

APPENDIX A

NOTICE OF VIOLATION

Commonwealth Edison Company
Zion Nuclear Power Station, Units 1 and 2

Docket Nos. 50-295; 50-304
Licenses No. DPR-39; DPR-48
EA 89-005

During an NRC inspection conducted on December 15, 1988 through January 4, 1989 violations of NRC requirements were identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," 10 CFR Part 2, Appendix C (1988), the violations are listed below:

- A. 10 CFR 71.5(a) prohibits transport of licensed material outside the confines of a plant or other place of use, or delivery of licensed material to a carrier for transport unless the licensee complies with applicable requirements of the regulations appropriate to the mode of transport of the Department of Transportation (DOT) in 49 CFR Parts 170 through 189.

49 CFR 172.403(a) and 173.25(a)(2) require that each package and overpack, respectively of radioactive material for transportation be labeled as required with labels prescribed for the material and marked with the proper shipping name and identification number. A radioactive Yellow-II label is required on packages/overpacks with surface radiation levels greater than 0.5 mrem/hr and less than or equal to 50 mrem/hr and a transport index not exceeding 1.0.

Contrary to the above, on November 18, 1988, Zion Station shipped approximately 830 microcuries of mixed isotopes to Dresden Station in an overpack that failed to meet the prescribed marking and labeling requirements in that the overpack was not marked or labeled to indicate the contents contained radioactive material. Overpack surface and one meter radiation levels measured on receipt were 3.7 mrem/hr and 0.3 mrem/hr, respectively, and a transport index less than or equal to 1.0

This is a Severity Level IV violation (Supplement V).

- B. 10 CFR 71.5(a) prohibits transport of licensed material outside the confines of a plant or other place of use, or delivery of licensed material to a carrier for transport unless the licensee complies with applicable requirements of the regulations appropriate to the mode of transport of the Department of Transportation (DOT) in 49 CFR Parts 170 through 189.
1. 49 CFR 172.200-202 require each person who offers a hazardous material for transportation to describe the material on the shipping paper. 49 CFR 172.203(d) describes the required additional shipping paper entries for radioactive materials.

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Contrary to the above, on November 18, 1988, Zion Station offered hazardous materials consisting of radioactively contaminated equipment/parts (2.86 millicuries) to a carrier for transport without any shipping papers.

This is a Severity Level IV violation (Supplement V).

2. 49 CFR 173.475 requires that prior to each shipment of any radioactive materials package, the shipper ensure by examination or appropriate tests that certain packaging and preparation requirements are met including that: (a) The packaging is proper for the contents to be shipped; (c) each closure device of the packaging is properly installed, secured, and free of defects; (e) each special instruction for preparation of the packaging for shipment has been followed.

Contrary to the above, on November 18, 1988, Zion Station shipped three packages of radioactivity contaminated equipment/parts (2.86 millicuries) to a facility in Pennsylvania, and failed to perform the appropriate test(s) or examination to ensure that packaging/preparation requirements were met prior to shipment.

This is a Severity Level IV violation (Supplement V).

3. 49 CFR 173.425(b) and (c) require that packaged shipments and unpackaged (bulk) shipments, respectively of low specific activity (LSA) material consigned as exclusive use comply with the following:
... (b)(8) the exterior of each outside package must be stenciled or otherwise marked "Radioactive-LSA"; (b)(9) and (c)(7) specific instructions for maintenance of exclusive use shipment controls must be provided by the shipper to the carrier and be included with the shipping paper information.

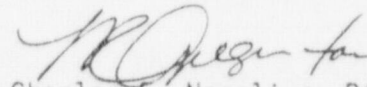
Contrary to the above, on November 18, 1988, a shipment of LSA material consigned as exclusive use and consisting of one package of radioactively contaminated equipment/tools (2.85 millicuries) and two unpackaged but wrapped (bulk) pieces of radioactively contaminated pipe (0.01 millicuries) was shipped from Zion Station and the package was not marked "Radioactive-LSA" or marked in any other manner to indicate it contained radioactive material. Also, specific instructions for maintenance of shipment controls were not provided to the carrier or included with shipping paper information.

This is a Severity Level IV violation (Supplement V).

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Pursuant to the provisions of 10 CFR 2.201, Commonwealth Edison Company is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555, with a copy to the Regional Administrator, Region III, U.S. Nuclear Regulatory Commission, 799 Roosevelt Road, Glen Ellyn, Illinois 60137, and a copy to the NRC Resident Inspector at the facility which is the subject of this Notice) within 30 days of the date of the letter transmitting this Notice. This reply should be clearly marked as a "Reply to a Notice of Violation" and should include for each violation: (1) the reason for the violation if admitted; (2) the corrective actions that have been taken and the results achieved; (3) the corrective actions that will be taken to avoid further violations; and (4) the date when full compliance will be achieved. Where good cause is shown, consideration will be given to extending the response time. If an adequate reply is not received within the time specified in this Notice, an Order may be issued to show cause why the license should not be modified, suspended, or revoked or why such other action as may be proper should not be taken. Consideration may be given to extending the response time for good cause shown.

FOR THE NUCLEAR REGULATORY COMMISSION



Charles E. Norelius, Director
Division of Radiation Safety
and Safeguards

Dated at Glen Ellyn, Illinois
this 27 day of March 1989

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-295/89005(DRSS); 50-304/89005(DRSS)

Docket Nos. 50-295; 50-304

Licenses No. DPR-39; DPR-48

Licensee: Commonwealth Edison Company
Post Office Box 767
Chicago, IL 60690

Facility Name: Zion Nuclear Power Station, Units 1 and 2

Inspection At: Zion Site, Zion, Illinois

Inspection Conducted: December 15-16, 19-21, 1988
and January 3-4, 1989

Inspectors: *W. J. Slawinski*
W. J. Slawinski

1/26/89
Date

R. A. Paul
R. A. Paul

1/26/89
Date

Approved By: *W. Snell*
W. Snell, Chief
Emergency Preparedness and
Effluents Section

1/26/89
Date

Inspection Summary

Inspection during the period December 15, 1988 through January 4, 1989
(Reports No. 50-295/89005(DRSS); 50-304/89005(DRSS))

Areas Inspected: Unannounced inspection of two radioactive material
transportation incidents (IP 83750).

Results: The licensee's shipping and transportation program was reviewed
and a breakdown in several elements of the program was noted. Four apparent
Department of Transportation (DOT) violations were identified (failure to
properly mark and label an overpack; failure to complete shipping papers;
failure to perform tests or examinations to ensure proper packaging and
preparation; and failure to meet LSA transport requirements for package
marking and carrier instructions).

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DETAILS

1. Persons Contacted

- *R. Budowle, Assistant Superintendent, Technical Services
- *L. Gesiakowski, ALARA Engineer
- D. Johnson, Stores Supervisor
- *P. LeBlond, Rad/Chem Supervisor
- *R. Palatine, Health Physicist
- D. Pecannas, Stockman
- *G. Pliml, Station Manager
- *R. Principe, ALARA Coordinator
- *F. Rescek, Health Physics Director, Nuclear Services
- *J. Schrage, Health Physicist, Nuclear Services
- *W. Stone, Regulatory Assurance Supervisor
- *G. Trzyna, Licensing Administrator
- *T. Van Devoort, Quality Assurance Supervisor
- *C. Wepprecht, Health Physicist
- V. Williams, Lead Health Physicist/RPM
- *J. Winston, Quality Control
- *P. Zurawski, Quality Assurance Engineer

- *M. Holzmer, NRC Senior Resident Inspector

The inspectors also contacted other licensee and contractor employees, including rad/chem technicians and members of the operations staff.

*Denotes those present at the site exit meeting on January 4, 1989.

2. Radioactive Material Shipment Event No. 1

a. Event Description

On November 18, 1988, Zion Station (shipper) shipped via commercial carrier, one package containing several sealed calibration sources (830 microcuries of mixed isotopes) to Dresden Station in an unlabeled overpack. The sources were initially packaged at Zion in an appropriately labeled (Radioactive Yellow-II) five-gallon pail; however, the pail was subsequently packaged in an unlabeled cardboard box (overpack) and released for shipment.

The package (five-gallon pail) was prepared, packaged, and labeled by Zion rad/chem personnel in accordance with approved station procedures and delivered to the station's shipping (stores) department on November 16, 1988; a station QC inspector verified appropriate packaging, labeling, and documentation that same day. Subsequently, a stores worker packaged the pail in an unlabeled cardboard overpack and provided it to United Parcel Service (UPS) for shipment on November 18, 1988.

The shipment arrived at the Dresden Station on November 22, 1988, and the labeling problem was discovered by Dresden shipping department workers about four hours after receipt when the overpack was unpackaged and Radioactive Yellow-II labeling was observed on the pail. Dresden informed their NRC resident inspector and the Zion Station of the problem that same day.

b. Investigation Summary

Maximum package (five-gallon pail) surface and one-meter radiation levels measured at the Zion Station prior to shipment were 6 mrem/hr and less than 0.5 mrem/hr, respectively. Overpack surface radiation levels measured at the Dresden Station upon receipt were 3.7 mrem/hr. According to the licensee, appropriate shipping papers accompanied the package and were attached to the 5-gallon container. The Dresden Station was unaware the package contained radioactive material until the overpack was opened and a Radioactive Yellow-II label was observed on the pail. DOT regulations (49 CFR 173.25) allow authorized packages containing hazardous materials to be offered for transportation when tightly packaged in a strong overpack if the overpack is marked with the proper shipping name and identification number and labeled as required. Contrary to these requirements, a November 18, 1988 radioactive material (sealed source) shipment was packaged in an overpack and shipped from Zion to Dresden Station and failed to meet DOT requirements in that the overpack was not marked or labeled to indicate the package contained radioactive material. This appears to be a violation of 49 CFR 173.25(a)(2) overpack marking and labeling requirements (No. 295/89005-01).

Although the Zion stores department was reportedly instructed by rad/chem to ship the five-gallon container as packaged (via common carrier or company vehicle), the instructions were verbal and apparently not conveyed clearly. The stores worker that packaged the pail in the overpack was unaware of DOT marking and labeling requirements and decided to use an overpack to provide additional package protection. Zion shipping department workers are generally unaware of radioactive material shipping requirements and normally follow verbal instructions provided by the station radiation protection department. This station practice has existed for several years and has reportedly functioned adequately without consequence.

The UPS driver was provided a copy of the shipping papers for the radioactive material package but was not specifically informed of the package contents. Twelve total packages were involved in the November 18, 1988 UPS shipment; six were destined for the Dresden Station, one of which contained radioactive material. According to a UPS management official, company policy prohibits transport of radioactive materials other than those exempt from labeling or labeled as Radioactive White-I. The licensee apparently was unaware of this UPS policy.

The problem was caused by licensee personnel error stemming from both the lack of written guidelines/procedures and the lack of radioactive material shipping/transportation training for the stores department staff. Stores workers do not receive any specific radioactive material shipping/transportation training.

c. Radiological Safety Significance

The potential for a significant radiological safety problem was limited by the quantity and form of the material shipped and the package radiation levels; no significant radiological problems were reported by Zion or Dresden Stations.

Safety significance is limited for most radioactive material shipments processed by the Zion shipping department because only limited quantities (exempt from marking and labeling) and non-radwaste packages with surface radiation levels less than 50 mrem/hr (and transport index less than 1.0) are handled by this department. Exclusive use shipments and those involving radwaste or requiring vehicle placarding/surveying are processed by the rad/chem and health physics groups. Although the carrier and recipient presumably would have exercised an additional degree of caution when handling/storing the package had they known it contained radioactive material, stringent methods were not warranted in this instance based on the relatively low external radiation levels. DOT stowage/storage regulations delineated in 49 CFR 177.842(b) require Radioactive Yellow-II or III labeled packages with a transport index between 0.1 and 1.0 to be located at least one-foot from areas that may be continuously occupied by passengers, employees, or shipments of animals. The carrier, however, presumably would not have accepted the package had they been informed of its contents and aware of the Radioactive Yellow-II labeling.

d. Licensee Corrective Actions

Shipping department personnel received additional (verbal) instructions from the Zion health physics staff regarding radioactive material shipments and the shipping clerk involved was counselled. The licensee is developing written radioactive material shipment guidelines and committed to inaugurate a radioactive material shipping/transportation training program for shipping (stores) department personnel. These actions appear appropriate.

3. Radioactive Material Shipment Event No. 2

a. Event Description

On November 18, 1988, Zion Station (shipper) shipped contaminated welding equipment/tools and piping, owned by a contractor, to a decontamination facility near Pittsburgh, Pennsylvania. The shipment was packaged at Zion Station by the contractor and consisted of one

box of contaminated welding equipment and two pieces of contaminated pipe. The packages were shipped in an exclusive-use, closed transport vehicle. According to the licensee, the material was appropriately packaged and loaded, vehicle and package surveys performed, and the conveyance placarded as required. However, the shipment was inadvertently released from Zion without any shipping documentation or carrier instructions and prior to completion of DOT and station required QC inspections, including verification of proper packaging, loading, marking, and placarding.

The vehicle was authorized for release from the station by the Shift Engineer (SE) after notification by a radiation protection technician (RPT) (who performed the package and vehicle surveys) that the shipment was ready for release. The technician wrongly assumed that the shipment was complete and ready for release.

The problem was identified by the consignee after the shipment arrived at their facility on November 19, 1988. The consignee notified Zion on November 20 and the necessary shipping documents were then prepared by the licensee and submitted to the consignee on November 22.

b. Investigation Summary

The shipment was consigned (after the fact) as Radioactive Material, LSA, UN 2912 and consisted of one package (metal box) containing contaminated welding equipment/tools and two unpackaged but wrapped (bulk) 6-inch diameter, 10-foot lengths of contaminated pipe. Total shipment activity was 2.86 millicuries (Type A quantity) of mixed isotopes.

The shipment reportedly was packaged and loaded properly and package and vehicle surveys performed by Zion's rad/chem staff in accordance with station procedures. Package and vehicle direct radiation and contamination levels were confirmed to be within DOT limits prior to shipment release. (see Section 3(c)). The RPT that performed the shipment radiological surveys assumed that the necessary paperwork was completed, other requirements were met and verified by their QC department and that his surveys were a double-check of previous survey results. After surveys were completed and no problems were noted, the RPT informed the SE that the shipment was ready for release. The SE accepted the RPT's verbal notification and authorized the shipment's release from the site.

The shipment was authorized for release without health physics and QC department knowledge, and left the site prior to completion of required paperwork and vehicle/package inspections. Additionally, no instructions were provided to the carrier concerning maintenance of shipment controls. As a result, three DOT requirements were apparently violated as follows:

- (1) Failure of the shipper (Zion Station) who offered the hazardous material for transportation to describe the material on shipping papers. This is contrary to 49 CFR 172.200-202 and 172.203(d).
- (2) Failure to ensure by examination or appropriate test that QC requirements for proper packaging, the package closure device, and adherence to special instructions for preparation of the packaging were met prior to shipment. This is contrary to 49 CFR 173.475(a), (c) and (e).
- (3) Failure to meet transport requirements for LSA radioactive materials transported as exclusive use (in non-DOT Specification 7A packages) in that the packaged material (welding equipment) was not stenciled or marked "Radioactive-LSA" and specific instructions for maintenance of shipment controls was not provided to the carrier nor included with shipping paper information. This is contrary to 173.425(b)(8), (b)(9), and (c)(7). (The above apparent violations will be tracked as one item (No. 295/89005-02)).

Normal station protocol is for the health physics staff to complete required shipment records and certain package/vehicle inspections after package and vehicle radiological conditions are deemed adequate. Afterwards, station QC inspectors perform vehicle/package inspections, review shipment documentation, and verify that station and DOT shipping requirements are met. A station health physicist subsequently requests shipment release and notifies the SE who ultimately approves the vehicles release from the site. However, acceptable shipment release notification and confirmation methods are not dictated by procedure or other formal mechanism.

The problem apparently was caused by a series of personnel errors stemming from the lack of procedural guidance (for both rad/chem and operating staffs) concerning proper shipment release notification and authorization methods. Exclusive use shipment carriers are normally aware of the need for shipping papers and shipment maintenance instructions; however, in this event, the driver reportedly lacked previous experience in this area.

c. Radiological Safety Significance

The potential for a significant radiological safety problem was, in this incident, limited by the quantity and form of the material shipped and the package radiation levels; no significant safety problems were reported by the licensee or consignee. The individual tools and piping exhibited contact radiation levels typically less than 1 mrem/hr with one tool measuring 10 mrem/hr; smearable contamination on internal tool surfaces varied up to about 6000 dpm/100 cm². Package and vehicle surface radiation levels measured by the licensee prior to shipment were less than 1 mrem/hr; no smearable contamination was identified on the packages or vehicle. Receipt surveys performed by the consignee showed package and vehicle radiological conditions similar to those determined by the licensee.

DOT regulations allow, under certain conditions, package and vehicle surface radiation levels up to 1000 mrem/hr and 200 mrem/hr respectively. Although the carrier was aware that the shipment involved radioactive materials, the driver was not provided with specific instructions for maintenance of shipment controls and procedures to be followed in the event of an accident or other problem. Officials responding to an accident would have been unaware of the package contents and possibly unable to identify the consignor or consignee had the driver been incapacitated. Also, the potential for safety problems associated with improper packaging and loading is increased whenever QC inspections are not completed prior to shipment.

d. Licensee Corrective Actions

Station shipping procedures were revised to explicitly state that only authorized health physics personnel can contact the SE and request release of radioactive material shipments. A letter was issued to the Operations Supervisor and SEs detailing the procedure changes accompanied by a list of health physics personnel authorized to request shipment release. Copies of the procedure change and radiological occurrence report documenting the problem were included in operating and rad/chem required reading packages. The RPT involved was counselled and the event discussed in a Rad/Chem Department meeting. These actions appear appropriate; however, written health physics shipment release approval is desirable and would alleviate potential miscommunications associated with verbal requests.

4. Exit Meeting

The inspectors met with licensee representatives (denoted in Section 1) at the conclusion of the inspection on January 4, 1989. The inspectors summarized the scope and findings of the inspection and discussed the likely information content of the inspection report with regard to documents or processes reviewed by the inspectors during the inspection. The licensee identified no such documents/processes as proprietary. The licensee was informed of the apparent DOT violations and of the potential for escalated enforcement.

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-295/89003(DRSS); 50-304/89003(DRSS)

Docket Nos. 50-295; 50-304

Licenses No. DPR-39; DPR-48

Licensee: Commonwealth Edison Company
Post Office Box 767
Chicago, IL 60690

Facility Name: Zion Nuclear Station, Units 1 and 2

Inspection At: Zion Station

Inspection Conducted: January 10, 12 and 24, 1989

Type of Inspection: Announced Reactive Physical Security Inspection

Date of Previous Security Inspection: June 13-16, 1988

Inspector: *G. M. Christoffer*
G. M. Christoffer
Physical Security Inspector

2-10-89
Date

Reviewed By: *J. R. Creed*
J. R. Creed, Chief
Safeguards Section

3/10/89
Date

Approved By: *L. Robert Greger*
L. Robert Greger, Chief
Reactor Programs Branch

2/10/89
Date

Inspection Summary

Inspection on January 10; 12 and 24, 1989 (Reports No. 50-295/89003(DRSS)
No. 50-304/89003(DRSS))

Areas Inspected: Included a review of a licensee reported security event on
January 6, 1989.

Results: Inspection activities showed a decline in one aspect of the
licensee's implementation of their security program that related to
communications between organizations.

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The licensee was found to be in apparent violation of requirements as noted below:

Physical Barriers-Vital Areas: The licensee failed to adequately maintain a vital area barrier. (See Section 3 of Report Details).

(Details - Unclassified Safeguards Information)