

ATOMIC ENERGY COMMISSION

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Eber R. Price, Director
Division of State and Licensee Relations
THRU: James K. Mason, Assistant Director, SLR Mn

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NEBRASIA RADIATION CONTROL PROGRAM

Attached is our evaluation of Nebraska's radiation control program and report of the fifth review meeting held in Lincoln on March 13-14, 1969.

Nebraska's program is adequate and current with regard to agreement materials. The State's x-ray and radium inspection programs are not as complete or up-to-date as desirable, but a balanced radiation program will only be achieved when additional funds, and consequently additional personnel are available, hopefully after July of this year. I plan to schedule the next review meeting with Nebraska in eight months to determine the budget and personnel situation. Inspection accompaniments will be scheduled in conjunction with the review meeting.

B. L. Harless, Chier State Agreements Branch Division of State and Licensee Relations

Attachment: Eval ation

cc: R. H. Engelken, CO:HQ D. I. Walker, CO:IV

REPORT OF THE FIFTH REVIEW MEETING WITH NEBRASKA AND EVALUATION OF THE STATE RADIATION CONTROL PROGRAM FOR THE PERIOD SEPTEMBER 12, 1968 THROUGH MARCH 14, 1969 The fifth regulatory review meeting with Mebraska was conducted in Lincoln on March 13-14, 1969. The meeting agenda is shown as Appendix A. Heinz G. Wilms, Director, Division of Environmental Safety, and H. Ellis Simmons of his staff represented Nebraska and C. E. Morelius, Division of State and Licensee Relations represented the AEC. On March 14, 1969, a summary discussion was held with Dr. Lynn W. Thompson, Director of Health. The review meeting was preceded by three days of accompaniments of Nebraska inspectors. These accompaniments are the subject of a separate asmorandum. Summary and Conclusions We unclude that the Nebraska Radiation Control Program is adequate for the protection of public health and eafety from hazards due to agreement materials and is compatible with the Commission's program for like materials. This conclusion is based on the discussion of State regulatory practices during the meeting; our evaluation of personnel; our review of licenses, license files and inspection reports; and our accompanisant of State inspectors.

The Nebraska program is essentially the same as reported after the last review meeting. Any significant change is dependent on the budget which will remain the same until the new fiscal year. Details of the program are shown in Appendix B. The State is current on its licensing and inspection of agreement materials. All x-ray units have been surveyed at least one time, although for almost 900 units this was limited to a SURPAK survey. There has been no follow-up or systematic reinspection program of x-ray units. Radium programs associated with licensed programs have been given a cursory inspection, but there has been no complete radium survey program in the State. Such a program is planned, however. The lack of a balanced radiation control program results from budget and associated personnel limitations.

3 . Organization The organization is unchanged. The radiation control program is conducted within the Division of Environmental Safety. This Division is a part of the Bureau of Environmental Health Services, which is one of four bureaus reporting through the Director of Health to the State Board of Health. The Radiation Advisory Council advises the Board of Health with regard to everall goals of the radiation control program. The council played an active role in determining the proposed radiation control budget for the 1969-71 biennium which was recently submitted. A listing of the council membership is shown as Appendix C. Personnel and Program The radiation control staff is unchanged and is comprised of Heinz G. Wilms, Director, Division of Environmental Safety, and H. Ellis Simmons. There are no staff vacancies. Mr. Wilms directs the overall radiation control program, evaluates most license applications and conducts some inspections. Mr. Simmons has been given increased responsibilities in the area of inspection of licensed radioactive ma erials programs, having previously been limited to x-ray inspections. He occasionally assists Mr. Wilms in evaluating license applications and he continues to collect and count samples in the environmental surveillance program. Mr. Simmons attended a two-week UJPHS course in Occupational Radiation Protection during the Fall of 1968. Mr. Wilms has proposed, as part of his new budget request, one additional health physicist and two x-ray technician positions. He feels that these persons are essential for keeping current on all registration, licensing and inspection activities and for developing an educational prog am pertaining to radiological safety. He has also requested an industrial hygienist and a secretary to begin the occupational safety program in Nebraska.

Regulations Mr. Wilms said that Nebraska regulations will likely be updated beginning about July 1969. The revision will reflect the change in the Radiation Control Act (approved by the legislature and awaiting the Governor's signature) requiring licensing, rather than registration, of nonmedical uses of nonagreement materials and will include certain AEC amendments. The printing of new regulations will depend on the availability of funds in the new budget. Regarding recent AEC amendments, Wilms sees no need for the three types of broad licenses since he feels that administratively, the State can evaluate each license application and write a license with the maximum flexibility which is consistent with user qualifications without incorporating the detailed criteria and possession limits in the regulations. Wilms thought the State would incorporate the general license for in vitro use of radioiodine, but he did not care for the associated registration procedure. We discussed the need for uniformity in the regulations of the states and the AEC. Wilms said that each amendment would be evaluated further when he actually begins to update the regulations. He will ask for a current list of all AEC amendments at that time and we will be given an opportunity to comment on the proposed revision. The current Nebraska regulations include AEC ameniments effective prior to May 2, 1966. Licensing License applications are usually reviewed by Heinz ilms. Since October 1, 1968, Nebraska has issued five new licenses and 40 amendments. All licenses are signed by Wilms and medical licenses are co-signed by the Director of Health. There is no backlog of license applications. Selected license files were reviewed during the review meeting (see Appendix D for details) and these showed that adequate information is received to authorize the license issued. Of special interest was a license issued to U. 3. Nuclear Corporation for the "one-time" installation of a source in a teletherapy unit at the University of Nebraska. A Health Department representative was required to be present at the time of installation.

The State's Registration and Licensing Committee -- a part of the Radiation Advisory Council -- acted on and approved one nonroutine medical use of isotopes, I-131 for cisternography. A research protocol accompanied the application and the approval was for a limited number of cases to be followed by a report of the results to the State. This Committee has also decided to continue to license mercury 203 for kidney scans on a routine basis. Other than this item, the medical licensing procedures of Mebraska ' the same as those of the AEC.

Inspection

Since October 1, 1968, 26 licensed programs have been inspected. All licensees are inspected at least once each two years and industrial radiographers and broad licensees are inspected annually. Based on this schedule, Nebraska is current in its inspection of agreement materials. Mr. Simmons who previously inspected only x-ray machines, is now conducting materials inspections along with Wilms.

A report is written to document inspection findings. Wilms reviews all reports written by Simmons. A review of selected inspection reports showed that adequate information is being recorded to document inspection findings and to substantiate items of noncompliance. (Details regarding this review are shown in Appendix E).

The three days prior to the review meeting were used for the accompaniment of Wilms and Simmons during inspections. Wilms was particularly impressive in his methods and coverage of the licensed programs. Simmons touched on all essential areas, but he did not go into enough depth in all areas to gain a complete understanding and his inspection techniques could be improved considerably. Because of this, about two hours of the review meeting time was spent discussing Simmons' inspections and, in general, inspection techniques. The details of the accompaniments and related discussions are given in a separate memorandum.

Enforcement

For minor items of noncompliance the State uses Form NRH-10 (comparable to AEC Form-591). A letter is written if there are other items of noncompliance or if there are additional suggestions or comments. Mr. Wilms said he is writing more letters lately because there is usually some phase of the program he wishes to comment on, and also he feels that a personal letter helps to establish a better professional rapport with licensees.

The licensee is required to reply to an enforcement letter within 30 days for significant noncompliance items. The files showed that the letters clearly identify the item(s) of noncompliance and that adequate replies have been received.

Nonagreement Sources of Radiation

An amendment to the Nebraska Radiation Control Act to license non-agreement radioactive materials used for other than medical purposes had been approved by the legislature and was awaiting the Governor's signature. One significant change that will result from this amendment will be the State's licensure of Notifier Corporation, manufacturer of fire detection devices containing radium. (This company is now registered in Nebraska and licensed by Kansas for the manufacture and distribution of fire detectors.)

As of June 30, 1968, there were 2032 x-ray units registered at about 1400 locations. About 900 dental units have been surveyed only by the SURPAK procedure while each of the other units has been physically inspected and surveyed. A followup and reinspection program of all x-ray machines is scheduled to begin after July 1969. Its fruition is dependent on a budget increase and the miring of at least one (and hopefully two) x-ray technicians.

The State sent questionaires to about 140 schools regarding their possession and use of x-ray machines and fluoroscopic devices. After receiving the responses, 60 schools were inspected. Two shoe fitting fluoroscopes (not being used) and several x-ray tubes, some uninielded, were found. Advice was given on safe usage of x-rays where indicated.

LIST OF APPENDICES

Appendix	Subject
A	Meeting Agenda
	Detailed Questions and Answers
С	Radiation Advisory Courtil
D	License File Review
E	Inspection File Review

- 1. Changes in organization, ...sonnel, and personnel assignments since last review meeting including additional training, if any, received by State personnel
- 2. Regulations:

Discussion of changes to AND regulations and potitions Discussion of changes to baute regulations

3. Current State licensing activities including:

Number of licensing actions (i.e., new licenses, amendments, renewals)
Unusual license conditions
Licenses of special interest including broad licenses
Evaluation of new devices and scaled sources
Unusual requests for medical uses

4. Front AEC licensing policies and practices:

on-medical Nedical

5. Current State compliance and enforcement activities:

Inspection workload
Changes in priority system
Incidents and overexposures
Unusual enforcement actions

- 6. Current ADC compliance and inforcement activities
- 7. State experience in regulation of non-agreement materials and radiation-producing machines
- O. Specific types of information or assistance medea from ADO
- 9. Meview of several State license and inspection files
- lo. Summary of review meeting

QUESTIONS FOR REVIEW MEETINGS A. Personnel and Training 1. Obtain a copy of the current organization chart. The organization is the same as that shown as Appendix E to the report of the fourth regulatory r view meeting. 2. What persons are specifically assigned to licensing, compliance, inboratory, radiation machine inspections, etc., activities? H. Wilms handles the overall program administration, issues most of the licenses and performs some inspections. E. Simmons periorms x-ray and materials inspections and environmental surveillance activities 3. Do you have any new personn'l in the radiation control program? If so, obtain training and experience resumes for these persons. Do you have any vacancies in the radiation control program? There are no new personnel and there are no vacancies. 4. 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. Simmons attended the 2-week PHS course "Occupational Radiation Protection" during the Fall of 1968. 5. Have there been any changes in assignment of personnel? Simmons, who formerly conducted mostly x-ray inspections, is now performing radioactive materials inspections. 6. What are the salary ranges for personnel in the radiation control program? Director \$ 815 - 1050 per month Radiation Health Specialist II 700 - 905 Radiation Health Specialist I 630 - 815 Radiation Health Technician 490 - 630 Assessadiu D

B. Licensing Activities

of Health.

- 1. Who evaluates license applications and who approves the issuance of a license?

 Heinz Wills with some assistance from Simmons. Wilms signs all licenses and medical licenses are co-signed by the Director
- 2. Do you have a licensing backlog? If 30, how many and why?
- 3. Are all known radium users licensed (or registered)? How many are there? Are your licensing procedures for radium the same as for agreement materials?

 All known radium users are registered. There is no evaluation of the program before a registration certificate is issued.
- 4. Do you conduct prelicensing visits? If so, how do you determine which applicants are visited? Approximately how many prelicensing visits have you made since the last meeting?

 Prelicensing visits are conducted when necessary to gain a complete understanding of planned activity.
- 5. Have you instituted any new procedures for evaluating license applications?
 No.
- 6. What unusual specific exemptions from your regulations have been granted since the last meeting?

 None.
- 7. What new or usual uses of radioactive materials have been licens.d?

 A license was issued to U.S. Nuclear Corporation to make a single installation of a teletherapy source in a TEM unit at the U. of Nebraska. A Health Department representative was present during the installation as required by a license condition.
- 8. What is your system for notifying licensees of the impending expiration of their licenses?

 A notice is sent to the licensee 60 days prior to license expiration. If there is no response, a telephone call or visit is made to the licensee.

what extent have you issued broad modical licenses? Do you examine the chalifications of members of the isotope committee and their procedures for approving new uses and users. Do you require such licensees to report new uses and results of these studies to you periodically?

No new broad medical licenses have been issued. The only such license in the State is the University of Nebraska.

D. Compliance Activities

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

 Inspection workload for agreement materials was estimated to be 100 man-days per year.
- 2. Is your inspection workload current rears there overdue inspections? If there are overdue inspections, how many are there and what type?

Inspection of licensees is current.

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

 Inspection frequencies are:

 Broad licenses and industrial radio, raphers 12 months.

 Other specific licensees 24 months.
- 4. What is your policy regarding announced vs. unannounced inspections?

 All inspections are announced.

-5-5. Can you estimate the average length of time you spend inspecting a 3 hours typical radiographer private practitioner - 14 hours medical institution -3 hours 2 days university -6. What type of instruments do your inspectors normally carry on inspection visits? What types of surveys do you make during an inspection? Wolac GM meters are carried on every inspection. Other appropriate instruments (i.e., alpha detectors, ion chambers, R-meters, etc.) are taken for special surveys. Some physical surveys are made during each inspection. 7. Do you write an internal report for all inspections? How are such reports processed including supervisory review? Reports are written for each inspection. Simmons' reports are reviewed by Wilms. 8. With what level of management do you orally discuss inspection results? Some person in responsible management. Inspector determines who it will be. 9. Does the inspector make specific suggestions for corrective action to be taken by the licensee? Yes. 10. Are inspection reports utilized in future licensing actions? Yes.

- 11. 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.

 If any were noted, CO would be contacted.
- 12. Do you inspect out-of-state firms licensed by your or working under reciprocity in your state?

 Have not inspected any.
- Percent of these users are in compliance? Some radium users who have byproduct material have been inspected, although not in dept Six other radium facilities have been inspected on request. Nebr is planning to complete a radium inspection program to begin this spring. Will include leak tests and physical radiation surveys.
- 14. What percentage of the registrants in the state have been inspected? What percent of the medical, dental and industrial users are in compliance? All registered x-ray units have been inspected once. Only about 100 dental units were physically surveyed on request. Other dental surveys were by use of SURPAK No follow-up inspections were made so the percent in compliance h not been determined. A resurvey of all x-ray units is scheduled begin July 1969, provided the budget allows for additional staff members.
- E. 1. Describe your compliance enforcement procedures. Do you follow a system similar to the AEC's 591, 592 formal report system? Nebraska Form NRH-10 (comparable to AEC Form -591) is used for minor noncompliance. Letters are written for all other inspections where the form does not apply or if the State wishes to comment on other items.
 - 2. Who signs letters going to licensees notifying them of inspection results and how do you determine to whom letters of noncompliance should be directed?

 Wilms signs letters. These are usually sent to management with whom the inspection results were discussed.

· 7-3. How do you handle oral and written discussion of poor practices (safety items) which are not specifically violations of the regulations or a licens, condition? Examples are poor calibration procedures, poor ventilation systems and need for bloassays. These items are discussed during the inspection and included in the letter to the licensee. 4. What has been the extent of enforcement actions taken against licensees? Letters to which adequate replies have been received. 5. Do you require a written response to letters of noncompliance within a specified time period? Do you have any problem in obtaining adequate responses to letters of noncompliance? Who determines whether the response is adequate? If the licensee's response is inadequate, what course of action do you follow? If significant noncompliance is found, a reply specifying corrective action is requested within 30 days. Wilms and Simmons (if he did the inspection) determine the adequacy. If the response is inadequate, Wilms would call the licensee to identify the problem and have the licensee submit additional information. 6. Have you found it necessary to deny any license application or revoke or modify any license? No. 7. What action is taken when a licensee fails to renew his license or requests termination of his license? The licensee is called or visited to determine the status of his program before the license is terminated.

P. Incidents and Investigations

1. Please describe any incidents and overexposures which have occurred since the last meeting. What was the extent of the investigation conducted in these cases?

None.

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

Not asked.

3. Do you have a policy on requiring licensees to make a press release when an incident has occurred?

Press releases would be made through the office of the Director of Health.

G. Laboratory Facilities and Services

 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?

All routine samples are analyzed within the radiological health section. Consideration is being given to transferring all laborat work to the Di ision of Laboratories of the State Health Department

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

None.

I. Miscellaneous

- What problems have you encountered in the reciprocal recognition of licenses?
 Radium fire detection units manfuactured by Notifier Corp. in Nebraska, but licensed by Kansas, have not been recognized by all other states as exempt items.
- 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.
- 3. How do you use your technical advisory committee (other than medical) in your program?

 The Radiation Advisory Committee helps to establish general goals for the radiation control program and assisted in the budget proposal which was submitted to the legislature for the 1969-71 Biennium.
- 4. What is your budget for the current fiscal year? \$35,500
- 5. Has there been an increase or decrease in budget allotted to the proposed.

 Same. A \$90,000 one-year budget has been proposed.
- Do you receive funds from PHS, Defense Dept. or other sources?
 This year \$20,000 is being received from PHS.
- 7. Do you plan to incorporate recent changes in AEC regulations in your regulations?

The regulations will be updated after the beginning of the next fiscal year. With regard to recent AEC amendment, 1) Wilms sees no need for the three types of broad licenses; and 2) plans to incorporate the general license for in vitro use of radioiodine, but sees no need for the associated registration procedure.

RADIATION ADVISORY COUNCIL

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^{*} Member of the Registration and Licensure Committee

LICENSE FILE REVIEW

U. S. Nuclear Corporation Burbank, California

The University of Nebraska had applied for a license for a new TEM Mobaltron 80 teletherapy unit and as a part of the application, advised the State the U.S. Nuclear Corporation would install the source. The University had been advised by USNC that the AEC had already licensed them to install sources into this unit and that the installation in Nebraska could be performed under reciprocity. Wilms checked with our office and was informed that USNC was not licensed by AEC for installation of this source.

On 2/4/69 Wilms wrote USMC and advised that the company must be authorized by Nebraska to make the source installation. He specified that the application for such a license must include:

- Complete instructions on the installation procedure;
- Names and qualifications of individuals performing the installation;
- Names of the person responsible for safety during the installation; and
- 4) A description of health physics survey and monitoring equipment to be used.

An application dated 2/13/69 was submitted by U.S. Nuclear. The application responded adequately to each of the points raised in Wilm's letter. A license was issued on 2/19/69 which authorised the loading of this source. One license condition clarified that this was a "one-time only" license and another condition required notification three days before installation and that a representative of the Healt'. Department must be present during the installation.

Creighton University Department of Pathology Omaha, Nebraska An application was subsitted on 10/21/68 requesting small quantities of 1-125, 1-131, Cr-51, Fe-59, Na-24, K-42 and Co 57 for various laboratory and diagnostic medical procedures. The application described in detail the proposed uses, personnel qualifications, instrumk station, personnel monitoring, waste disposal, and instructions to employees. Signed preceptor statements were attached showing the experience of the applicant for medical uses. The license was issued on 10/31/68. Radiology Consultants 2515 South 90th Street Omaha, Nebraska The licensee requested on 1/6/69 t. a addition to the license of specified Neisler Mo99-Tc99m generators. The licensee wished to use Tc 99m pertechnetate for brait cams. The application specified that the eluate would contain less than 1 uCi Mo 99 per mCi Tc 99m and less than 5 uCi No 99m per dose. Also, the manufacturer's instructions would be followed for detection of solybdenum breakthrough, the assay for the eluate and radiation protection of personnel. The license was issued on 1/23/69. The authorized generators were specified on the license.

INSPECTION FILE REVIEW Midland Lutheran College Physics Department Fremont, Nebraska An inspection of this licensee was conducted on 11/25/68 by H. Ellis Simmons. The licensee possessed a 112 gm PuBe neutron source. The report was brief but adequate. It covered the use and "" irs, surveys, leak test results, and physical facilities. Two items of noncompliance noted were that leak tests had not been conducted within 6 month intervals and the storage container was not properly labeled. A letter setting forth these items was sent out on 11/26/68 and an adequate reply was received on 12/13/68. Radiology Consultants 2515 South 90th Street Omaha, Nebraska Mr. H. E. Simmons conducted an inspection of this licensee on 11/4/68.

The licensee conducted a moderately active program of routine diagnostic and therapeutic procedures.

The inspection report was quite brief, but did comment on all pertinent areas in the program. The only item of noncompliance was that no records had been maintained showing the results of laboratory surveys. A Form NHR-10 showing this item was issued at the time of the inspection.

Douglas County Hospital 4102 Woolworth Avenue Omaha, Nebraska

This licensee was inspected 11/1/68 by Mr. Simmons. The report adequately described the scope of the program, organization, users and user training, procurement procedures, surveys, personnel monitoring, facilities and discussion with management. No item of noncompliance was noted,

Rockwell Manufacturing Company Kearny, Nebraska This industrial radiography licensee was inspected by H. G. Wilms on 2/3/69. The report summarised noncompliance items found during the previous inspection and the corrective action that had been taken by the licensee. The report then commented on all appropriate phases of the radiography program. The paragraph on management discussion showed that no item of noncompliance was noted, but Wilms suggested that the licensee may wish to obtain additional pocket dosimeters for back-up use in case of failure of the ones currently being used. Donald F. Monty, M.D. Western Nebraska General Hospital Scottsbluff, Nebraska This routine medical diagnostic and therapeutic program was inspected by H. G. Wilms on 2/6/69. The report was informative and complete in all respects. Two items of noncompliance were properly substantiated in the report. These items, over possession of iodinated human serum albumin and macroaggregated radioiodine and the failure to maintain survey records, were brought to the licensee's attention during the inspection and by letter dated 2/18/69. The licensee's reply of 2/20/69 requested an increased possession limit and said that survey records would be maincained. The increased possession limit was given by license amendment on 3/3/69.