

UNITED STATES GOVERNMENT

Memorandum

MAY 9 1967

DATE: ~~APR 5 1967~~

Eber R. Price, Director
Division of State & License Relations

B. L. Herless, Chief, *SLR*
State Agreements Branch, SLR

FIRST REVIEW MEETING WITH NEBRASKA

Attached is the staff report and evaluation of Nebraska's Radiation Control Program resulting from the March 28 - 29, 1967 regulatory review meeting held in Lincoln.

Attachment:
Report

cc: Leo Datinaki, CO:Hq, w/att, except Appendix E
D. I. Walker, CO:IV, w/att, except Appendix E

SLR

AEC STAFF EVALUATION OF THE
NEBRASKA RADIATION CONTROL PROGRAM
FOR THE PERIOD
OCTOBER 1, 1966 TO MARCH 29, 1967

The first review meeting with Nebraska officials was held on March 28 - 29, 1967 in Lincoln. Representing Nebraska during the meeting were Messrs. Heinz Wilms, Director, Division of Radiological Health; Orlen N. Johnson, Radiological Health Specialist; and Ellis Simmons, Radiological Health Specialist. Dr. Donald Walker, Director, Region IV, Division of Compliance and Mr. G. Wayne Kerr, State and Licensee Relations, represented the AEC. Appendix A is the outline agenda for the meeting.

A. Conclusions

Based on information developed during the first review meeting with Nebraska and the material received from the State under the exchange-of-information program, it is the staff's conclusion that the Nebraska program for regulation of agreement materials is adequate to protect health and safety and compatible with the Commission's program. This view is supported by the staff's examination of the State's licensing and compliance activities, including a review of selected Nebraska license and inspection files (see Appendix B). Appendix C is a list of questions and answers concerning the details of Nebraska's licensing, compliance, and enforcement activities and other selected phases of the State's program.

B. Organization and Personnel

The Division of Radiological Health is headed by Heinz Wilms. His staff consists of Orlen Johnson, Ellis Simmons and a Radiological Health Technician (Edward Williams). Wilms reports to the Director of Health. Wilms has performed most of the licensing and inspection of agreement material licensees thus far with occasional assistance from Johnson and Simmons. Wilms signs all non-medical licenses. Licenses for human use of material also are signed by Dr. Rogers, Director of Health. Since Nebraska became an Agreement State, Wilms attended a 3-day PHS Occupational Health Seminar in Norman, Oklahoma. Johnson attended a 2-week PHS spectroscopy course and a 1-week course in Management of Radiation Accidents. Simmons will attend the AEC's 3-week Applied Health Physics Course at Oak Ridge in April 1967.

2. Regulations

Nebraska has requested funds in the budget for the next biennium (July 1967 - June 1969) to update their regulations. These changes will probably be issued as an addendum. The process to be followed for adoption is the same as for the original regulations, i.e., (1) review and approval by the Radiation Advisory Council (2) approval by the Board of Health (3) public notice of hearings (4) public hearings, and (5) adoption by the Board of Health. The State will probably begin revisions of their regulations in January 1968.

Licensing

All license applications are reviewed by Wilms. Occasional assistance is provided by Johnson and Simmons. Wilms signs all non-medical licenses but medical licenses are also signed by Dr. Rogers, State Health Officer. Appendix D is a flow sheet for processing license applications.

Ten pre-licensing visits were made during the period covered by this report. Thirty-four new licenses and 21 amendments were issued. The State sends expiration notices to licensees approximately 60 days prior to the expiration of the license.

One broad license was issued to the University of Nebraska for research and development and educational purposes. It does not authorize use in humans.

The Registration and Licensure Committee of the Radiation Advisory Council reviews all requests for non-routine use of isotopes in humans. This Committee consists of Drs. Frazer, Ogborn, Papenfuss and Wegener (Dentist). If there is a difference of opinion within this Committee, the application is reviewed by the entire Radiation Advisory Council. In any event, all decisions of the Committee are discussed at the Council meetings which are held quarterly. A research protocol is normally required for all non-routine medical applications. A license issued to the University of Nebraska for use of americium 241 for human bone density measurements without a complete research protocol being submitted was discussed with the Nebraska staff during the meeting. In this case, a pre-licensing visit was made to this applicant to obtain additional information regarding the proposed use.

Compliance

The State has inspected 34 licenses since the effective date of the amendment. This comprises about 1% of their active licenses.

The State is current on its inspections. Approximately 5 man-days per month are spent on inspections. The State plans to initially inspect all licensees in the first year and to perform reinspections yearly. Wilms has done all the inspections thus far with some assistance from Johnson and Simons.

The State normally makes independent measurements of external radiation levels utilizing their own instruments. They also measure outputs of teletherapy units. Leak tests and wipe surveys are made for Radium users upon request but such surveys are not made for other radioactive material users. As a result of the accompaniment of Wilms on several licensee inspections in March, Walker discussed the AEC policy of holding a discussion with management at the conclusion of inspections and suggested the State may wish to consider a similar policy. It was also noted that the State provides advisory information to licensees on radiation safety matters.

Several inspection reports prepared by the State were reviewed. These are discussed in Appendix B and in Appendix E (Report of Region IV, Compliance Representative). Nebraska's reports consist of hand written notes on Form NRH-8 (Appendix F). These reports are supplemented by Form NRH-9 (Appendix G) for radiography licensees. These reports were fairly complete and include information on the nature of the licensed activity, the licensee's organization, program scope, and sufficient detail to support the inspector's conclusions and findings. There was some lack of specificity of the citations in the report and of the dates when non-compliance occurred. Also, the reports did not always reflect that survey records had been reviewed by the State although the notice of non-compliance indicated such a review had been made. Also, the reports were not specific regarding conditions found in unrestricted areas. These items are discussed in more detail in Appendix E. Since Wilms had performed all of the inspections to date, there was no review of the reports by other personnel.

F. Enforcement

Non-enforcement action has been effected by use of a procedure similar to the AEC 591 procedure. Form NRH-10 (Appendix H) is used for this purpose. Cases involving more serious items of non-compliance are handled by a letter from Wilms sent to a responsible person in management.

G. Emergency Capabilities

The State is just beginning to develop an emergency response program. It will utilize Civil Defense and Highway Patrol organizations for

communication and transportation. There will be only one emergency team composed of the staff of the Radiological Health Division in Lincoln. The staff suggested that the State formalize their emergency program and procedures and the State indicated that they intended to do so.

H. Miscellaneous

The budget for the Radiation Control Program for the current biennium is \$73,641 of which approximately \$44,000 was received from PHE. A request for \$140,774 for the biennium beginning July 1, 1967 has been submitted.

At present, only copies of actual licenses issued by Nebraska are in the public file. However, Wilms stated that the public could examine license applications unless they contained proprietary information.

The State began its registration program on January 1, 1967 which covers all non-agreement sources of radiation. They expect to complete the initial registrations by May 1967. They estimated there are 50 Radium users in the State and about 2500 X-ray machines.

The Division of Radiological Health has equipment to perform analyses of routine smear, air, and water samples. Unusual types of samples would be analyzed by the PHS in Las Vegas or Montgomery, Alabama

I. AEC Activities

In addition to the information on Petitions for AEC Rule Making, Proposed AEC Rule Making and General Information Concerning AEC Activities sent to all Agreement States on March 24, 1967, the following items were discussed at the meeting:

1. Selected information on Compliance matters as shown in attachment A to Appendix E.
2. Comments of AEC inspector on Nebraska inspections conducted on March 14 and 15, 1967.

LIST OF APPENDICES

- A. Outline Agendas
- B. Staff Review of Nebraska License and Inspection Files
- C. List of Questions and Answers on Nebraska's Program
- D. Flow Sheet for Processing License Applications
- E. Report of Region IV, Compliance Representative
- F. Form NRH-8, License Compliance Inspection Notes
- G. Form NRH-9, Industrial Radiography Inspection Notes
- H. Form NRH-10, Radioactive Material Inspection Report

NOTICE FOR 1958 AEC REVIEW MEETING

1. Review of contemplated changes in US/EC regulations.
2. Review of current AEC licensing activities:
 - a. Specific exemptions from regulations that have been granted (e.g., radiation levels, critical concentrations, etc.)
 - b. Problems encountered in reciprocal recognition of licenses (qualification, compliance, etc.)
 - c. Issuance of licenses including new procedures for evaluating license applications, new conditions of use that have been included in licenses, new or unusual uses that have been licensed or evaluated and new seals, sources or devices not previously licensed (generally or specifically).
 - d. Use of medical consultation in evaluating applications for medical use of radioactive materials.
 - e. Review of license cases.
3. Summary and AEC experience in compliance matters:
 - a. Inspection workload (including prelicensing inspections), number of reinspections conducted, etc.
 - b. Incidents and overexposures.
 - c. Extent of enforcement actions taken against licensees.
 - d. Review of inspection cases.
4. Exchange of information - AEC and NRC:
 - a. State experience in regulating naturally occurring radioactive materials.
 - b. Summary of current report number of personnel regulations for the field. Additional training, in the field, for personnel in the field.

AEC STAFF REVIEW OF NEBRASKA LICENSE
AND INSPECTION FILES

The following license files were examined:

1. Frazer & Associates - License No. 02-07-01
Lincoln, Nebraska

This is a radiography license authorizing use of 50 curies of iridium 192 for industrial radiography at temporary job sites thruout the State of Nebraska. The General Manager and RSO is Maurice Frazer, M.D., a member of the State's Radiation Advisory Council and Chairman of the Registration and Licensure Committee. A Mr. Schloebitz was named as the Technical Director and indications were that he would be the primary user. The application was well prepared and quite complete and was adequate to support the licensing action. It included a description of the training course for radiographers.

The application indicated that neither Frazer nor Schloebitz had received specific training in the use of the radiography device listed in the license. Frazer's experience has been primarily in the medical use of isotopes as a radiologist. Schloebitz's experience has also been primarily in the medical use of isotopes as a technician and in the medical use of Radium and x-rays. The Nebraska staff indicated that Schloebitz had also used x-rays for industrial radiography extensively. Wilms stated that due to the specific knowledge of radiological safety of both Frazer and Schloebitz, training in the use of the authorized radiography device was not deemed necessary.

The application contained a statement that "the training course would be given by Frazer, Schloebitz and other members of the staff." The staff pointed out that the qualifications of "other members of the staff" were not known to the Nebraska staff and should be clarified with the licensee.

The licensee had not been inspected.

2. University of Nebraska - License No. 02-01-03
Lincoln, Nebraska

This license is a broad academic research and development license for non-human use. It authorized possession and use of a basic amount of any isotope material with higher limits for

certain selected isotopes and a total possession limit of 50 curies. It also authorizes possession and use of small quantities of 238U and 20,000 pounds of source material.

The license application was well prepared and included a radiation safety manual. The qualifications of the applicant's radioisotope committee was sent to the State's Registration and License Committee for review and approval. The application was adequate to support the licensing action.

The applicant requested two exemptions which were not spoken to in the license itself. Although they were considered to be authorized by the incorporation of the application in a license condition, the staff suggested that the exemptions be spelled out in the license.

The staff discussed the liberal quantities of transuranic elements which were authorized by the license. A copy of the April 1966 letter which the AEC sent to licensees authorized to possess these materials was given to the State. The staff also made minor comments regarding Conditions 9 and 16.

The licensee had not been inspected.

3. Creighton University - License No. 26-3153-2, Amendment No. 10
School of Medicine
Omaha, Nebraska

Amendment No. 10 to this license authorized a non-routine use of isotopes in humans. The application was supported by a brief but fairly complete protocol. It did not indicate that patients would be informed of the nature of the study. The application was reviewed and approved by the Registration and Licensure Committee. Wilms had raised a question whether the test would be used on children and pregnant women. The Committee informed him orally that the disorders under investigation are normally found in patients over 50 years of age.

The licensee had not been inspected.

4. Omaha Testing Laboratory - License No. 01-06-01
Omaha, Nebraska

This license was a renewal of an AEC license with some additions. The applications were adequate to support the licensing action. It authorizes industrial radiography operations.

The licensee was inspected on March 15, 1967 by Wilms accompanied by Johns and Brown (AEC). The file contained a handwritten report consisting of completed forms shown in Appendix F and G. A Form NRH-10 (Appendix H) was issued to the licensee listing two items of non-compliance. It was acknowledged by the licensee. The report was detailed enough to determine the status of the licensee's compliance with the regulations and his license and the adequacy of his operations to protect health and safety.

5. Dr. Robert I. Burns - License No. 10-01-01
Columbus, Nebraska

This is a private practice medical license authorizing the use of isotopes for several diagnostic and therapeutic applications. Material may only be used at St. Mary's Hospital.

The licensee was inspected by Wilms on October 18, 1966. Form NRH-8 was completed and noted that previous items of non-compliance (from an AEC inspection) had been corrected. The report was adequate to determine the licensee's status and the adequacy of his operations. It was noted that the word "none" was entered in the report for conditions in unrestricted areas. A Form NRH-10 was issued to the licensee listing one item of non-compliance and was acknowledged by the licensee.

6. Immanuel Hospital - License No. 01-04-01
Omaha, Nebraska

This license authorizes possession and use of numerous isotopes in an extensive diagnostic and therapeutic medical program. The State requested additional information on an application dated November 18, 1966 which was subsequently submitted by the applicant. The information submitted was adequate to support the licensing action.

The licensee was inspected on March 14, 1967 by Wilms accompanied by Simmons and Brown (AEC). A Form NRH-8 was completed and was adequate to determine the licensee's status and the adequacy of his operations. An enforcement letter was sent to the licensee on March 16, 1967 listing three items of non-compliance and noting that two items were corrected at the time of the inspection. The inspection report did not reflect this. The letter requested a reply within thirty days and an adequate reply was received a few days later.

In addition to the above reviewed Nebraska files, documents were given to the State on the following dates:

1. University of Nebraska - License No. 01-01-01
Eppley Institute

The need for a more complete research protocol for use of Americium 241 for bone density measurements in humans was discussed. Wilms had made a pre-licensing visit for this application and indicated it would be used to determine if osteoporosis is developing and would normally be used on patients over 50 years of age. It was reviewed by the Registration and Licensure Committee who did not feel the exposure to be received would be excessive.

2. University of Nebraska - License No. 01-01-02
College of Medicine

Conditions 9B, 9C, and 9I authorize uses not considered routine (they were carried over from AEC license).

3. Nebraska Civil Defense Agency - License No. 02-02-02

No use was authorized for Item 6B.

4. Welx - License No. 99-03-01

Condition 10 should authorize use only in Nebraska.

5. Archbishop Bergen Mercy Hospital - License No. 01-05-01

Condition 13 requires hospitalization for patients receiving gold therapy but Condition 9 does not authorize this use.

6. Nebraska Game, Forestation & Parks Commission - License No. 02-05-01

Condition 8A should specify four sources of 250 mc each.

7. Hastings College - License No. 1-02-01

Sources listed in Items 7A and 7D are probably plated sources rather than sealed sources. A copy of the plated source leak test condition was given to the State as appropriate for use on this license.

8. University of Nebraska - License No. 02-01-02

Condition 9I appears to contain an error in the third sentence of the second paragraph. The leak test exception used in AEC (I think per Bureau Standard Condition 107(8)) appears to require that the source be sealed.

11/12/65

QUESTIONS WHICH MAY BE ASKED AT THE
SEMI-ANNUAL EXCHANGE-OF-INFORMATION MEETINGS

A. Licensing Activities

*1. What are your administrative procedures for licensing?

All applications are logged in and sent to Wilms. See Appendix D for flow sheet used in processing applications.

*2. Who evaluates license applications and who approves the issuance of a license?

Wilms performs most license evaluations with some assistance from Simmons and Johnson. Wilms signs all non-medical licenses and the State Health officer signs all medical licenses.

*3. Do you conduct pre-licensing visits? If so, how do you determine which applicants are visited?

Occasionally. Make a visit for an unusual use or if the individual's background is not known to the staff.

4. Approximately how many pre-licensing visits have you made?

Two.

5. Approximately how many licensing actions have you taken during the period since the last meeting; i.e., new licenses, amendments, etc.?

34 new licenses)
21 amendments) to March 29, 1967

6. Have you issued any licenses to out-of-state firms since the last meeting?

Six - to radiographers and well loggers.

7. Have you issued any licenses to your own organization?

Three and two old AEC licenses issued to the Radiological Health Division.

8. Have you instituted any new procedures for evaluating license applications?

Yes. New procedures for evaluating license applications were instituted in 1965.

9. What unusual specific exemptions from your regulations have been granted since the last meeting?

None.

10. What new conditions have been included in your licenses that will likely become routine?

None.

11. What new or unusual uses of radioactive materials have been licensed?

None.

- *12. Do you have a system for notifying licensees of the impending expiration of their licenses?

Yes. Send a 60 day notice.

13. Have you received any applications from persons who should have applied to the ABC?

No. Nebraska informed Omaha Testing Laboratory they should renew ABC license if they continue to work outside of Nebraska.

14. To what extent have you issued broad medical licenses? *Do you examine the qualifications of members of the isotope committee and their procedures for approving new uses and users? *Do you require such licensees to report new uses to you periodically?

None. Will soon issue one to the University of Nebraska. The State will get a copy of each use permit granted by the licensee to individual users.

15. Do you specifically license persons wishing to perform leak test services? If so, what factors do you consider in issuing the license? Do you require equipment suppliers performing servicing functions to be specifically licensed?

None. Will license if application received.

16. Have you developed any licensing guides? If so, we would like to have copies.

None completed.

- *17. Are there any outstanding AEC licenses which have not yet been converted?
Yes. They are converted when they are renewed.

- *18. Are your license files, including license applications, available for public inspection?

Only the license itself is in the public file at present. However, the public can examine applications unless it contains proprietary information.

19. What has been your experience in regulating naturally occurring and accelerator produced materials? Do you conduct pre-licensing visits for radium users?

Registration program for these materials was begun on January 1, 1967. Expect to do a complete survey of Radium users in the next year including leak tests and perform annual leak tests after that.

20. How many radium licenses are there in the State. What is the total number of registrants?

Estimate 50 Radium users in the State. There are approximately 2500 x-ray machines and expect to complete registration of them by May 1967.

B. Evaluation of Medical Uses

1. To what extent do you use your medical advisory committee in evaluating applications for medical uses of radioactive material? Obtain current list of members and their affiliations.

The Registration and Licensure Committee looks at all non-routine requests after Wilms has checked it for radiation safety. Full application not sent to the Committee but sends a copy of the training and experience of users and resume of proposed use. If there is a *

- *2. Do you use your medical advisory committee as a committee or do you consult with members individually?

Both. Individuals are consulted for specific questions.

- *3. Are these committee members available for immediate consultation?

Yes.

A different view on opinion in Radiation and Licensure Committee, (Optum, Fraser, Wagner and Ferguson) it goes to the Radiation Advisory

- *4. Do you use a research protocol similar to that distributed at the December 1964 meeting of Agreement States in evaluating new or unusual medical uses?

Normally.

C. Compliance Activities

1. What is your inspection workload in terms of man-days per month or percentage of time spent on agreement material inspections?

Average of 5 man-days per month including travel time.

- *2. How do you determine inspection frequencies and need for reinspections?

Plan to do initial inspections and reinspections yearly.

- *3. What is your policy regarding announced vs. unannounced inspections?

All have been announced thus far and most inspections will continue to be announced.

- *4. Do you follow the priority and category system described in AEC's Materials Inspection Guide?

See C.2

5. Is your inspection workload current or are there overdue inspections?

Current - Have inspected 34 licenses to date.

6. Can you estimate the average length of time you spend inspecting the various types of licenses?

Inmanuel Hospital - 1/2 day for 2 licenses.

Oncha Testing Laboratory (in house radiography) - 1/2 day

- *7. What type of instruments do your inspectors normally carry on inspection visits?

Fischat type G7 survey meter

Vistoreen 44 for teletherapy and condenser R meter

8. What types of surveys do you make during an inspection?

Measure output of teletherapy units. Measure external levels around storage areas. Do leak test and wipe surveys for Radium users upon request but do not do them for other radioactive materials.

- *9. Describe your compliance enforcement procedures. Do you follow a system similar to the AEC's 591, 592, formal report system?

Form NRH-10 is similar to 591 and used for minor cases. More serious cases are handled by letter which requests a reply in 30 days. Use a follow up system to ensure that replies are received.

- *10. Do you write an internal report for all inspections? Who reviews such reports?

Form NRH-8 is completed for all inspections and NRH-9 is included for radiography inspections. No additional narrative reports are written but the form reports are quite comprehensive. Since Wilms

- *11. Are inspection reports utilized in future licensing actions? others.

No such cases have arisen as yet.

- *12. With what level of management do you orally discuss inspection results?

Dean of School
President of radiography firm

- *13. Does the inspector make specific suggestions for corrective action to be taken by the licensee?

Yes.

14. Have you noted any licensees who are in apparent noncompliance with AEC regulations? If so, we would appreciate your notifying our Regional Compliance office of such occasions.

No.

- *15. Have you found any persons possessing radium who also possessed agreement materials for which they did not have a license?

No.

16. Are you receiving notification from manufacturers of transfers of devices into your state?

U. S. Radium Corporation

17. Do you inspect out-of-state firms licensed by you who perform work in your state?

State will notify these firms when they (the State) want to be notified for purposes of inspecting.

18. Do you inspect out-of-state firms working in your state under reciprocity?

Plan to do so.

D. Investigations

1. How many investigations have been performed since the last meeting?

None.

- *2. How do your techniques for investigations differ from your inspection techniques?

E. Enforcement Activities

1. What has been the extent of enforcement actions taken against licensees?

Enforcement letter requiring reply in 30 days.

- *2. How do you handle oral and written discussion of so-called "safety items" which are not specifically items of non-compliance? Examples are poor calibration procedures, poor ventilation systems and need for bioassays.

None have occurred.

3. Is any type of enforcement action accomplished by individual inspectors?

Yes. By Form NRE-10

*4. Who signs letters going to licensees notifying them of inspection results?

Wilms

*5. How do you determine to whom letters of noncompliance should be directed?

Creighton University - Dean of Medical School
Fremont Cake & Meal - Plant Manager

6. Do you have any problem in obtaining responses to letters of noncompliance? If so, what course of action do you follow?

None so far.

7. Have you found it necessary to deny any license application or revoke or modify any license?

No.

*8. What action is taken when a licensee fails to renew his license or requests termination of his license?

Get status of licensed material in writing.

F. Incidents and Unusual Occurrences

1. Please describe any incidents and overexposures which have occurred since the last meeting.

None.

2. What is your policy on requiring licensees to make a press release when an incident has occurred?

AEC policy was explained.

G. Laboratory Facilities and Services

*1. Do you analyze smears, air samples, water samples, etc., which are collected during an inspection, in your Radiological Health organization or does some other division provide these services?

Radiological Health Division does the analyses.

*2. What is the time delay in obtaining results of analyses of such samples?

None. Technician in Division of Radiological Health performs analyses.

*3. Do you have any difficulty in obtaining "immediate" results in emergency situations?

No.

*4. Do you, or the persons providing laboratory services for you, have the capability for analyzing most types of samples which you might submit?

No.

*5. If not, how would you arrange to have unusual types of samples analyzed?

Would be sent to PHS laboratory in Las Vegas or Montgomery, Alabama for analysis.

*6. Do you have facilities for calibrating all types of instruments which you possess and use?

20 mc Co 60 source available.

Neutron instruments are calibrated at the VA Hospital in Omaha.

H. Personnel and Training

1. Do you have any new personnel in your organization? Obtain a copy of the current organization chart.

No. See Nebraska submittal

2. Have any of your personnel received additional training since the last meeting? If so, specify the individual, the nature of the course and the duration of the course.

Wilms attended a 3 day PHS Occupational Health Seminar in Norman, Oklahoma; Johnson attended a 2 week PHS spectroscopy course and a 1 week course in Management of Radiation Accidents. Simmons will attend a 3 week OR course in April.

*3. What persons are specifically assigned to licensing, compliance, laboratory, etc. activities?

Wilms does all license evaluations with occasional assistance from Johnson and Simmons. They also assist Wilms in inspections of licensees. Simmons primarily performs x-ray inspections. Johnson works in registration program, education and exhibits.

4. Have there been any changes in assignment of personnel?

I. Exchange of Information

1. What problems have you encountered in the reciprocal recognition of licenses?

None.

2. Have you evaluated any new sealed sources or devices of which we are not aware? We would like to receive a copy of evaluation sheets prepared for such items.

No source manufacture in Nebraska.

3. Has the AEC's sealed source and device catalog been of value to you?

Very useful.

4. Do you have a need for any specific information or assistance from the AEC?

Would like to have access to FTS system. Suggested making Sealed Source and Device Catalog sheets for routine medical use of isotopes.

*5. What is your procedure for responding to emergencies?

Are beginning to establish an emergency program. The team will be composed of Radiological Health Division personnel.

*6. Do you have a statewide communication network which is used in conjunction with emergencies?

Civil Defense system will be used for communications. Highway patrol will also be involved.

*7. Do you have emergency teams established to respond to emergency situations?

Only one at Lincoln - Radiological Health personnel.

*8. How do you use your technical advisory committee (other than medical) in your program? There are 4 or 5 subcommittees of the Council used for various functions, such as audits, etc. The entire council will

9. What is your budget for the current fiscal year?

\$73,641 for current biennium.

\$140,774 requested for biennium beginning July 1, 1967.

10. Has there been an increase or decrease in budget allotted to the program?

Part of requested increase was to replace Johnson (PHS assignee).
However, Johnson has received a 1 year extension to July 1, 1968.

11. Do you receive funds from PHS, Defense Dept. or other sources?

Have received approximately \$22,000 per year from PHS.

Will receive approximately \$18,000 per year from PHS
in the next biennium.

12. Do you plan to incorporate recent changes in AEC regulations in your regulations?

Have budgeted to do so in the next biennium. State plans to begin revisions after 1967 joint meeting of Agreement States. Nebraska regulations are flexible enough to allow administrative adoption of changes to AEC regulations.

PROCESSING LICENSE APPLICATIONS (Initial or Amendments)

Renewal Reminder Sent to Licensees
60 Days Before Expiration Date

Applications Received (2 copies)

Send Acknowledgement To Licensee

Applications Filed In "Pending File"

NON-MEDICAL USE

Review for Completeness
NRH-5

Check File for Past
Compliance & Use Record

APPLICATION APPROVED

Prepare License & Assign
number (4 copies)

R. H. Director signs License
(H. Dir. also signs Medical
License)

To Licensee:
a. License #1
b. Regulations
c. Forms

To Field File:
a. Appl. #1
b. Lic. #2
c. Corresp.

To Public File:
a. Appl #2
b. Lic. #4

To AEC:
a. Lic. #3

Tickler
Prepare or Revision
card.

MEDICAL USE

Review for Completeness
NRH-5 and 5A

Check File for Past
Compliance & Use Record

Routine Use

See Ap. #1

Non-Routine
Use

See Ap. #2
See Ap. #3

APPLICATION DENIED

Send Denial Letter

Applications & Denial
Letter, Copy to "Pending
Folder"

LICENSE NUMBERING CODE:

00 00 00
(county) (facility) (License)

UNITED STATES GOVERNMENT

Memorandum

Walter

TO : Elmer R. Price, Director
Division of State and Licensee Relations, HQ

FROM : *Donald I. Walker*
Donald I. Walker, Director
Region IV, Division of Compliance, Denver

DATE: APR 4 1967

SUBJECT: FIRST REVIEW MEETING WITH NEBRASKA DEPARTMENT OF HEALTH
LINCOLN, NEBRASKA, MARCH 28-29, 1967

The first review meeting with personnel of the Division of Radiological Health, Nebraska Department of Health, was held in Lincoln, Nebraska, on March 28-29, 1967. Nebraska personnel present during the meeting were Heinz G. Wilms, Director, Division of Radiological Health, and the two members of his staff, Dr. Orlen Johnson, USPHS assignee, and H. E. Simmons, Radiological Health Specialist I. The Atomic Energy Commission was represented by G. Wayne Kerr, Division of State and Licensee Relations, and Donald I. Walker, Division of Compliance.

Since Mr. Kerr will be covering the majority of the items on the agenda which was prepared for the meeting, this memorandum will be limited to the inspection and compliance aspects of the Nebraska program which were covered at the meeting. There is attached, as Attachment A, a list of items concerning incidents involving AEC licensees in non-Agreement States which was presented to the Nebraska personnel. Several of these were discussed in further detail, as requested by their personnel.

Since the agreement between the State and the AEC became effective, the State has conducted 34 inspections of agreement materials licenses. No attempt was made to review the files of each of those inspections. The files of those inspections on which a Region IV representative was present, at the invitation of the State, were reviewed in detail. The comments on those files are given below.

For all inspections made thus far, the State personnel have utilized the Nebraska Form NRH-5, License Compliance Inspection Notes, a copy of which is attached as Attachment B to this memo. Probably the most provocative note about the form is the lack of space for either a summary of the licensee's results of surveys for determining radiation, airborne material, or contamination levels, or of any independent measurements made by the State inspector. This is not intended to imply that the State personnel do not review such records of the licensees nor make independent measurements, since both were observed by the Region IV representative during the accompaniments and letters from the State to the licensees have indicated either inadequate surveys, lack of surveys, or lack of records of required surveys. In none of the case files reviewed, however, were included notes covering these facets of the inspection.

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NRH-8 and NRH-9 (an addendum to NRH-8, consisting of 6 additional pages to cover industrial radiographers) were utilized for the inspection notes by Wilms, accompanied by Orlen Johnson and Glen D. Brown. Two minor items of noncompliance were noted on the NRH-10 which was signed by the licensee. The first item, failure to post the back of a truck with the appropriate warning sign, was noted in the inspection notes. The second item, the lack of a radiation survey of the truck, was not mentioned in the inspection notes. The variance with the information obtained by G.D. Brown during the inspection will be noted.

Nebraska Methodist Hospital, License No. 26-00233-05
License Issued by AEC prior to Agreement
License Expires 5/31/67

Covers multi-human uses, "A" through "U", ranging from 1 curie of Au-198 to 330 mc of iodide. Licensed users are five M.D.'s in private practice who rent space from the hospital for their work.

Form NRH-8 was completed by Wilms, accompanied by Simmons and Brown. No items of noncompliance were noted and Form NRH-10 was issued to the licensee. It was noted that the licensee signed the form, though there were no items of noncompliance.

Nebraska Methodist Hospital, License No. 01-07-01
License Issued 3/3/67
License Expires 3/31/70

Covers two teletherapy units, 3,500 and 6,000 curies, respectively.

Form NRH-8 was completed by Wilms, with no items of noncompliance. Form NRH-10 was issued to the licensee, so noting no items. The file contained notification of license expiration.

Creighton University, School of Medicine, Department of Biochemistry
License No. 26-3153-3
License Issued by AEC prior to Agreement
License Expires 4/31/67

Covers four isotopes, C-14, I-131, P-32, and S-35, for in vitro studies.

This inspection was conducted by Wilms on two days, March 19 with Orlen Johnson and Glen Brown present, and March 22 with Simmons present. Form NRH-8 was completed during the inspection with five items of noncompliance noted. These were 1) Unauthorized use (for research) of P-32, whose use is limited to teaching, 2) Two Ph.D.'s and two M.D.'s, 3) Failure to

of tritium received by the licensee under a general license whereas only 2.5 mc are permitted, 4) Some storage locations not "labeled", and 5) Records of radiation surveys and disposals not always maintained. A letter was sent to the licensee on March 23, 1967, denoting the items and requesting a reply within 30 days. The licensee replied on March 29, 1967, denoting that 1) Use of P-32 would be limited to teaching, 2) Unauthorized users had been "stricken" from the users list, 3) 0.5 mc of tritium had been poured down the sink, leaving 2.5 mc in their possession, 4) All locations were properly labeled, and 5) Proper records would be maintained in the future.

From the information on the NRH-5, it appeared that the licensee may have been in noncompliance with the Nebraska regulations since it was determined that tritium had been obtained on two occasions, in quantities of 2 mc each time. Wilms explained that, though the information was not reflected in the inspection notes, the licensee had actually obtained the tritium in eight individual quantities of 250 uc each, as required by the general license.

At the conclusion of the review of the files, the observations made thereof were discussed with Wilms. With respect to the lack of any information concerning surveys made by the licensee, records thereof, or independent measurements made by the inspector, Wilms stated that he was aware that such information had not been included on any of the completed NRH-8 forms. He stated that in each case, however, such information was reviewed by their inspectors. (It will be noted that Glen Brown confirmed that Wilms did review the licensee's survey records and did, when occasion warranted, make independent measurements.) It was also noted that, on each NRH-8 completed, "Section 7. Facilities: b. Unrestricted Areas: always bore one of two notations; "N.A." or "None". Wilms explained that this was meant to denote that the unrestricted areas did not present a problem with respect to radiation levels, not that there was no unrestricted area at the facility. It was also noted that, in general, the inspection notes were extremely brief, cryptic, and often incomplete. Citations in the letters to the licensees were often quite vague as to the exact item of noncompliance, e.g., "Some storage areas were not properly labeled.", rather than defining specifically what was wrong with the licensee's operation. Only one instance was noted where a citation was issued against the wrong section of the Nebraska regulations. In all instances, Wilms appeared to be greatly appreciative of constructive comments which were offered.

Eber R. Price

-5-

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In summary and as a result of Region IV's accompaniment on inspections with Wilms and of the March 28-29 review meeting, there was no indication that the regulatory program currently being carried out by the State of Nebraska for licensing and inspection under the agreement was not completely compatible with the AEC's program.

Attachments:

Attachment A

Attachment B

cc: L. Dubinski, CO:HQ, w/attach.

COMPLIANCE ITEMS FOR NEBRASKA REVIEW MEETING, MARCH 21-22, 1967

1. Unauthorized Import and Distribution of Licensable Materials - 1965

Through the investigation of a theft of a radiation detection instrument, it was determined that the supplier of the 25 uc check source had imported and distributed without a license a portion of the sources. Additionally, the check sources were improperly labeled. Since the supplier operates in two Agreement States, the information obtained was referred to Agreement State agencies.

2. Failure of a Sealed Source Shipping Container - December 1965

Upon the arrival of a sealed source shipping container, containing 56 curies of iridium 192, dose rates up to 240 r/hr were noted. Investigation revealed that an extension tube had sheared off, permitting the source to become partially unshielded. The point at which the damage to the container occurred could not be determined, though calculations showed that the maximum exposure to any one person would not have exceeded 15 rer. It was considered highly improbable that any person actually received the maximum dose.

3. Exposure to Radiographer - December 1965

A radiographer and his assistant were conducting radiography with a 2 curie iridium 192 source, when the cable controlling the source broke, leaving the source in an exposed position. The assistant picked up the cable for relocation prior to the discovery that the source was not inside the camera. The assistant received a whole body dose of 6 rer, calculated doses of 4.5 rer to the right hand and between 50 and 500 rer to the left hand, depending upon where the source was within the cable. Medical examinations of the employee have detected no clinical symptoms.

4. Europium 154-156 Ingestion - December 1965

During an attempt to open a glass ampoule containing 40 microcuries of europium 154-156, the ampoule shattered, releasing the material and exposing two licensee employees. One individual received an ingested dose of about 2 microcuries, the other about 2 microcuries. Most of the material was determined to be europium 154 with a 19-day half-life, resulting in lung doses of 2.7 and 1.8 rads, respectively. Urine and fecal analyses and whole-body counts were utilized during the hospitalization periods to determine organ and body burdens. No clinical effects were observed.

5. Improperly Labeled Source - January, 1966

A 111 curie source was shipped to a licensee in Nebraska (Source # 1) back in 1964 and the licensee had a license for the source. The licensee, through a physical inventory of all sources, determined that the source had not arrived at the second branch office. Checks at 1 of the licensee's branch offices and other stations were made involving the use

with appropriate markings and warning symbols. The company's name and address are also on the container. The source is contained within the shield by a heavy padlock and is not considered to be a hazard as long as the lock is not removed. The freight line is continuing the search, though the AEC has closed the case pending further leads.

6. Glove Box Explosion - January 1966

The explosion of propane gas during the attempted ignition of a torch within a glove box occurred while maintenance was being conducted. The explosion in the glove box, used for work with americium 241, resulted in first degree thermal burns for the employee involved and in contamination of the room and some adjacent areas. Based on analyses of urine and fecal samples and on whole body counting of the employee, it was estimated that the employee had approximately 0.005 microcuries of Am-241 (1 percent of a body burden) in his lungs.

7. Department of the Air Force Radiative Materials - January 1966

Strawberry bars, originally containing 1,750 microcuries of Pu-239 and used in a missile system programmer, have appeared in State Agency Surplus Property warehouses, as the systems were phased out. Some of the bars were purchased by state agencies before they were correctly identified. Each has contained less than 50 microcuries, due to leakage of the isotope. Similarly, some X-ray tubes, containing various isotopes, and six 10-millicurie Co-60 sealed sources, have appeared in SASF warehouses. In each case, the materials were returned to the proper Federal agency for appropriate disposal.

8. Tritium Exposures - January 1966

During the cleaning of process equipment and packaging of radioactive waste material, three licensee employees were exposed to tritium concentrations. Uptakes of 100, 109, and 117 microcuries of tritium resulted to the three employees, respectively. Biopsy fifteen days later showed urine concentrations of 1, 0.5, and 2.1 uCi/l, respectively, for the three individuals. The urine concentration for the employee with the greatest exposure was 1.7 uCi/l forty-five days after the exposure.

9. Radiological Film Badge Exposure - February 1966

The processing of a film badge, sent to a manufacturer, showed an exposure of 150 mR. To obtain a better investigation, the manufacturer advised that the badge was indeed, in fact, a film badge and not a film badge. The individual was advised that the badge was not a film badge and that the exposure was not a film badge. The badge was returned to the manufacturer and the exposure was not a film badge. The badge was returned to the manufacturer and the exposure was not a film badge. The badge was returned to the manufacturer and the exposure was not a film badge.

10. Uranium-Zinc Alloy Explosion - February 1966

During dissolution of uranium-zinc alloy chips at a licensee's facility, an explosion occurred in the dissolver column, resulting in a fire involving the organic solution. There was no resulting exposure to personnel or contamination of the facility, though one employee received first and second degree thermal burns. The cause of the explosion was not determined though the licensee theorizes that a gas pocket may have formed in the column which supported combustion of the chips.

11. Exposed Radiographic Source During Shipment - February 1966

A 20 curie iridium 192 source, being shipped by air, was believed to be in an exposed position, as a result of a survey using a low-range survey instrument. An attempt was made by two licensee employees to return the source to its shielded position. Because of their inexperience, the two employees actually changed the source from its shielded position to an unshielded position, resulting in estimated exposures of not more than 0.4 rads each. An experienced radiographer employed by the licensee recognized the situation and returned the source to its shielded position.

12. Dropped Cobalt 60 Source - February 1966

During the routine exchange of sources for a hospital teletherapy unit, a 1,000 curie, Co-60 source was dropped from the shipping container. The hospital area was secured and the assistance of an AEC Radiological Assistance Team was requested. Utilizing a self-propelled, remote control unit, the team recovered the source 2 1/2 hours later and placed it in the shipping container. A compliance investigation revealed that the source was dropped due to an over-sized window in the source-retaining ring. The employees, both engaged in the transfer operations, received 1.4 and 0.7 rads, whole body, exposures, respectively.

13. Tritium Exposure - February 1966

An employee of a licensee, during the transfer of 100 curies of tritiated water, was exposed to excessive concentrations of airborne tritium. When the flask in which the material was contained was believed to have been separated from the evacuated system. The body burden of the employee was estimated to be 7000 curies of tritium, resulting in a whole body exposure of approximately 100 rads. Urinary tritium concentration was approximately 1000 dpm.

14. Unshielded Source - February 1966

An employee of a licensee, during the transfer of a 100 curie source, was exposed to excessive concentrations of airborne tritium. When the flask in which the material was contained was believed to have been separated from the evacuated system. The body burden of the employee was estimated to be 7000 curies of tritium, resulting in a whole body exposure of approximately 100 rads. Urinary tritium concentration was approximately 1000 dpm.

15. Trailer Contamination - March 1966

A semi-trailer, used to haul empty drums from one licensee to another was found to have alpha contamination upon arrival at the consignee's facility. Five small spots, ranging from 500 to 1,000 dpm/100-cm² were found. The trailer was returned to shipper who performed decontamination and returned it to the common carrier.

16. Radiographic Exposure - March 1966

A radiographer, using a 10 1/2 curie iridium 192 source, completed five exposures of film before discovering that the source had become detached from the control cable. The radiographer's film badge recorded an exposure of 0.9 rem and that of his assistant 4.5 rem. Compliance investigation has revealed that the assistant may have received an extremity or critical organ exposure on excess of the film badge reading, most probably in the order of 20 rem. Medical examination of the assistant has shown no effects.

17. Extremity Exposures - April 1966

Two licensee employees, handling fission products, received excessive exposures to the hands. One employee received 97 rems to both hands, the other, 47 and 0 rems to the left and right hands, respectively. There has been no indication of clinical aberrations and the licensee has taken precautions to preclude similar exposures during handling of materials.

18. Thyroid Exposures - April 1966

A licensee employee removed a beaker containing between 50 and 100 milligrams of iridium 192 from a hood and left it in the laboratory for approximately 24 hours before it was discovered. Seven employees working in the area were found through uptake studies to have thyroid burdens up to 10 microcuries each. Whole body counting of each of the seven employees was also conducted. The laboratory was found to be contaminated and was closed for one week to effect decontamination.

19. Accidental Release of Slightly Enriched UF₆ - April 1966

A broken valve at a licensee's facility for UF₆ conversion resulted in the release of 28 pounds of slightly enriched uranium. Ten percent were exposed to higher than normal concentrations of the airborne material, resulting in urinary excretions of up to 2000 micrograms of uranium per liter. The biological half-life of approximately 10 days resulted in small quantities of the material being excreted in the urine. The investigation by the licensee has not been completed.

20. Leaking Shipment - April 1946

A shipment of 200 grams of plutonium nitrate solution from one licensee to another developed a leak which contaminated the laboratory of the consignee. There was no spread of the contamination beyond the restricted area and decontamination was effected by routine procedures and removal of floor tiles in the facility. There was no indication of ingestion exposures to personnel involved.

21. Law Suit, Alleging Death Due to Radiation Exposure - May 1946

In 1946, an AEC subcontractor employee picked up and held for a short time, a 29 curie iridium 192 source which had fallen from a radiographic camera belonging to an AEC licensee. The exposure to the individual, from the film badge, was 0.450 rem and doses of 1 and 4 re. to the right and left hands, respectively, were calculated. Three months later, the employee died of lymphosarcoma. In May of this year, the heirs of the employee filed suit for \$12,000, against the licensee, the contractor, and subcontractor, claiming their negligence caused the employee's death.

22. Exposure to Radiographer - July 1946

A radiographer, while uncoupling the control cable from the camera, pulled on the source pigtail and extracted the 27 curie, iridium 192 source from the camera and into his right hand. The radiographer's dosimeter went off scale, his film badge showed an exposure of 3.2 rem, and calculations indicate an exposure to a small area of the hand to be approximately 4,000 rem. Medical examinations have shown no clinical aberrations.

23. Mislabeled Isotopes - July 1946

A hospital received packages labeled I-131 and P-32 from a pharmaceutical supplier. Two patients were administered material from one package and two from the second. One of the two patients who supposedly received the I-131 showed no uptake as expected and both vials were checked. It was found that the labels had been interchanged, presumably at the time the materials had been sterilized prior to shipment. Two kidney patients received 20 mCi of P-32 and two leukemia patients received 20 mCi of I-131. There was no clinical evidence of any radiation in any of the four cases; one subsequently died of leukemia and pneumonia in September.

24. Trans. Pip. Involving Seal Material - August 1946

A licensee received a shipment of seal material from a supplier. The material was found to be contaminated with a radioactive substance, likely from the supplier. The licensee reported the matter to the AEC and the supplier was notified. The licensee is currently investigating the matter.

Emergency Assistance team, the driver entered the truck and threw out the container. Unknown to the driver, the cesium source had floated to the top of the container, was thrown out when the container was removed, and landed in the cover of an open tool box. A short time later, the State Patrol officer picked up the source, examined it for an estimated 45 seconds without recognizing it, and placed it on the back of the truck where it was found by the REAT and returned to a new container. Calculations indicated the officer received a hand dose of 60 rcr and whole body dose of 0.1 rcr. Subsequent medical examinations of the officer showed no clinical aberrations.

25. Exposure to Radiographer - August 1966

During radiographic operations, using a 20 curie Ir-192 source, a radiographer sustained a whole body exposure of 9 rcr and estimated hand exposures of 100 rcr. The licensee maintained that the exposure was due to malfunctioning of both the camera and the survey instrument used. Subsequent investigation did show an intermittent 'short' in the survey instrument, but no evidence of any malfunction of the camera. Physical examination showed no clinical aberrations. Audible pocket alarm will be used by the licensee henceforth.

26. Exposure to Radiographer - October 1966

A radiographer failed to retract a 150 curie Co-60 source to its shielded position before entering the area. Because of partial shielding by a large casting, the film badge registered only 3.7 rcr in comparison to calculated exposures of the unshielded portion of the whole body and left and right hands to be 1, 70, and 40 rcr, respectively.

27. Uranium Mill Tailings Pond Overflow - November 1966

Between 7:00 and 8:00 AM, a tailings liquor pond overflowed. An estimate of 10,000 gallons was lost, mostly to a depression adjacent to the pond, though some did flow from the depression. From distances of material between the pond and the river, about 1/4 mile distant, it was surmised that there was no direct flow of liquid into the river. Samples taken at downstream points shortly after the overflow showed an increase in activity in the river. Analyses of the pond liquor showed it to be below the MCL for unrestricted areas. The overflow resulted when the pump used to convey the liquor back to the plant was erroneously permitted to discharge back into the pond.

28. Exposure to Radiographer - November 1966

The film badge of a radiographer operating a 20 curie Ir-192 source registered an exposure of 12.7 rcr in the upper extremities. Investigation revealed that, on a number of occasions, the source failed to retract

retraction of the source. The exposure is believed to have occurred in those instances where patients were removed from the room by the technician while the source was in its unshielded position.

29. Misdirected Radiographic Source - November 1966

A 25-curie Iridium 192 source, shipped by a radiography licensee did not arrive at its intended location. Subsequent investigation by the common carrier located the source in a warehouse of another carrier, where it had been in storage for about two weeks. The radiation levels of the container were found to be 1 r/hr at contact and 35 mr/hr at one meter, due to the fact that the source was not in its proper location in the shielded container but was lodged in a space between the lid and body of the container. It was determined that no persons had been near the source for any significant length of time. The ICC, after notification, indicated it would make an investigation.

30. Theft of Radioactive Material - November 1966

A licensee's representative reported to the local police the theft of a brief case containing a 50 uc radium source, a 0.05 uc Sr-90 source, and a 0.05 uc Cs-137 source. Since the licensee considered the latter two to be insignificant, their losses were not reported to the police who investigated. Local TV and newspaper publicity was limited to the largest source.

31. Lost Radioactive Shipment - November 1966

A university reported that a shipment of 10 mc of I-131 had been received and logged in but subsequently, could not be located. Investigation revealed that the material in its shipping container probably was inadvertently knocked into an adjacent trash can and taken to the university dump. A survey of the dump failed to locate the container. The licensee is henceforth placing all incoming shipments in a locked enclosure.

32. Exposure to Radiographer - December 1966

At the conclusion of a day's work at an in-plant radiographic installation, the radiographer failed to retract a 47-curie Co-60 source to its shielded position and failed to check its return with a survey instrument. He entered the radiographic area, without wearing his personnel monitoring device, handled the source tube with his hands, and then left work. A short time later, the RSO of the company where the work was being performed discovered the unshielded source and returned it to its shielded position. The radiographer subsequently remained in position and was interviewed by the RSO in connection with the incident. The licensee's investigation of the incident did not include a check of the hospital where the radiographer had been admitted, which is determining compensation coverage afforded the licensee. The licensee, on the basis of information available, attributes

a whole-body dose of 1 to 2 rads and an exposure to one hand at 600 rads. Subsequent swelling and blistering of the hand indicate a probable dose of more than 1000 rads. Blood and sperm counts and bone marrow tests were normal.

3. Exposure of Personnel - January 1967

Licensed employees were working with 2,000 curies of Ir-192 seeds in a hot cell. The container was opened by means of an abrasive wheel. Subsequently, when contamination was found outside the cell, it was determined that the cell was not under a negative pressure and that the abrasive wheel had cut into some of the seeds. Preliminary hospital examinations showed one of the employees had a body burden of 1.5 uc, a second, 700 uc, and a third, none. An estimate was made that 70% of the material was in the gut of each employee, and 25% in the lungs. Checks later in the week showed a reduction of burden to 700 and 100 uc, respectively. The investigation was continuing at the time of this summary.

4. Tritium Release - February 1967

A post-doctoral student was using a spectroscopy target containing 0.1 gram of tritiated uranium powder when the protecting pipe and bulb broke off. The material caught fire releasing 10 curies of $^3\text{H}_2\text{O}$. Since the material could have been spread through the ventilation system of the building, about 100 persons were evacuated. The student and another person directly involved in the incident exhibited 100 uc/l and 24 uc/l of tritium, respectively, in the urine shortly after the incident. The building was available for use on the fourth day.

Form RRH-8
(10-66)

NEBRASKA DEPARTMENT OF HEALTH
Division of Radiological Health
LICENSE COMPLIANCE INSPECTION NOTES

LICENSE:	LICENSE NUMBER:
ADDRESS:	OTHER LICENSES:
INSPECTOR:	INSPECTION DATE:
OTHER:	<input type="checkbox"/> Announced <input type="checkbox"/> Unannounced
PREVIOUS ITEMS OF NON-COMPLIANCE: (Check if corrected)	RESULTS:
	<input type="checkbox"/> Clear
	<input type="checkbox"/> Minor
	<input type="checkbox"/> Major or follow-up

GENERAL DATA

1. Personnel contacted:

2. Organization:
 - a. Chain of Command and Responsibility:

 - b. Authorized users:

 - c. Unauthorized users:

 - d. Isotope Committee: yes ___ no ___
Members:
Functions:

Licensee _____

GENERAL DATA (Continued)

3. Program Scope:

a. Procurement and Use of Material:

DATE	MATERIAL	FORM	QUANTITY	
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Evidence of overpossession at any time: yes ___ no ___
Details:

Generally-licensed materials:

Unlicensed materials:

Non-licensable sources of radiation:

b. Transfer of Material:

4. Personnel Monitoring
a. Film Badge Service

b. Frequency

c. Maximum quarterly and yearly exposure

5. Training Program

6. Compliance with Applicable Provisions

7. Facilities:

a. Restricted area:

b. Unrestricted Areas:

c. Unauthorized locations:

d. Facility and laboratory equipment (instruments, alarm systems, etc.):

8. Posting and Labeling

NEBRASKA DEPARTMENT OF HEALTH
Division of Radiological Health

LICENSE COMPLIANCE INSPECTION NOTES

LICENSEE:

LICENSE NUMBER:

ADDRESS:

OTHER LICENSES:

INSPECTOR:

INSPECTION DATE:

OTHER:

Announced

Unannounced

PREVIOUS ITEMS OF NON-COMPLIANCE: (Check if corrected)

RESULTS:

clear

minor

letter to follow

GENERAL DATA

1. Personnel contacted:

2. Organization:

a. Chain of Command and Responsibility:

b. Authorized users:

c. Unauthorized users:

d. Isotope Committee: yes ___ no ___

Members:

Functions:

Licensee _____

GENERAL DATA (Continued)

3. Program Scope:

a. Procurement and Use of Material:

<u>LATE</u>	<u>MATERIAL</u>	<u>FORM</u>	<u>QUANTITY</u>	<u>POSSESSION LIMIT</u>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Evidence of overpossession at any time: yes___ no___
Details:

Generally-licensed materials:

Unlicensed materials:

Non-licenseable sources of radiation:

b. Transfers of Material:

4. Personnel Monitoring
a. Film Badge Service

b. Frequency

c. Maximum quarterly and yearly exposure

5. Training Program

6. Compliance with Applicable Procedures

7. Facilities:

a. Restricted area:

b. Unrestricted Areas:

c. Unauthorized locations:

d. Facility and laboratory equipment (instruments, alarm systems, etc.):

8. Posting and Labeling

9. Discussion with Management:

10. Current Items of Non-Compliance (brief):

<u>Paragraph</u>	<u>ITEM</u>	<u>DATE(s)</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
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_____	_____	_____
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_____	_____	_____

License Condition

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

NEBRASKA DEPARTMENT OF HEALTH
Division of Radiological Health

INDUSTRIAL RADIOGRAPHY INSPECTION NOTES

PART 6.0 NEBRASKA RADIOLOGICAL HEALTH REGULATIONS:

Licensee _____ License _____

Inspector _____

- 1. Organization:
 - a. Management

- b. Authorized Radiographers:

<u>Name</u>	<u>R. H. Regulations</u>	<u>License</u>	<u>Oper. & Emer. Procedures</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

- c. Radiographers Assistants

	Copies of instruction in oper. & emer. procedures
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

- d. Assistants have demonstrated competence by:

INDUSTRIAL RADIOGRAPHY

Licensee _____

2. Radiographic Equipment (6.03.1)

a. Source less than 4" from the surface: (6.03.1 (a))

<u>Make</u>	<u>Camera Model</u>	<u>Serial</u>	<u>Source Serial No.</u>	<u>Level at 6" (50 mr/hr)</u>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

b. Source more than 4" from the surface (6.03.1 (b)):

<u>Make</u>	<u>Camera Model</u>	<u>Serial</u>	<u>Source Serial No.</u>	<u>Surface level (200 mr/hr)</u>	<u>At 1 meter (10 mr/hr)</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

c. X-Ray Devices:

3. Locking of sources - Locked camera, container, and locked storage container (6.03.2):

4. Secured Storage (6.02.3):

INDUSTRIAL RADIOGRAPHY

Licensee (Registrant) _____

5. Radiation Survey Instruments (Range 2 mr/hr - 1 r/hr and 3 month calibration interval (6.03.4)):

<u>Manufacturer</u>	<u>Model</u>	<u>Range</u>	<u>Date Calibrated</u>	<u>Operable</u>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

6. Leak Tests (6.03.5 (b-d)):

<u>Source Serial No.</u>	<u>Date</u>	<u>Method & Limit of Detection</u>	<u>By Whom</u>	<u>Results</u>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Test conducted by unauthorized personnel (6.03.5 (a)):

7. Tagging of "open air" sources (6.03.5 (e)):

8. Quarterly Inventory Records (source, quantity, location, date of inventory) (6.03.6):

INDUSTRIAL RADIOGRAPHY

Licensee (Registrant) _____

9. Utilization Logs (serial, radiographer, location, date) (6.03.7):

10. Operating and Emergency Procedures (6.04.2):

INDUSTRIAL RADIOGRAPHY

Licensee (Registrant) _____

11. Personnel Monitoring (Dosimeters 200 mr range and film badges required) (6.04.3):

a. Dosimeters _____ Film Badges _____
Range _____ Frequency _____

b. Film badge supplier:

c. Badges supplied to:

d. Exposure records consist of: Supplier's record _____
Form NRH-1 _____
Form NRH-2 _____

Dosimeter records: yes ___ no ___

e. Average quarterly exposures: (beta and/or gamma)

f. Highest quarterly exposures:

g. Overexposures, with names, dates, and sources:

h. Reports of overexposures:

To Department:

To Employee:

INDUSTRIAL RADIOGRAPHY

Licensee (Registrant) _____

12. Security (6.04.4):

a. Surveillance by personnel:

b. Alarm systems (in-plant radiography):

c. Posting of areas (field use) (6.04.5):

13. Surveys & Records (6.04.6):

(Requirement for survey instruments, survey after use and before storage, records of surveys.)

NEBRASKA DEPARTMENT OF HEALTH
Division of Radiological Health

RADIOACTIVE MATERIAL INSPECTION REPORT

1. Licensee/Registrant	2. Address
3. License/Registration Number(s)	4. Date of Inspection

INSPECTION FINDINGS

- A. No items of non-compliance were found.
- B. Rooms or areas were not properly posted to indicate the presence of: (4.06.1)
- 1) High Radiation Area
 - 2) Radiation Area
 - 3) Airborne Radioactivity
 - 4) Radioactive Material
- C. Containers were not properly labeled to indicate the presence of radioactive material. (4.06.4)
- D. Storage containers were not properly labeled to show the quantity, date of measurement, or kind of radioactive material in the container. (4.06.4)
- E. A current copy of the Nebraska Radiological Health Regulations licensing and operating procedures not readily available. (4.07.2)
- F. Form NRH-3 was not properly posted. (4.07.3)
- G. Records were not properly maintained of:
- 1) Personnel Radiation Doses (4.11.1)
 - 2) Radiation Surveys (4.11.3)
 - 3) Receipt, transfer, disposals, or inventory of radioactive material (4.11.4) (6.03.6)
 - 4) Leak tests of sealed sources (5.04.1) (6.03.5)
 - 5) Utilization logs (Industrial Radiography) (6.03.7)

INSPECTOR _____

LICENSEE/REGISTRANT ACKNOWLEDGEMENT

The Nebraska Department of Health inspector has explained and I understand

END
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OCTOBER
5 1987

END
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