an unreviewed safety question and did not involve a TS or license change were appropriate, and thus the activities did not require prior NRC approval.

c. Conclusions

Dresden Procedure RS-AND-104 contained appropriate instructions to ensure 10 CFR 50.59 regulatory requirements were addressed in screenings and safety evaluations. Selected screenings that did not result in 10 CFR 50.59 safety evaluations were reviewed. The conclusions reached that 10 CFR 50.59 evaluations were not required were appropriate. Selected 10 CFR 50.59 safety evaluations reviewed appropriately addressed the regulatory requirements of 10 CFR 50.59 and properly concluded that the activities did not involve an unreviewed safety question or require a Technical Specification or license change.

**3.0 Spent Fuel Safety**

3.1 Spent Fuel Pool Safety (60801)

a. Inspection Scope

The inspectors verified the safety conditions in the SFP. The inspectors reviewed the technical specifications and calibration records for equipment monitoring SFP temperature, level, and local area radiation. The inspector independently determine that the temperature and level of the SFP were within limits. The inspector also reviewed computer print outs of SFP temperature and level readings taken during operator rounds. The inspector also evaluated the SFP leakage collection system.

b. Observations and Findings

***Spent Fuel Pool Temperature and Level***

<b>SPENT FUEL POOL</b>		
	<b>TEMPERATURE</b>	<b>LEVEL</b>
<b>DATE</b>	10/10-11/2000	10/10-11/2000
<b>DTS LIMIT</b>	NONE	>24.2 FT
<b>ROUNDS SHEET MAX</b>	120 °F	25.3 FT
<b>ROUNDS SHEET READING</b>	90.4 °F	25.3 FT
<b>ROUNDS SHEET MIN</b>	68 °F	25.00 FT
<b>INSPECTOR'S READING</b>	90.0 °F	25.24 FT

The SFP temperature and level were within limits.

After reviewing the calibration records for the SFP temperature, level, remote alarms, and area radiation monitor, the inspector determined that the equipment was calibrated and recalibrated within the established calibration frequency

The SFP is a concrete pool with no leak detection system, but the licensee does have several wells by which they measure the tritium concentration in the ground water. The inspector reviewed this sampling data and determined that there is no indication of significant SFP leakage.

Tritium samples results from the SFP were as follows:

- December 25, 1997 1,050,000 pCi/liter
- December 20, 1998 707,000 pCi/liter
- February 21, 2000 476,000 pCi/liter

The 10 CFR 20 Appendix B limit for tritium is 1,000,000 pCi/liter

The limit for tritium in public drinking water is 20,000 pCi/liter.

Commonwealth Edison intends courtesy notification to NRC and IDNS if any of the following conditions are met:

- (1) Exceeding the current tritium concentration in the onsite wells by a factor of five.
- (2) Any time a potable water source exceeds 10,000 pCi/liter.
- (3) The first time a non-potable water source exceeds 15,000 pCi/liter.

c. Conclusions

The SFP was being maintained within regulatory requirements, thus maintaining the safety of the spent fuel. Also, the tritium wells' sample results were within regulatory limits.

## **4.0 Radiological Safety**

### 4.1 Occupational Radiation Exposure (83750)

a. Inspection Scope

An inspection and evaluation were made of the radiation safety program to ensure that procedures and controls were adequate to minimize occupational exposure to radiological materials and to identify potential problem areas.

b. Observations and Findings

Unit 1 2000 exposure was slightly below the estimated dose, primarily due to the use of good ALARA work practices during the radwaste vault cleanup demobilizing project.

**Total 2000 dose:** The yearly dose goal is 23 Person Rem, the goal to date was 14 Person-Rem versus an actual exposure received of 12.3 Person-Rem for the same period. The present exposure is 53.41 percent of the target.

The monthly exposure for August 2000 was 0.281 Person-Rem versus an estimated exposure of 0.626 Person-Rem. This was 0.345 Person Rem less than the goal because some high dose work was moved out of the period. The major activity was radwaste tank and vault cleaning demobilizing.

The monthly exposure for September 2000 was 0.417 Person-Rem versus an estimated exposure of 0.385 Person-Rem. This was 0.032 Person Rem more than the goal. The major activity also was radwaste tank and vault cleaning demobilizing.

The inspector discussed the use of As-Low-As-Reasonably-Achievable (ALARA) work practices with the ALARA supervisor for demobilizing remote equipment used to clean radwaste vaults and tanks. The following is discussion of those ALARA practices.

### **RWP 001013, Unit 1 Radwaste Vault Demobilization**

**Job Scope:** The job scope was to remove all equipment associated with the processing of solids from Unit 1 Radwaste Vaults.

**Dose Reduction Techniques:** The licensee used laborers with previous experience working in Unit 1 vaults. Laborers were able to retrieve most items from Vault 4 by working on top of the vault in a 2-4 mrem/hr radiation field instead of working down inside the vault in a 10-15 mrem/hr radiation field. Laborer foreman and RP technician walked down all hoses and electrical cables in Vault 2/3 to determine which were live connections. This allowed the crews to cut non-live hoses and electrical cables in the vault that had become tangled. Then the pieces were removed. This sped-up the process of retrieval, thus saving dose. Items were immediately surveyed and packaged for shipping, not requiring double handling to ship the item.

**Dose Received:** The total dose received for the job was 10.407 Person Rem. The workers were three RP technicians (whose doses were 55 mrem, 42 mrem, and 13 mrem) and seven laborers (whose doses were 156 mrem, 149 mrem, 83 mrem, 59 mrem, 54 mrem, 33 mrem, and 33 mrem). The dose was shared among the workers.

The dose received for the month of August was under the original goal by almost 400 mrem. This was due to the Building Demobilization and Destruction Project pushing higher dose jobs out of the month's work scope. Doses received for the month of September were 33 mrem over the estimate. Some of the Vault 2/3 work went into this month and caused the dose to be slightly over the goal. The total dose received for both months ended up approximately 400 mrem under the goal.

The inspector examined records of estimated doses versus actual doses received for several Radiation Work Permits (RWPs). The review indicated that ALARA was being properly addressed and discussions indicated ALARA was an important consideration in job planning.

c. Conclusions

The RP Program was determined to be effective in carrying out its function of minimizing occupational exposure and ensuring radiological safety.

5.0 Management Meeting

The inspector presented the inspection results to licensee management at the conclusion of the inspection on October 12, 2000. The licensee acknowledged the findings presented. The licensee did not identify any of the documents or processes reviewed by the inspector as proprietary.

## PARTIAL LIST OF PERSONS CONTACTED

### Licensee

Ben Christel, Engineering Manager,  
Ray Christensen, Operation Manager, Unit 1  
Nate Leech, Dry Cask Storage Project Manager  
Jim Limes, Licensing/Compliance Engineer  
C. McDonough, Unit 1 Maintenance & Construction  
Michael Overstreet, Lead HP Supervisor, Unit 1  
Paul Planing, Plant Manager Unit 1  
Rick Ralph, (New) Operation Manager, Unit 1  
Bob Speek, Nuclear Oversight

The inspector also interviewed other licensee personnel in the course of the inspection.

## INSPECTION PROCEDURES USED

IP 36801: Organization, Management & Cost Controls at Permanently Shut Down Reactors  
IP 37801: Safety Reviews, Design Changes, and Modifications at Permanently Shut Down Reactors  
IP 60801 Spent Fuel Pool Safety  
IP 62801 Maintenance And Surveillance At Permanently Shut Down Reactors  
IP 83750: Occupational Radiation Exposure

## LIST OF ACRONYMS USED

ALARA	As-Low-As-Reasonably-Achievable
ComEd	Commonwealth Edison
CFR	Code of Federal Regulations
DCP	Dresden Chemical Procedure
DDP	Dresden Decommissioning Procedure
IDNS	Illinois Department of Nuclear Safety
ISFSI	Independent Spent Fuel Storage Installation
NRC	Nuclear Regulatory Commission
NSO	Nuclear Station Operator
ODCM	Off-Site Dose Calculation Manual
PIF	Problem Identification Form
PPM	Part per million parts of water
QA	Quality Assurance
RP	Radiation Protection
RPT	Radiation Protection Technician
RWP	Radiological Work Permits
SFP	Spent Fuel Pool
SOS	Shift Operations Supervisor

## DOCUMENTS REVIEWED

Unit 1, Facility Operating License No. DRP-2, Amendment No. 39, Appendix A, Technical Specifications, Issued July 8, 1997.

Letter to NRR, "Environmental Evaluation of Dresden 1 Fuel Integrity", Dated May 27, 1994

Tritium Monitoring Sample Results

RS-AND-104, Nuclear Generation procedure for 10 CFR 50.59 Safety Evaluation Process, Revision 0

## ITEMS OPENED, CLOSED AND DISCUSSED

### Opened

None

### Closed

50-10/200009-01      IFI      Permanent action to address staffing of Unit 1

### Discussed

None