

NOTICE OF VIOLATION

AND

PROPOSED IMPOSITION OF CIVIL PENALTIES

Cook County Highway Department  
118 N. Clark Street  
Chicago, IL 60602

Docket No. 030-11834  
License No. 12-06539-02  
EA 86-102

During an inspection conducted on May 8 and 14, 1986, 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 (1986), the Nuclear Regulatory Commission proposes to impose civil penalties pursuant to Section 234 of the Atomic Energy Act of 1954, as amended, ("Act"), 42 U.S.C. 2282, PL 96-295, and 10 CFR 2.204. The particular violations and associated civil penalties are set forth below:

- A. License Condition No. 12 requires that licensed material be used by or under the supervision and in the physical presence of specifically named individuals.

Contrary to the above, during the period April 16 through May 7, 1986, a moisture/density gauge containing licensed material was used by an individual who was not specifically named in License Condition No. 12 and was not under the supervision and in the physical presence of an individual specifically named in License Condition No. 12.

- B. License Condition No. 18 requires that licensed material be possessed and used in accordance with the statements, representations, and procedures contained in the application dated February 24, 1981 and the letter dated June 29, 1981.

Contrary to the above, licensed material was not possessed and used in accordance with statements, representations, and procedures contained in the referenced application and letter as evidenced by the following examples:

1. The referenced letter dated June 29, 1981 requires that when gauge use is not required, the gauge shall be stored at the permanent storage location at the LaGrange Maintenance Facility.

However, from July 1981 when this requirement became effective until May 8, 1986, individuals routinely stored moisture/density gauges at their private residences when use was not required, rather than at the LaGrange Maintenance Facility.

2. The referenced application dated February 24, 1981 designates a specific individual as the Radiation Protection Officer.

However, in April 1984 the licensee appointed an individual to act as the Radiation Protection Officer who was not designated in the referenced application and who had not been approved by the NRC.

3. The referenced application dated February 24, 1981 requires that each gauge be monitored on a weekly basis with a gamma survey meter. The application also requires that each gauge be monitored once per year by the safety and training division of the Cook County Highway Department and an insurance company agent.

However, from October 25, 1982 until May 8, 1986, no monitoring was performed of any gauges possessed by the licensee.

4. The referenced application dated February 24, 1981 requires that the licensee's Victoreen Model 592B survey meter be calibrated on an annual basis.

However, the licensee's Victoreen Model 592B survey meter was not calibrated during the period January 13, 1982 through May 8, 1986.

Collectively, the above violations have been evaluated as a Severity Level III problem (Supplement VI).

(Cumulative Civil Penalties - \$500 assessed equally among the violations)

Pursuant to the provisions of 10 CFR 2.201, Cook County Highway Department is hereby required to submit to the Director, Office of Inspection and Enforcement, U. S. Nuclear Regulatory Commission, Washington, D.C. 20555, with a copy to the Regional Administrator, U. S. Nuclear Regulatory Commission, Region III, 799 Roosevelt Road, Glen Ellyn, IL 60137, within 30 days of the date of this Notice, a written statement or explanation, including for each alleged violation: (1) admission or denial of the alleged violation; (2) the reasons for the violation, if admitted; (3) the corrective steps which have been taken and the results achieved; (4) the corrective steps which will be taken to avoid further violations; and (5) the date when full compliance will be achieved. If an adequate reply is not received within the time specified in this Notice, the Director, Office of Inspection and Enforcement, may issue an order 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. Under the authority of Section 182 of the Act, 42 U.S.C. 2232, this response shall be submitted under oath or affirmation.

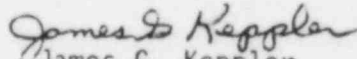
Within the same time as provided for the response required above under 10 CFR 2.201, Cook County Highway Department may pay the civil penalties by letter addressed to the Director, Office of Inspection and Enforcement, with a check, draft, or money order payable to the Treasurer of the United States in the cumulative amount of Five Hundred Dollars (\$500) or may protest imposition of the civil penalties, in whole or in part, by a written answer addressed to the Director, Office of Inspection and Enforcement. Should Cook County Highway Department fail to answer within the time specified, the Director, Office of Inspection and Enforcement, will issue an order imposing the civil penalties in the amount proposed above. Should Cook County Highway Department elect to file an answer in accordance with 10 CFR 2.205 protesting the civil penalties, such answer may: (1) deny the violations listed in this Notice, in whole or in part; (2) demonstrate extenuating circumstances; (3) show error in

this Notice; or (4) show other reasons why the penalties should not be imposed. In addition to protesting the civil penalties in whole or in part, such answer may request remission or mitigation of the proposed penalties.

In requesting mitigation of the proposed penalties, the five factors addressed in Section V.B of 10 CFR Part 2, Appendix C (1986) should be addressed. Any written answer in accordance with 10 CFR 2.205 should be set forth separately from the statement or explanation in reply pursuant to 10 CFR 2.201 but may incorporate parts of the 10 CFR 2.201 reply by specific reference (e.g., citing page and paragraph numbers) to avoid repetition. Cook County Highway Department's attention is directed to the other provisions of 10 CFR 2.205, regarding the procedure for imposing civil penalties.

Upon failure to pay any civil penalties due, which have been subsequently determined in accordance with the applicable provisions of 10 CFR 2.205, this matter may be referred to the Attorney General, and the penalties, unless compromised, remitted, or mitigated, may be collected by civil action pursuant to Section 234c of the Act, 42 U.S.C. 2282.

FOR THE NUCLEAR REGULATORY COMMISSION

  
James G. Keppler  
Regional Administrator

Dated at Glen Ellyn, Illinois  
this 15<sup>th</sup> day of July 1986.

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 030-11834/86001(DRSS)

Docket No. 030-11834

License No. 12-06539-02

Priority V

Category E(1)

Licensee: Cook County Highway Department  
Bureau of Construction  
118 North Clark Street  
Chicago, IL 60602

Facility: Cook County Highway Department  
Maintenance Facility  
La Grange Park, IL

Inspection Conducted: May 8 and 14, 1986

Enforcement Conference Conducted: May 29, 1986

Inspectors: R. J. Caniano *R. J. Caniano*  
Radiation Specialist

*June 2, 1986*  
Date

G. L. Shear *G. L. Shear*  
Radiation Specialist

*June 2, 1986*  
Date

K. J. Graden *K. J. Graden*  
Radiation Specialist

*June 2, 1986*  
Date

Reviewed By: D. J. Sreniawski, Chief *D. J. Sreniawski*  
Nuclear Materials Safety  
Section 2

*June 2, 1986*  
Date

Approved By: W. L. Axelson, Chief *W. L. Axelson*  
Nuclear Materials Safety  
and Safeguards Branch

*June 2, 1986*  
Date

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## Inspection Summary

Inspection on May 8 and 14, 1986 (Report No. 030-11834/86001(DRSS))

Areas Inspected: This was an announced special safety inspection conducted under License No. 12-06539-02 to review the circumstances surrounding an incident involving a moisture/density gauge damaged by a truck on May 7, 1986. The inspection also included a review of the licensee's organization; licensed program; internal audits; training; radiological protection procedures; materials and facilities; posting and labeling; personnel monitoring; transportation; and independent measurements.

Results: Six violations were identified during the course of the inspection: (1) License Condition No. 12 - use of licensed material by unauthorized individuals (Section 8); (2) License Condition No. 18 - unauthorized place of storage (Section 10); (3) License Condition No. 18 - Licensee failed to assure that the Radiation Protection Officer performed his duties as required (Section 7); (4) License Condition No. 18 - Licensee failed to perform required surveys (Section 9); (5) License Condition No. 18 - Licensee failed to calibrate survey meter at required frequency (Section 10); and (6) License Condition 18 - Licensee failed to amend license to reflect change of Radiation Protection Officer (Section 6).

## DETAILS

### 1. Persons Contacted

Glen Frederichs, Assistant Superintendent of Highways  
+Phillip Nelson, Chief Engineer  
+\*Clifford Egel, Soils Section Head, Radiation Protection Officer (RPO)  
\*Fred Vinezeano, Gauge Operator  
\*James Shannon, Gauge Operator  
\*David Johnson, Gauge Operator  
+Stanley Kimont, Division Head  
+James Wandell, Troxler Representative

\*Attended the May 14, 1986 Exit Meeting  
+Attended the May 29, 1986 Enforcement Conference

### 2. Purpose of Inspection

This was an announced special safety inspection conducted to review the circumstances surrounding an incident where a moisture/density gauge was damaged by a truck on May 7, 1986.

### 3. Inspection History

The last inspection conducted was the initial inspection performed on January 21, 1981. No violations of NRC requirements were identified at that time.

### 4. Organization

Richard Golterman, Superintendent of Highways  
Glen Frederichs, Assistant Superintendent of Highways  
Phillip Nelson, Chief Engineer  
Stanley Kimont, Division Head  
Clifford Egel, Soils Section Head, Radiation Protection Officer (RPO)

### 5. Incident Summary

On May 7, 1986, a Troxler Model 3400 moisture/density gauge owned by the Cook County Highway Department containing a 9 millicurie cesium-137 sealed source and a 50 millicurie americium-241 sealed source was accidentally knocked over and damaged by a dump truck. The incident occurred at a temporary job site near Wilmette, Illinois. The operator using the gauge (an unauthorized individual, Section 8) had just completed a density measurement and was standing approximately 100 feet from the gauge when the incident occurred. The operator stated that the source was in the shielded position when the dump truck knocked it over.



Immediately after the incident the operator went to the gauge to determine the extent of the damage. According to the operator, the only apparent damage was to the source rod handle. The operator then turned the gauge over and determined that the source was still in the shielded position. Since it appeared that the damage was minor and the source had not been damaged, the operator proceeded to put the gauge in its shipping container and transport it back to the La Grange Maintenance Facility. Upon arriving at the facility, the operator contacted the RPO and informed him of the incident. The RPO instructed him to place the gauge in the storage area, and he would look at the gauge in the morning.

On May 8, 1986, the NRC was contacted by the RPO and informed of the incident. The RPO at that time was in the process of preparing to transport the damaged gauge to Troxler in Lake Villa, Illinois for repair. Since the RPO could not be sure that the source was not damaged, because his survey meter was not operational, two NRC inspectors were dispatched to the La Grange Maintenance Facility to perform surveys and wipe tests of the gauge. The results of those surveys and wipe tests confirmed that the source was not damaged and was still in the shielded position. Later that day the RPO transported the gauge to Troxler for repair.

Since there was no apparent damage to the source as determined by the operator in the field, the licensee was not required to implement any of their emergency procedures as required by their license.

No violations were identified.

#### 6. Licensed Program

NRC Byproduct Material License No. 12-06539-02 was originally issued on April 5, 1976, and was last amended in its entirety on July 23, 1981. The license authorizes the possession and use of cesium-137 and americium-241 as sealed sources in Troxler Series 3400 moisture/density gauges for measurements on soil, aggregates, and bituminous materials. The licensee currently possesses three moisture/density gauges containing licensed material.

The licensee's application dated February 24, 1981, referenced in License Condition No. 18, names an individual designated as the licensee's Radiation Protection Officer (RPO). That individual is typically the person responsible to assure that all terms and conditions of the license are met. Prior to authorizing an individual to act as the RPO, the Nuclear Regulatory Commission (NRC) needs to review that individual's credentials to assure that he/she is qualified to oversee the licensee's program.

The inspection revealed that during April of 1984, the licensee replaced their designated RPO with another individual without prior approval of the NRC. The individual that was designated by the licensee had no experience dealing with radioactive materials and was not familiar with NRC rules and regulations at that time. During June of 1984 the licensee provided training to that individual by sending him to the Troxler course for nuclear moisture/density gauges.

The licensee's failure to amend their license by notifying the NRC of their change of the RPO in April of 1984 constitutes a violation of License Condition No. 18.

One violation was identified.

#### 7. Internal Audits

The licensee's letter dated June 29, 1981, referenced in License Condition No. 18, outlines the responsibilities and duties of the Radiation Safety Officer (RSO). One of the duties and responsibilities outlined in that letter is for the RSO to assure that users of nuclear gauges, particularly in the field, is only by individuals authorized by the license.

The licensee's RSO as of the date of this inspection had failed to perform his duties and responsibilities by allowing an unauthorized individual to use a moisture/density gauge in the field from April 16 through May 7, 1986. The licensee's failure to assure that the RSO performed his duties as required constitutes a violation of License Condition No. 18.

One violation was identified.

#### 8. Training

License Condition No. 12 states that licensed material shall be used by or under the supervision and in the physical presence of specifically named individuals. Those individuals named in the license were all trained by Troxler in the safe use of the moisture/density gauges including radiation protection and familiarization of NRC rules and regulations.

The inspection revealed that from April 16 through May 7, 1986, the licensee allowed an individual to routinely use a Troxler moisture/density gauge containing NRC licensed material that was not named in License Condition No. 12, nor was the individual under the supervision and physical presence of any of the authorized users named in that Condition. That individual's training was limited to on-the-job training, and did not include any radiation protection instruction or a review of NRC regulations. The licensee's permitting an individual to use licensed material who was not authorized nor was under the supervision and in the physical presence of authorized individuals constitutes a violation of License Condition No. 12.

One violation was identified.



9. Radiological Protection Procedures

The licensee's application dated February 24, 1981, referenced in License Condition No. 18 requires the licensee to perform weekly radiation monitoring of each unit with a gamma survey meter. This task is to be performed by the unit head. In addition to the weekly surveys, the licensee is required to perform an annual survey of each unit. This is to be performed by the safety and training division of Cook County Highway Department and the insurance company agent.

The inspection revealed that since these requirements became effective on July 23, 1981, no surveys had ever been performed on any of the units possessed by the licensee.

This failure to perform the required surveys constitutes a violation of License Condition No. 18

One violation was identified.

10. Material and Facilities

The licensee currently possesses three Troxler 3400 Series moisture/density gauges containing licensed material. The licensee maintains a daily inventory of the gauges, and the sealed sources are leak tested every six months as required.

The licensee's application dated February 24, 1981, referenced in License Condition No. 18, requires the licensee to have their survey meter calibrated on an annual basis.

The inspection revealed that the licensee's Victoreen Model 592B survey meter was last calibrated on January 13, 1982. This was the same instrument that was found to be non-operational on May 8, 1986 when the licensee tried to assess the radiological damage of the moisture/density gauge involved in the May 7, 1986 incident. This failure to have the licensee's survey meter calibrated on an annual basis constitutes a violation of License Condition No. 18.

The licensee's letter dated June 29, 1981, referenced in License Condition No. 18, states that when gauge use is not required it shall be stored at the permanent storage location at the La Grange Maintenance Facility and at no time shall be left at temporary job site offices.

The inspection revealed that since the requirement became effective in July of 1981, the licensee routinely allowed gauge operators to store moisture/density gauges at their private residences rather than the permanent storage location at the La Grange Maintenance Facility.

During interviews of three gauge operators (one being an unauthorized user) the inspectors learned that this has been common practice for almost ten years.

The individual not authorized to use the gauge stated that he has had a moisture/density gauge in his possession since April 16, 1986 and has stored it in the garage of his private residence.

The other two individuals who are authorized for gauge use stated that they have stored their moisture/density gauges in the basements of their private residence for one year and 10 years, respectively. Both of those individuals did state that during "off season" (December and January) the gauges were transferred back to the authorized place of storage at the La Grange facility.

All three individuals stated that the gauges were always stored in their approved locked storage containers and at no time did any family member or other members of the general public have access to the gauges.

Since the potential existed for the licensee's loss of control over the gauges and the potential for overexposure to minors and other members of the public the NRC, on May 8, 1986, issued a Confirmatory Action Letter to the licensee to assure that the gauges would be transported back to the authorized storage locale after use at temporary job sites.

This failure to store the moisture/density gauges at the La Grange Maintenance Facility after use constitutes a violation of License Condition No. 18.

Two violations were identified.

11. Posting and Labeling

Posting of storage areas and labeling of gauge transport containers at the La Grange Maintenance Facility appeared adequate.

NRC-3, "Notice to Employees," 10 CFR Parts 19 and 20, and other documents required by 10 CFR 19.11 were posted as required.

No violations were identified.

12. Personnel Monitoring

All individuals using moisture/density gauges are required by License Condition No. 18 to wear film badges. Evaluation of personnel radiation exposures are made on a monthly basis with film badges provided by Siemens.

The inspectors reviewed personnel monitoring records for the period March 16, 1984 through March 15, 1986. The maximum quarterly whole body exposure was 530 mrem.

No violations were identified.

13. Transportation

The licensee routinely transports moisture/density gauges in their approved D.O.T. Specification 7A packages accompanied by the required shipping papers.

No violations were identified.

14. Independent Measurements

Independent measurements were made at the La Grange Maintenance Facility with an Eberline E-530 survey meter, an Eberline PRM-6 equipped with a sodium iodide detector, and a Xetex 305B survey instrument. Surveys were performed at various areas surrounding the damaged gauge, and surrounding the storage area that housed a Troxler 3400 gauge containing cesium-137/ americium-241, and a Troxler gauge containing a radium source. The maximum levels detected were as follows:

Damaged gauge - 15.0 mR/hr at the bottom surface of gauge near the shutter

1.0 mR/hr approximately 1 foot away from the top surface of the gauge

Outside of  
Storage Area - 0.4 mR/hr

Restricted Area of  
Storage Area - 25 mR/hr at surface of Troxler gauge containing radium source

In addition to the surveys, the inspectors also performed smears of the damaged gauge and checked it with the sodium-iodide detector for gross contamination. These proved negative and were also brought back to the Region III laboratory for further analysis. Those results also proved to be negative.

No violations were identified.

15. Exit Interview

An exit interview was held at the La Grange Maintenance Facility on May 14, 1986. Licensee attendance at the meeting is indicated in the Persons Contacted section of this report. The violations as well as the NRC policy regarding enforcement were discussed.

16. Enforcement Conference

An enforcement conference was held in the Region III office on May 29, 1986 as a result of a special safety inspection which identified apparent violations of NRC requirements. The purpose of the conference was to (1) discuss the apparent violations, their significance and causes, and

the licensee's corrective actions, (2) determine whether there were any aggravating or mitigating circumstances, and (3) obtain other information which would help determine the appropriate action.

Mr. J. A. Hind, Director, Division of Radiological Safety and Safeguards, opened the meeting by describing the purpose and scope of the meeting as well as the NRC enforcement policy and concerns raised as a result of the May 8 through May 14, 1986 inspection.

In addressing the apparent violations, the licensee acknowledged the facts as presented by the Region III staff and discussed corrective actions to prevent recurrence.

NRC Region III management expressed concern that violations appeared to represent a breakdown in the radiation safety program and that escalated enforcement action was being considered.