

*Reactor Facilities  
Branch*

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION III  
799 ROOSEVELT ROAD  
GLEN ELLYN, ILLINOIS 60137

DEC 5 1975

Commonwealth Edison Company  
ATTN: Mr. Byron Lee, Jr.  
Vice President  
P. O. Box 767  
Chicago, Illinois 60690

Docket No. 50-237  
Docket No. 50-249

Gentlemen:

This refers to the inspection of your Dresden 2 and Dresden 3 facilities conducted on November 12, 13, 14, and 17, 1975, by Messrs. Finley, Patterson, and Holody of this office and to the discussion of our findings with Mr. B. B. Stephenson, Superintendent, Dresden Station and other members of his staff at the conclusion of the inspection. Your activities pursuant to Title 10, Code of Federal Regulations, Part 70, "Special Nuclear Material" as they pertain to Licenses No. DPR-19 and No. DPR-25 were the subject of the inspection.

This material safeguards inspection consisted of a physical inventory and verification, examination of accountability procedures, review of special nuclear material records, depletion and production calculations, interviews with facility personnel, and observations by the inspectors. The records audit for both licenses was for the period July 1, 1972 through October 31, 1975. Differences between your calculated values and the NRC calculated values for uranium depletion and plutonium production are being further reviewed and will be a subject of a subsequent inspection.

During this inspection, it was found that certain of your activities appear to be in noncompliance with NRC requirements. The item and reference to the pertinent requirements are listed in the enclosure to this letter.

This notice is sent to you pursuant to the provisions of Section 2.201 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations. Section 2.201 requires you to submit to this office within twenty days of your

*[Handwritten signature]*

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receipt of this notice, a written statement or explanation in reply, including: (1) corrective steps which have been taken by you, and the results achieved; (2) corrective steps which will be taken to avoid further items of noncompliance; and (3) the date when full compliance will be achieved.

Areas examined during the inspection concern a subject matter which is exempt from disclosure according to Section 2.790 of the NRC's "Rules of Practice, Part 2, Title 10, Code of Federal Regulations. Consequently, our report of this inspection (No. 050-237/75-24 and No. 050-249/75-21), will not be placed in the Public Document Room.

Should you have any questions concerning this inspection, we will be glad to discuss them with you.

Sincerely yours,

J. A. Hind, Chief  
Safeguards Branch

Enclosure:  
As stated

cc w/encl, w/o rpt:  
B. B. Stephenson  
Station Superintendent

bcc w/encl, w/o rpt:  
PDR  
Local PDR

ENCLOSURE

Commonwealth Edison Company  
License No. DFR-25

The following item of noncompliance was identified during the inspection conducted on November 12-14, and 17, 1975.

Deficiency

Contrary to Title 10, Code of Federal Regulations, Section 70.52 which requires immediate reporting of a loss of SNM, a fuel loading chamber, serial number 6579005, containing two grams of 93.35% enriched uranium 235 that could not be located on August 6, 1975, was not reported as lost to the Director of Region III, Office of Inspection and Enforcement Nuclear Regulatory Commission until October 8, 1975.

UNITED STATES NUCLEAR REGULATORY COMMISSION  
OFFICE OF INSPECTION AND ENFORCEMENT

REGION III

IE Inspection Report No. 050-237/75-24  
IE Inspection Report No. 050-249/75-21

Licensee: Commonwealth Edison Company  
P. O. Box 767  
Chicago, Illinois 60690

Dresden Nuclear Power Station  
Units 2 and 3  
Morris, Illinois 60450

License No. DPR-19  
License No. DPR-25  
Category: C

Type of Licensee: BWR, 800 MWe

Type of Inspection: Materials Safeguards, Unannounced

Dates of Inspection: November 12, 13, 14 and 17, 1975

Principal Inspector: *A. G. Finley*  
A. G. Finley

\_\_\_\_\_  
(Date)

Accompanying Inspectors: *J. P. Patterson*  
J. P. Patterson

*12-3-75*  
\_\_\_\_\_  
(Date)

D. J. Holoday

\_\_\_\_\_  
(Date)

Other Accompanying Personnel: None

Reviewed by: *J. A. Hind*  
J. A. Hind, Chief  
Safeguards Branch

*10/5/75*  
\_\_\_\_\_  
(Date)

Attachment:  
Findings (10 CFR 2.790 Information)

10 CFR 2.790 INFORMATION

SUMMARY OF FINDINGS

Inspection Summary

Inspection conducted November 12, 13, 14, and 17, 1975 (Unit 2, 75-24) (Unit 3, 75-21): The inspection consisted of a physical inventory and verification, examination of accountability procedures, review of special nuclear material records, material transaction forms, material status reports, and depletion and production calculations. One item of noncompliance was identified. Failure to report immediately the loss of a fuel loading chamber, serial number 6579005, containing two grams of 93.35% enriched uranium 235. Differences between NRC and licensee calculated values for uranium depletion and plutonium production are being further reviewed and will be a subject of a subsequent inspection.

Enforcement Items

The following item of noncompliance was identified during the inspection:

Deficiency

Contrary to Title 10, Code of Federal Regulations, Section 70.52, which requires immediate reporting of a loss of SNM, a fuel loading chamber, serial number 6579005, containing two grams of 93.35% enriched uranium 235 that could not be located on August 6, 1975 was not reported as lost to the Director of Region III, Office of Inspection and Enforcement, Nuclear Regulatory Commission until October 8, 1975.

Licensee Action on Previously Identified Enforcement Items

Not applicable.

Other Significant Items

A. Systems and Components

Not applicable.

B. Facility Items (Plans and Procedures)

For the period, January 1, to June 30, 1975, the licensee for computation of uranium depletion and plutonium production changed over from the General Electric, San Jose computer codes to their own method utilizing both the station on-line computer and the Nuclear Fuel Services, Commonwealth Edison off-line computer.

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The facility is planning tentatively, to insert 140 new fuel assemblies in the Dresden 2 and Dresden 3 Reactor in March and September 1976, respectively.

During the August 1975 fuel reload of the Dresden 3 Reactor, 140 new assemblies were inserted.

In 1976, the facility is planning to ship up to 689 fuel assemblies from the Dresden 2 and 3 fuel pool to General Electric, Morris Operation, when the increased storage capacity has been attained at that facility.

### C. Managerial Items

About September 1, 1975, Mr. James Abel became the Administrative Assistant to the Dresden Station Superintendent. Mr. Abel had been the License Administrator for BWR's at the Commonwealth Edison Company Office in Chicago.

### D. Noncompliance Identified and Corrected by Licensee

None.

### E. Deviations

Not applicable.

### F. Status of Previously Reported Unresolved Items

Not applicable.

### Management Interview

A management interview was conducted by Messrs. Finley, Patterson, and Holody of the inspection team with the following Commonwealth Edison Company personnel:

B. B. Stephenson, Plant Superintendent  
James Abel, Administrative Assistant to Superintendent  
J. M. Dolter, Lead Nuclear Engineer and Nuclear Material Custodian  
F. Willaford, Quality Assurance Inspector

The licensee representatives were informed that they were in apparent noncompliance with 10 CFR 70.52 for the following

## 10 CFR 2.790 INFORMATION

reason: Contrary to 10 CFR 70.52, the licensee did not report immediately to the Director, Region III, Office of Inspection and Enforcement, Nuclear Regulatory Commission, the loss of a fuel loading chamber, No. 6579005, containing two grams of highly enriched uranium 235.

The Station Superintendent asked what the classification of the item of noncompliance would be? The licensee was informed that at this time, it is considered a deficiency and they will be notified if the classification should be changed.

The licensee personnel were informed that three six-month reporting periods for both facilities were calculated for uranium burnup and plutonium production and compared with the reported values. The uranium depletion and plutonium production figures for both Dresden 2 and Dresden 3 reactors reported for the period ending June 30, 1975, included mathematical adjustments. These adjustments resulted from the licensee changing over from General Electric, San Jose computer codes to their own computer programs for the January to June 1975 period. It was noted to the licensee that these differences resulting from this changeover should be documented on the material status reports as adjustments to uranium burnup and plutonium production. The licensee agreed that future reports would document any adjustments that may be reflected as part of a six month burnup or production value. The licensee indicated that more consistent uranium burnup and plutonium production data should result with the use of their own computer programs.

The licensee was informed that all 1384 fuel assemblies held under License No. DPR-19 and 1145 fuel assemblies held under License No. DPR-25 had been accounted for and a total gram balance for both Dresden 2 and 3 as of October 31, 1975, agreed with both the Station and Commonwealth Edison Company records.

It was noted to the licensee that 88 fuel assemblies in the fuel pool for Dresden 2 and 63 fuel assemblies for Dresden 3 had been physically verified by telescope and that the fuel pool piece-count of 660 fuel assemblies for Dresden 2 and 421 for Dresden 3 was in agreement with Station records. Also 100 fuel assemblies from both Dresden 2 and Dresden 3 reactor cores agreed by serial number and location to the individual fuel assembly cards with a minor omission of one digit in the core location column for one fuel assembly.

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The licensee was requested to scrutinize more carefully the material status reports reporting Dresden activity and prepared by the General Books, Commonwealth Edison Company Office in Chicago. ~~Five fission counters received in March 1974 on Form NRC-741, ZGR-YVF No. 2 were not reported on the June 30, 1974, material status report, but rather on the December 31, 1974 material status report.~~

# 10 CFR 2.790 INFORMATION

## REPORT DETAILS

### Licensee Personnel Supplying Information

J. Dolter, Lead Engineer and Nuclear Materials Custodian  
E. Petrowsky, Nuclear Engineer  
T. Rausch, Nuclear Engineer  
R. Thompson, Nuclear Engineer, CECO, Chicago Office  
J. Doxsey, Nuclear Engineer

### Scope of Inspection

The inspection was made to determine the licensee's compliance with the safeguards requirements of Title 10, Code of Federal Regulations, Part 70, as they pertain to nuclear power reactors licensed pursuant to Part 50.

### Facility Organization

The Dresden 2 and 3 nuclear procedures are part of the Commonwealth Edison Company nuclear procedures for all Commonwealth Edison owned and operated nuclear reactors. The procedures were updated in April and September 1975 by the Director of General Procedures and approved by the Vice President and Comptroller. Statements of responsibility and delegations in writing, where required, have been established for those positions having responsibilities for receiving, shipping, inventory, storage, internal transfers, records and reports. A fuel assembly card is maintained as a perpetual record for each fuel assembly, reflecting serial numbers, locations, and disposition. A new procedure number DFP 800-25 was initiated in November 1975, as a result of the lost fuel loading chamber, for the receiving, handling, storage and shipping of fuel loading chambers. Nuclear Procedure No. 3, revised April 1, 1975, provides for documentation of between Item Control Area (ICA) movements and requires preparation of a Nuclear Transfer Report (Form C), numbered consecutively by year for all such movements.

Reactor inventories are conducted of all nuclear fuel assemblies by serial number and location prior to initial fuel loadings and each time the reactor heads are removed. During the period of inspection, this has been more frequent, than required by 10 CFR 70. In addition, a piece-count inventory of the reactor vessel is required whenever the reactor heads are removed for more than one month, and each month reactor heads are removed. Fuel vault inventories are conducted by serial number and location monthly, or once yearly if the vault has been sealed and the integrity of

## 10 CFR 2.790 INFORMATION

the seal confirmed by inspection. The inventory form is so noted. A piece-count of fuel pool inventories is conducted and documented monthly, and a required annual inventory of the fuel pool is taken by serial number and location. This inventory may serve in lieu of a monthly piece-count inventory. The licensee maintains a Fuel Pool Inventory Form (Form G), a Reactor Inventory Form (Form H), and Fuel Vault Inventory Form (Form F), and all forms provide for signatures of the Nuclear Material Custodian, Inventory Observers, and approval by the Dresden Station Superintendent. These forms were on file, signed and approved as required by Company Nuclear Procedures.

### Facility Operation

The Commonwealth Edison Company Nuclear Procedures cover the following topics:

1. Organizational responsibilities and authorities. (Nuclear Procedure No. 1)
2. Establishment and description of Item Control Area (ICA). (Nuclear Procedure No. 1)
  - a. Dresden 2:
    - (1) ICA VD2 - Dresden 2 Fuel Vault
    - (2) ICA PD2 - Fuel Pool
    - (3) ICA RD2 - Reactor
  - b. Dresden 3:
    - (1) ICA VD2 - Dresden 3 Fuel Vault
    - (2) ICA PD3 - Fuel Pool
    - (3) ICA RD3 - Reactor

The Fuel Vault is a single facility used by both Dresden 2 and 3.

3. Delegations for the following positions are in writing:
  - a. Station Superintendent and Assistant Superintendent as "authorized individuals" having responsibility for SNM surveillance (letter dated July 19, 1974 from Company President).

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- b. Nuclear Materials Safeguards Manager as "authorized individual" having responsibility for SNM surveillance (letter dated July 19, 1974 from Company President)
  - c. Nuclear Material Custodian designated in writing as the Nuclear Materials Custodian and Lead Engineer (letter dated August 23, 1974 from Station Superintendent).
  - d. Nuclear Material Custodian maintains a list of authorized Fuel Handling Foremen and Fuel Handling personnel.
4. SNM records and reports (Nuclear Procedure No. 7).
  5. Physical inventory procedures and frequencies for each ICA (Nuclear Procedure No. 4).
  6. Unirradiated fuel shipments in, unirradiated fuel shipments out and spent fuel shipments (Nuclear Procedures No. 2).
  7. Company auditors participate in the required annual physical inventory, initial fueling, refueling, or rearrangement of fuel in the reactors. Two Company Auditors participated in the May 15 and 16, 1975 annual physical inventory. Procedures and practices are also reviewed annually by Company Auditors (Nuclear Procedures No. 1 and 4).

Facility accepts shipper's values and has no measurement capability. Licensee has a computerized method for calculating uranium depletion and plutonium production.

As a result of the SNM records and reports review, the possession and use of SNM has been confined to the location and purposes authorized by Licenses No. DPR-19 and No. DPR-25.

### Measurement and Controls

Information from feedwater flow and temperatures, steam flow and temperatures, control rod drive flow, recirculating pump power and other contributors to thermal power is taken from instrumentation in the reactor control room and fed to a process computer. This computer calculates hourly values of megawatts-thermal for the reactor. If the process computer should break down the licensee has an alternate station approved method for calculating thermal balances and power with the aid of a Monroe 1880 computer.

The uranium depletion and plutonium production figures have been provided by a computer program from General Electric Company (GE) San Jose, California up to the June 30, 1975, Material Status

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Report. Between January and June, 1975 GE changed their computer codes, and the licensee decided to use their own instead. The licensee's codes are designated OD-12, Isotopic Composition of In Core Fuel, an on-line station computer code, and a Nuclear Fuel Services Department code designated RICE, Revised Isolux Commonwealth Edison, an off-line computer code used in the Commonwealth Edison corporate office.

The reported amounts for uranium depletion and plutonium production for June 30, 1975 primarily represent mathematical adjustments resulting from the licensee changing from the GE computer program to their own programs, rather than actual generated quantities. This accounts for the large differences between NRC calculated values and those reported by the licensee for both Dresden 2 and Dresden 3 reactors for that period. Comparison of data for three reporting periods for each reactor are shown in the following tables. Notations are made where the licensee's data appears erroneous. The overall average differences for each reactor appear to be reasonable.

## DRESDEN 2

### URANIUM DEPLETION - PLUTONIUM PRODUCTION REACTOR REPORTED DATA VS CALCULATED

<u>Period</u>	<u>MWD(Thermal)</u>	<u>Licensee</u>	<u>NRC Calculated</u>	<u>% Differenece</u>
7/1/73-12/31/73	333,490			
Uranium		436,868	455,861	+4.3
Uranium-235		234,340	239,597	+2.2
Plutonium		114,008	106,788	-6.4
7/1/74-12/31/74	161,917			
Uranium-		214,595	211,483	-1.4
Uranium-235		98,347	104,610	-6.4
Plutonium		45,699	55,660	+23.2*
1/1/75-6/30/75	56,509			
Uranium		78,226	86,439	+10.5*
Uranium-235		52,086	51,565	-1.0
Plutonium		17,908	27,043	+50.8*
Totals	551,916			
Uranium		729,689	753,783	+3.3
Uranium-235		384,773	395,772	+2.8
Plutonium		177,615	189,491	+6.7

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## DRESDEN 3

 URANIUM DEPLETION - PLUTONIUM PRODUCTION  
 REACTOR REPORTED DATA VS CALCULATED

<u>Period</u>	<u>MWD(Thermal)</u>	<u>Licensee</u>	<u>NRC Calculated</u>	<u>% Difference</u>
1/1/74-6/30/74	148,190			
Uranium		214,082	237,192	+10.7
Uranium-235		148,237	147,672	-0.3
Plutonium		73,223	69,115	-5.6
7/1/74-12/31/74	286,970			
Uranium		355,478	399,116	+12.4*
Uranium-235		212,082	214,380	+1.1
Plutonium		89,160	94,928	+6.4
1/1/75-6/30/75	113,002			
Uranium		221,947	154,210	-30.5*
Uranium-235		67,415	80,881	+20.0*
Plutonium		27,101	35,416	+30.6*
Totals	548,162			
Uranium		791,507	790,518	-0.1
Uranium-235		427,734	442,933	+3.6
Plutonium		189,484	199,459	+5.2

\*denotes difference which will be reviewed in more detail subsequent to the issuance of this report.

Shipping and Receiving

All Dresden 2 and 3 receipts of nuclear fuel for the period of inspection agreed by both piece-count and fuel assembly serial numbers with the shipper's data.

All fuel shipped from both Dresden 2 and 3 for the period of inspection reflected on the internal transfer form (Form C), the total piece-count and fuel assembly serial numbers of all items shipped.

The licensee prepares an advance signed internal transfer (Form C) reflecting the total fuel and individual serial numbered items to be shipped, the receiving RIS, date of shipment and ICA from which

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material is to be removed. This advanced copy is submitted to General Books, Commonwealth Edison Company Office, for preparation of the Form NRC-741. When the shipment is released, the Nuclear Materials Custodian notifies General Books by telephone, the date is entered on the Form NRC-741 and distribution is made the same day.

General Books maintains a computer data balance for each fuel assembly and upon receipt of the signed Form C from the reactor site prepares the Form NRC-741 with gram values for both element and isotope. This Form NRC is held in abeyance until the Nuclear Materials Custodian notification by telephone that the shipment has been released (same day).

A fuel assembly card is maintained for each fuel assembly and reflects serial number, fuel assembly movements, and current location. SNM values for fuel assemblies are maintained by the isotopic inventory program at the Commonwealth Edison Company Office.

Receiving Reports (Form A) are prepared by the reactor site for incoming fuel, serial numbers are checked, and the form signed by Handling Personnel that all fuel assemblies have been verified and inspected. Approval signatures are required from both the Nuclear Materials Custodian and Station Superintendent. The Receiving Report is submitted to General Books within seven days of receipt in order to receipt and return the Form NRC-741 to the NRC and the shipper.

### Storage and Internal Control

The licensee maintains in addition to fuel assembly cards for each fuel assembly which reflect serial numbers and ICA locations, a current fuel vault inventory sheet, a core diagram and fuel pool inventory sheets for both Dresden 2 and 3 that also reflect serial numbers and locations within the ICA. Except once annually, the pool inventory sheets will show a total piece-count reflecting occupied and unoccupied positions within the pools which is verified by piece-count monthly. Annually serial numbers and positions are verified.

Perpetual inventory records (fuel assembly cards) are posted to reflect changes from internal transfer forms and reconciled on a serial number and total piece-count with physical inventories.

Internal transfers (Forms C) are prepared for all offsite receipts, shipments and internal fuel movements and signed by both the Fuel Handling Foreman and the Nuclear Material Custodian. All fuel assemblies received and shipped by both Dresden 2 and 3 since July 1, 1972 agreed with internal transfer forms and fuel assembly card records. Internal transfer forms had been prepared for all the receipts and shipments. Agreement with fuel assembly cards revealed the following minor errors for the Dresden 3 Unit: Fuel assembly DDO38 - No date for last transfer; fuel assemblies DDO20 and LJ1997 reflected latest transfer date, but no locations. These were checked with the ICA diagrams and DDO20 was in the reactor, LJ1997 in the pool, and DDO38 in the reactor in August 1975. These corrections were made to fuel assembly cards.

Copies of receiving reports for offsite receipts and internal transfers for offsite shipments are submitted to the General Books, Company Office as a basis for signing, distributing and preparing Forms NRC-741.

#### Inventory and Inventory Verification

The entire physical inventory of the Dresden 2 reactor consists of 724 fuel assemblies in the reactor and 660 irradiated fuel assemblies in the pool. There were no cold fuel assemblies in the vault at the time of inspection.

To verify the reactor core loading, 100 fuel assemblies were randomly selected as listed on the current reactor core loading diagram. These assemblies were checked with the fuel assembly card records for correct location. One discrepancy on the cards was detected which amounted to a digit being omitted from the locating points on the core diagram for one assembly.

A piece-count by the inspection team of the irradiated fuel assemblies in the Dresden 2 pool confirmed that 660 assemblies were present. With the aid of a telescope attached to a moving bridge over the pool, the inspection team identified 88 assemblies by serial number. These 88 assemblies were then verified with the current official Dresden 2 pool diagram. There were 25 other assemblies as part of the pool holdings selected whose serial numbers were not legible through the telescope.

The Dresden 3 reactor has a physical inventory which consists of 724 fuel assemblies in the reactor and 421 irradiated fuel assemblies in the pool. There were no fuel assemblies in the vault at the time of inspection.

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A total of 100 fuel assemblies in the reactor were randomly selected to verify the identity and location as listed on the current reactor core loading diagram. These assemblies were checked with the fuel assembly card records, and no discrepancies were detected for location or identity. To verify the inventory in the pool, first a total piece-count of 421 assemblies was taken by the inspection team which confirmed the official number listed by the licensee. Then with the aid of a telescope attached to a moving bridge over the pool, the inspection team identified 63 assemblies by serial number. These were checked with the current locator board listing for the pool, and no discrepancies were detected.

### Records and Reports

Official SNM values are computerized and maintained by ICA at General Books, Commonwealth Edison Company Office based on input from the reactor site. These computer printouts are presently on a semiannual basis in conjunction with required Form NRC-742 reporting period. An exception to this is during a fuel reload or sustained shut down when a computer printout is prepared and submitted to the site. This computer is known as the Revised ISOLUX Commonwealth Edison (RICE). The reactor site also has a process computer known as OD-12 (OD - on demand) tied in with the reactor operation. While the reactor is operating this computer has the capability of determining power distribution every four hours and is programmed to determine every 24 hours (at 11:00 p.m.) exposure or burnup and production of fuel assemblies. A disadvantage of this system is that during any outage, shutdown or reload, a manual input into the computer is required to update for the period of nonoperation. A monthly printout is obtained from this program and these values are utilized (possibly with some adjustment), for monthly ICA burnup, production, and SNM values at the reactor site. These numbers are then reconciled semiannually with the RICE printout data. A copy of each monthly OD-12 printout is submitted to the Commonwealth Edison Company Office.

All forms NRC-41 representing receipts and shipments for both Dresden 2 and 3 were available and agreed to facility activity as reported.

ICA balances are maintained monthly and reconciled to the OD-12 computer printout.

Review of Forms NRC-741 revealed that all transfers of SNM have been to and from authorized recipients as required by 10 CFR 70.42.

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Material status reports (Forms NRC-742) have been prepared and filed as required by 10 CFR 70.53 to reflect the licensee's activities for both Dresden 2 and 3 for the period of inspection.

Forms NRC-741 for both Dresden 2 and 3 have been prepared and distributed as required by 10 CFR 70.54 and special instructions.

The licensee records system provides sufficient information to comply with the requirements of 10 CFR Part 70 as they pertain to nuclear power reactors.

The licensee reconciles balances monthly with the Process Computer (OD-12) Printout and semiannually with the RICE computer printout. During periods of reloading and sustained shutdown reconciliation with the RICE computer printout is also accomplished.

The attached Exhibits A, B, C, and D reflect the Dresden 2 and 3 activity for enriched uranium and plutonium for the period of inspection. The following information is a reconciliation of the fuel assembly activity for both Dresden 2 and 3 for the audit period (July 1, 1972 - October 31, 1975)

### Dresden 2, License No. DPR-19:

No. of fuel assemblies previous inspection (053-237/72-06)	1477
No. of fuel assemblies received	156
No. of fuel assemblies shipped	<u>249</u>
Dresden 2 Balance on hand 10/31/75	<u>1384</u>

### Dresden 3, License No. DPR-24:

No. of fuel assemblies previous inspection (053-249/72-06)	724
No. of fuel assemblies received	453
No. of fuel assemblies shipped	<u>32</u>
Dresden 3 Balance on hand 10/31/75	<u>1145</u>

Also shipped from the Dresden 3 account to General Electric Morris Operation on March 1, 1973, was the 449 fuel rods on hand during the previous inspection. This data is not included in the above assembly balances.

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As of the inspection, location of fuel assemblies on hand for both Dresden 2 and 3 was as follows:

### Dresden 2:

In Reactor Core	724
In Fuel Pool	<u>660</u>
Total	<u>1384</u>

### Dresden 3:

In Reactor Core	724
In Fuel Pool	<u>421</u>
Total	<u>1145</u>

There was no cold fuel in either the Dresden 2 or 3 fuel vault.

License No. DPR-19 (Dresden 2) authorized possession of 6,000 kilograms of uranium 235 and as of October 31, 1975 possessed 3,897.087 kilograms. License No. DPR-25 (Dresden 3) authorizes possession of 5,000 kilograms of uranium 235 and as of October 31, 1975 possessed 3,112.910 kilograms.

### Management of Material Control System

The licensee by his own procedures requires a company auditor to participate and test inventory practices during the required annual inventory and initial fueling, refueling or rearrangement of fuel in the reactor. During the annual inventory of Dresden 2 and 3 conducted May 15 and 16, 1975, two company auditors participated. The findings were reported in a letter from the Company Auditor to the Nuclear Materials Safeguards Manager dated July 16, 1975. Only a minor problem, of deciphering a couple of fuel assembly serial numbers in the fuel pool was encountered by the auditors and this was immediately corrected.

Each time a company auditor participates in a fuel loading, he is accompanied by a representative from the Arthur Anderson Company.

Dresden 3, License No. DPR-25 experienced a loss, as previously noted, of one fuel loading chamber containing two grams of highly enriched uranium. The licensee has been advised to report this as an accidental loss on the enriched uranium material status report for the period ending December 31, 1975.

## 10 CFR 2790 INFORMATION

There was no apparent loss or theft of a discrete item containing SNM associated with Dresden 2, License No. DPR-19 reported for the period of inspection.

### Summary of Events Involving Lost Fuel Loading Chamber (FLC)

1. August 6, 1975. During reloading of Dresden 3 Unit, fuel handlers were looking for five FLC's in anticipation that they may be used. Four were located, but FLC No. 6579005 could not be located. Fuel Handling Foreman notified the Nuclear Materials Custodian and the Assistant Superintendent that the FLC could not be located and the following two decisions were made:
  - a. Complete Dresden 3 core reloading. The FLC's are under the jurisdiction of Fuel Handling Foreman. Consequently, fuel handlers (union personnel) only could conduct search. Management personnel could not conduct search without fuel handling personnel. Fuel Handling Foreman is considered management.
  - b. To declare the FLC missing, not lost, to Station Superintendent. Consequently, no report would be required.
2. The search was resumed on August 26, 1975, (20 days after start of reloading) and continued until September 1, 1975. Three separate searches comprising team of 3 to 10 handling personnel were conducted. This was because management could not open 55-gallon drums (union requirement).

The searches were considered extensive by the licensee but not entirely inclusive because both the barrel area containing 55-gallon drums and third floor of refueling building containing 55-gallon drums were considered possibly severely contaminated areas and were not searched at that time.

3. September 1, 1975. The Dresden Unit 1 was shut down because of a crack in six-inch cleanup line and a decision was made to utilize fuel handlers to sip and reload Unit 1 fuel (duration: September 1 - 25, 1975). Fuel Handling Quarterly Personnel exposure review was conducted about September 30 and a decision was made that fuel handlers might exceed quarterly limits if search continued at this time. This resulted in a further delay of about a week.

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4. Fuel handlers were further required for a Unit 1 outage (duration: October 1 - 6, 1975).
5. October 7, 1975. A completed search of the reactor building with the exception of the two possibly severely contaminated areas was made.
6. October 8, 1975. The two contaminated areas were searched with negative results. Another complete search of reactor building was conducted, prior to notifications of the loss to an onsite Region III inspection.

According to 10 CFR 70.52, each licensee shall report immediately to the NRC Regional Director, by telephone, telegram or teletype, any loss of special nuclear material. The time period from August 6, 1975, (licensee first noted that the FLC could not be located) to October 8, 1975, (reported loss to NRC) does not constitute "immediately" as referred to in 10 CFR 70.52, but their letter of October 17, 1975, from B. B. Stephenson, Superintendent, to James G. Keppler, Region III Director, does appear responsive to corrective actions pertaining to the prevention of a similar loss of an FLC.

Attachments:  
Exhibits A through D

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Dresden 2

Commonwealth Edison Company - YVE  
 Material Balance Report - Privately Owned Enriched Uranium  
 For Period 7/1/72 - 10/31/75

	No. of <u>Fuel Assys.</u>	Grams <u>U</u>	<u>U-235</u>
Beginning Inventory 7/1/72	1,477	283,145,722	5,428,409
Receipts	<u>156</u>	<u>28,872,544</u>	<u>710,885</u>
Total to Account For	<u>1,633</u>	<u>312,018,266</u>	<u>6,139,294</u>
Shipments	249	47,678,670	843,624
Burnup		2,396,145	1,398,583
Ending Inventory 10/31/75	<u>1,384</u>	<u>261,943,451</u>	<u>3,897,087</u>
Total Accounted For	<u>1,633</u>	<u>312,018,266</u>	<u>6,139,294</u>

Exhibit A

## Dresden 2

Commonwealth Edison Company - YVE  
Material Balance Report - Privately Owned Plutonium  
For Period 7/1/72 - 10/31/75

	<u>Pu</u>	<u>Grams</u>	<u>Isotope</u>
Beginning Inventory 7/1/72	359,607		327,904
Production	727,385		560,174
Receipts	<u>-0-</u>		<u>-0-</u>
Total to Account For	<u>1,086,992</u>		<u>888,078</u>
Shipments	105,355		94,507
Ending Inventory 10/31/75	<u>981,637</u>		<u>793,571</u>
Total Accounted For	<u>1,086,992</u>		<u>888,078</u>

Exhibit B

Dresden 3

~~Commonwealth Edison Company - YVF~~  
 Material Balance Report for Privately Owned Enriched Uranium  
 For Period 7/1/72 - 10/31/75

	<u>No. of Fuel Assys.</u>	<u>U</u>	<u>Grams</u> <u>U-235</u>
Beginning Inventory 7/1/75	724	141,160,198	2,523,727
Receipts	<u>453</u>	<u>85,016,495</u>	<u>1,838,747</u>
Total to Account For	<u>1,177</u>	<u>226,176,693</u>	<u>4,362,474</u>
Shipments	32	7,761,452	169,508
Accidental Loss		2	<u>2<sup>1/2</sup></u>
Burnup		2,035,036	1,080,054
Ending Inventory 10/31/75	<u>1,145</u>	<u>216,380,203</u>	<u>3,112,910</u>
Total Accounted For	<u>1,177</u>	<u>226,176,693</u>	<u>4,362,474</u>

1/ Loss of fuel loading chamber No. 6579005.

Exhibit C

## 10 CFR 2790 INFORMATION

Dresden 3

Commonwealth Edison Company  
Material Balance Report - Privately Owned Plutonium YVF  
For Period 7/1/72 - 10/21/75

	<u>Pu</u>	<u>Grams</u> <u>Isotope</u>
Beginning Inventory 7/1/72	275,700	270,900
Receipts	80,766	72,368
Production	<u>542,975</u>	<u>377,801</u>
Total to Account For	<u>899,441</u>	<u>721,801</u>
Ending Inventory 10/31/75	<u>899,441</u>	<u>721,069</u>
Total Accounted For	<u>899,441</u>	<u>721,069</u>

Exhibit D

10 CFR 2790 INFORMATION