December 20, 2002

Mr. Robert Leopold, Director
Public Health Assurance Division
Regulation and Licensure
Nebraska Health and Human Services System
301 Centennial Mall South, 3rd Floor
Lincoln, NE 68509

Dear Dr. Leopold:

On December 16, 2002, the Management Review Board (MRB) met to consider the proposed final Integrated Materials Performance Evaluation Program (IMPEP) report on the Nebraska Agreement State Program. The MRB found the Nebraska program adequate to protect public health and safety and compatible with the Nuclear Regulatory Commission's program. No recommendations were made for the State by the review team.

Based on the results of the current IMPEP review, the next full review will be in approximately four years.

I appreciate the courtesy and cooperation extended to the IMPEP team during the review. We appreciate your continued support for the Radiation Control Program and the excellence in program administration demonstrated by your staff as is reflected in the team's findings. I look forward to our agencies continuing to work cooperatively in the future.

Sincerely,
/RA/ Paul Lohaus for

Carl J. Paperiello
Deputy Executive Director
for Materials, Research and State Programs

Enclosure:
As stated

cc: Julia A. Schmitt, Program Manager
X-Ray/Radioactive Materials/Emergency Response

Pearce O'Kelley, SC
OAS Liaison to MRB

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INTEGRATED MATERIALS PERFORMANCE EVALUATION PROGRAM

REVIEW OF NEBRASKA AGREEMENT STATE PROGRAM

SEPTEMBER 17-20, 2002

FINAL REPORT

U.S. Nuclear Regulatory Commission

1.0 INTRODUCTION

This report presents the results of the review of the Nebraska Agreement State program. The review was conducted during the period September 17-20, 2002, by a review team consisting of technical staff members from the Nuclear Regulatory Commission (NRC) and the Agreement State of Massachusetts. Team members are identified in Appendix A. The review was conducted in accordance with the "Implementation of the Integrated Materials Performance Evaluation Program and Rescission of a Final General Statement of Policy," published in the Federal Register on October 16, 1997, and the November 5, 1999, NRC Management Directive 5.6, "Integrated Materials Performance Evaluation Program (IMPEP)." Preliminary results of the review, which covered the period of September 26, 1998 to September 20, 2002, were discussed with Nebraska management on September 20, 2002.

A draft of this report was issued to Nebraska for factual comment on October 24, 2002. The State responded by letter dated December 3, 2002. The Management Review Board (MRB) met on December 16, 2002 to consider the proposed final report. The MRB found the Nebraska radiation control program was adequate to protect public health and safety and compatible with NRC's program.

The Nebraska Agreement State program is administered by the Emergency Response, Radioactive Materials and X-Ray Program (the Program) in the Department of Health and Human Services (the Department). The Program Manager reports to the Section Administrator for Consumer Health Services, who reports to the Division Director for Public Health Assurance, who in turn reports to the Director of Regulation and Licensure. The Director of Regulation and Licensure is a member of the Policy Cabinet for the Health and Human Services System that reports to the Governor. Organization charts for the Department and the Program are included in Appendix B. At the time of the review, the Nebraska Agreement State program regulated 141 specific licenses authorizing Agreement materials. The review focused on the materials program as it is carried out under the Section 274b. (of the Atomic Energy Act of 1954, as amended) Agreement between the NRC and the State of Nebraska.

In preparation for the review, a questionnaire addressing the common and non-common performance indicators was sent to the Program on June 5, 2002. The Program provided a response to the questionnaire on August 26, 2002. A copy of the questionnaire response can be found on NRC's Agencywide Document Access and Management System using the Accession Number ML022980351.

The review team's general approach for conduct of this review consisted of: (1) examination of Nebraska's responses to the questionnaire; (2) review of applicable Nebraska statutes and regulations; (3) analysis of quantitative information from the radiation control program licensing and inspection data base; (4) technical review of selected licensing and inspection actions; (5) field accompaniments of a Program inspector; and (6) interviews with staff and management to answer questions or clarify issues. The review team evaluated the information that it gathered against the IMPEP performance criteria for each common and applicable non-common performance indicator and made a preliminary assessment of the Nebraska Agreement State program's performance.

Section 2 below discusses the State's actions in response to recommendations made following the previous IMPEP review. Results of the current review for the IMPEP common performance indicators are presented in Section 3. Section 4 discusses results of the applicable non-common performance indicators, and Section 5 summarizes the review team's findings.

2.0 STATUS OF ITEMS IDENTIFIED IN PREVIOUS REVIEWS

During the previous IMPEP review, which concluded on September 25, 1998, six recommendations were made and transmitted to Gina Dunning, Director, Regulation and Licensure, Nebraska Health and Human Services System on December 30, 1998. The team's review of the current status of the recommendations is as follows:

1. Because of the importance of the development and implementation of critical procedures relative to the performance of the staff and the performance indicators, the team recommends that the State initiate appropriate actions needed to complete the development and implementation of the previously identified procedures that are critical to the performance of the program. The State should provide the revised schedule to NRC and copies of the procedures as they are completed. (Section 2.0)

   Current Status: The State revised the schedule and provided copies of the procedures important to the performance of the program to the NRC for review. All applicable procedures have been completed and reviewed by the NRC. This recommendation is closed.

2. The team recommends that staff who conduct independent inspections and/or license reviews of pool irradiators, teletherapy and brachytherapy complete the irradiator course and teletherapy and brachytherapy courses. (Section 3.3)

   Current Status: All staff have completed the teletherapy/brachytherapy course and two inspectors have also successfully completed the irradiator course. This recommendation is closed.

3. The review team recommends that the State add the inventory license condition to all applicable licenses, within the next year. (Section 3.4)

   Current Status: The license condition has been added to all applicable licenses reviewed by the team. This recommendation is closed.

4. The review team recommends that the allegation records clearly state the basis for the findings and outcome of the investigation, and that the alleger be informed of the outcome of the investigation. (Section 3.5)

   Current Status: The allegation procedure has been completed and reviewed by the NRC. The procedure includes provisions for documenting the basis for findings and outcome of investigation and informing the alleger of the outcome. The review team noted that both allegations reviewed followed the Program's procedure. This recommendation is closed.

5. The review team recommends that the Program management effect rulemaking activities to ensure that NRC rule changes are adopted within the specified 3 year time period. (Section 4.1.2)

   Current Status: The Department adopted eight NRC amendments by rulemaking that became effective in December 1998 and May 2000. The only NRC amendment not adopted within the three-year period has been drafted and is currently undergoing legal review. Final adoption is expected in 2003. This recommendation is closed.

6. The team recommends that the Nebraska Department of Environmental Quality prepare, or adopt by reference, a procedure for managing allegations. (Section 4.3.4)

   Current Status: In January 1999, the Governor signed legislation that withdrew the State from the Central Interstate Low-Level Radioactive Waste Compact. Subsequently, the low-level radioactive waste (LLRW) programs in the Department and the Nebraska Department of Environmental Quality were terminated and the staffs reassigned. Consequently, the Department of Environmental Quality no longer has a need for an allegation procedure. This recommendation is closed.

During the 1998 review, two suggestions were made for the Program to consider. The review team determined that the Program considered the suggestions and took appropriate actions.

3.0 COMMON PERFORMANCE INDICATORS

IMPEP identifies five common performance indicators to be used in reviewing both NRC Regional and Agreement State programs. These indicators are: (1) Status of Materials Inspection Program; (2) Technical Quality of Inspections; (3) Technical Staffing and Training; (4) Technical Quality of Licensing Actions; and (5) Response to Incidents and Allegations.

3.1 Status of Materials Inspection Program

The review team focused on four factors in reviewing the status of the materials inspection program: inspection frequency, overdue inspections, initial inspections of new licensees, and timely dispatch of inspection findings to the licensees. The review team's evaluation is based on the Program's questionnaire responses relative to this indicator, data gathered from reports generated from the licensee database, examination of completed licensing and inspection casework, and interviews with the management and staff.

The procedure entitled "Radioactive Materials Program Procedure No. 3.01," dated February 19, 1999, establishes the basis for the State's inspection program. This procedure follows the guidelines established in the NRC Inspection Manual Chapter (IMC) 2800.

The licensee database contains sufficient information for proper management of the inspection program. The Program performs approximately 50 inspections per year. The review team noted that the Program is performing inspections of materials licensees on an unannounced basis, except for initial inspections.

During the review, the team noted that one core inspection was conducted two months late. The Program Manager informed the team that the inspection of this industrial radiography licensee was delayed in order to observe the licensee performing work. The licensee did not have material or personnel in the State and did not perform work during the winter months. The licensee was inspected during their first use of licensed material in the Spring. The team found this approach acceptable.

During the review, the team noted that eight initial inspections were conducted late during the first half of the review period, 1998-1999. The Program has since established procedures for ensuring timely initial inspections. The Program reviews the status of each initial license biweekly and periodically calls the licensee during the first six months following license issue. New licensees are required by license condition to inform the Agency in writing when activities authorized by the license are initiated. If material is not received during the first six months, the periodic phone calls continue and an inspection is scheduled during the next six-month period. There were 23 initial inspections performed from January 2000 to September 2002, all within the scheduled intervals for new licensees. The Program currently has no overdue initial inspections.

The Program does not allow possession of materials in the State under reciprocity without a written request, the completion of a reciprocity license checklist and the payment of a fee. The Program maintains a data base of recurring reciprocity licensees as well as one time reciprocity licensees to aid in the management of these licensees. The Program uses this data base to maintain a daily list of all of the reciprocity licences operating in the State and to schedule inspections. During the review, the review team noted that all the inspections of Priority 1, 2 and 3 licensees granted reciprocity met the goals indicated in June 2002 revision to IMC 1220.

Fifteen inspection files were reviewed for timeliness for issuing inspection findings. All inspection reports are signed by the inspector except for those involving escalated enforcement which are signed by the Department's legal council. For the sample of reports examined by the review team, all inspection reports were signed and transmitted within 30 days.

Based on the IMPEP evaluation criteria, the review team recommends that Nebraska's performance with respect to the indicator, Status of Materials Inspection Program, be found satisfactory.

3.2 Technical Quality of Inspections

The team evaluated the inspection reports, enforcement documentation, and inspection field notes, and interviewed inspectors for 20 materials inspections conducted during the review period. The casework reviewed included inspections performed by six different materials license inspectors. Inspection casework reviewed covered inspections of various types including: industrial radiography; nuclear medicine, high dose rate remote afterloading (HDR) therapy; fixed and portable gauges; mobile nuclear medicine; broad scope academic and medical; educational, instruction only; irradiator, self-shielded less than 10,000 curies; panoramic pool irradiator; and reciprocity (service, industrial radiography, and well logging). Appendix C lists the inspection casework files reviewed for completeness and adequacy with case-specific comments.

Based on the casework file reviews, the review team found that routine inspections covered all aspects of a licensee's radiation protection program. Inspection reports were thorough, complete, consistent, and of high quality, with sufficient documentation to ensure acceptable performance with respect to health and safety by the licensee. The documentation adequately supported the cited violations, recommendations made to licensees, unresolved safety issues, and discussions held with the licensee during exit meetings. Team inspections were performed when appropriate.

During the review period, the Program Manager accompanied all individuals who performed materials inspections. The accompaniment reports contained sufficient details to document the areas covered. The accompanied inspector is provided a copy of the accompaniment report in his personnel file and receives an oral report of his performance.

The review team accompanied one materials inspector on June 26 and 27, 2002. The accompaniment included inspections of facilities licensed for portable gauges and nuclear medicine and HDR. The facilities inspected are identified in Appendix C. During the accompaniments, the inspector demonstrated appropriate performance based inspection techniques and knowledge of the regulations. The inspector was well prepared and thorough in his reviews of the licensees' radiation safety programs. The inspections were adequate to assess radiological health and safety at the licensed facilities.

The Program maintains a sufficient number and variety of survey instruments to perform radiological surveys of materials licensees as well as for responding to incidents and emergency conditions. The review team examined the Program's instrumentation and observed that the survey instruments were calibrated and operable. Inspectors obtain calibrated instruments from the office for each inspection. The Program contracts several licensed calibration service companies to perform the calibration of survey instruments on an annual basis.

The Program receives support from local university radiation safety offices, which can perform sample counting and assay services. In addition, the Program has contracted with Environmental, Inc. Midwest Laboratory, Northbrook, Illinois, for analyses of radiological samples. Discussions with Program staff established that the support is timely and dependable.

Based on the IMPEP evaluation criteria, the review team recommends that Nebraska's performance with respect to the indicator, Technical Quality of Inspection, be found satisfactory.

3.3 Technical Staffing and Training

Issues central to the evaluation of this indicator include the Program's staffing level and staff turnover, as well as the technical qualifications and training histories of the staff. To evaluate these issues, the review team examined the Program's questionnaire responses relative to this indicator, interviewed Program management and staff, reviewed job descriptions and training records, and considered any possible workload backlogs.

Program staffing was relatively stable over the review period. Two staff members left and one staff member transferred to the x-ray program. The staff consists of experienced personnel. All of the technical staff have bachelor degrees. The materials program has four technical

positions, including the Program Manager, as noted in Appendix B. Currently, the Program has no vacant positions.

In addition to the four materials staff members, the Program has two x-ray inspectors, one health physics assistant, and one clerical position. The Program Manager reports to the Consumer Health Services Section Administrator. The Section Administrator spends about 20% of her time in radioactive materials licensing and inspection activities. The review team noted that the Program has experienced stable funding during the review period. Licensee fees support the program.

Training and qualification requirements for the radioactive materials staff are established in a procedure dated February 2, 1999. The procedure sets forth essentially the same training and qualification recommendations developed by the IMC 1246. Inspector requirements include NRC, or equivalent, core training courses when available. Inspectors are also required to be accompanied by a senior staff member on an inspection prior to authorizing the inspector to perform an independent inspection.

All technical staff members have taken the NRC courses deemed appropriate for their tasks. In addition, the review team noted that the Program Manager has attended several NRC training courses. The training records demonstrate that program management is committed to training for the staff. The review team concluded that the Program has a well balanced staff, and a sufficient number of trained personnel to carry out regulatory duties.

The Nebraska Board of Health reviews proposed rules and regulations for the use of radioactive material as part of their duties. Under the State's law, members are required to declare in writing any matter requiring action or decision that may cause a potential conflict. A member may abstain from activities in which the potential conflict exists.

Based on the IMPEP evaluation criteria, the review team recommends that Nebraska's performance with respect to the indicator, Technical Staffing and Training, be found satisfactory.

3.4 Technical Quality of Licensing Actions

The review team interviewed license reviewers, evaluated the licensing process, and examined licensing casework for 15 specific licenses. Licensing actions were reviewed for completeness, consistency, proper radioisotopes and quantities, qualifications of authorized users, adequate facilities and equipment, adherence to good health physics practices, financial assurance, operating and emergency procedures, appropriateness of the license conditions, and overall technical quality. The casework files were also reviewed for timeliness, use of appropriate deficiency letters and cover letters, reference to appropriate regulations, product certifications, supporting documentation, consideration of enforcement history, pre-licensing visits, supervisory review as indicated, and proper signatures. The files were checked for retention of necessary documents and supporting data.

The licensing casework was selected to provide a representative sample of licensing actions which were completed during the review period. The cross-section sampling focused on the new licenses, amendments, renewals, and licenses terminated during the review period. The sampling included the following types: wet storage panoramic irradiator, self-shielded irradiator,

stereotactic surgery (gamma knife), academic broad scope, research and development, manufacturing, industrial radiography, portable gauge, nuclear medicine, brachytherapy, mobile nuclear medicine, nuclear pharmacy, and teletherapy. Licensing actions reviewed included three new, five renewals, five amendments and two termination files. A listing of the casework licenses evaluated with case specific comments can be found in Appendix D.

Overall, the review team found that the licensing actions were thorough, complete, consistent, and of high quality with health and safety issues properly addressed. License tie-down conditions were stated clearly, backed by information contained in the file, and inspectable. The licensee's compliance history was taken into account when reviewing renewal applications and amendments. The exemptions noted in the questionnaire responses were determined to be appropriate and well documented by license conditions.

Licensing actions are assigned to one of the license reviewers along with a priority based on the type of action. Once the reviewer completes the action, a second review is performed by one of the other license reviewers. Each licensing action is documented on a "License Action Review Record" which includes detailed preparer and reviewer notes, a description of the action, correspondence included in the licensing action, and administrative information. The Program generates licenses utilizing an internally developed database with standardized conditions and format. All licenses are signed by either the Program Director or the Section Administrator. The State issues licenses for a five-year period under a timely renewal system, utilizes internally developed licensing guides (supplemented by NRC licensing guides) and policies as appropriate, uses standard licensing conditions, and issues a complete license for each licensing action.

A review of termination actions taken over the review period showed that nearly all of the terminations were for licensees possessing only sealed sources or for uses of radiopharmaceuticals with short half lives. The review team found that terminated licensing actions were well documented, showing appropriate transfer records or appropriate disposal methods and records, confirmatory surveys, and survey records. In discussions with the Program Manager, the review team noted that there were no major decommissioning efforts underway with regard to Agreement material in Nebraska.

Based on the IMPEP evaluation criteria, the review team recommends that Nebraska's performance with respect to the indicator, Technical Quality of Licensing Actions, be found satisfactory.

3.5 Response to Incidents and Allegations

In evaluating the effectiveness of the Program's actions in responding to incidents, the review team examined the Program's responses to the questionnaire relative to this indicator, reviewed the incident reports for Nebraska in the Nuclear Materials Event Database (NMED) against those contained in the Program's files, and evaluated reports and supporting documentation for 12 incidents. A list of the incident casework examined with case-specific comments is included in Appendix E. The review team also reviewed the Program's response to two allegations involving radioactive material. One allegation was referred to the Program by the NRC during the review period.

The incidents selected for review included the following event categories: loss of control (lost, abandoned, or stolen radioactive material), radiation overexposure, transportation, equipment problems, and medical events. The review team found that the Program's response to incidents was complete and comprehensive. Initial responses were prompt and well-coordinated, and the level of effort was commensurate with the health and safety significance. The Program dispatched inspectors for onsite investigations when appropriate, and took suitable enforcement and follow-up actions.

The responsibility for initial response and follow-up actions to materials incidents may be assigned to any member of the materials program. Upon receipt, staff reviews the report, decides on the appropriate response, and gives the report a unique tracking number. Documentation related to an incident is placed in the appropriate license file.

The review team identified 12 incidents in NMED for Nebraska during the review period. The Program's incident procedure adopted the NRC's "Handbook on Nuclear Material Event Reporting in the Agreement States" reporting requirements for incidents. The review team noted that all events (requiring 24-hour notification) and routine and/or event updates (requiring 30-day notification) were reported to the NRC Operations Center or to NMED.

It was noted that the Program received and was using the latest NMED software by all staff members who had completed the new NMED software training. The Program uses the NMED software to track all radioactive material incidents, including non-Agreement material events. However, the review team found that 10 Agreement material events and four non-Agreement material events reported to the NMED contractor during the review period were not in the database. Nine of the Agreement material events not entered were lost exit signs, and one was a lost gauge. Three non-Agreement material events were lost generally licensed radium sources and one was a stolen x-ray fluorescence device containing cobalt-57. All events are required to be entered into NMED by the contractor if provided by the State in accordance with Commission policy. In addition, it was noted that there were many errors in the information entered into the database by NRC's contractor (e.g., wrong event dates, wrong site of event, and missing information, etc.). The review team recommends that NRC's Office of Nuclear Material Safety and Safeguards review the contractor's procedure for inputting NMED data and review the database information for accuracy and completeness.

In evaluating the effectiveness of Nebraska's actions responding to allegations, the review team examined the Program's questionnaire responses relative to this indicator, and the Program's Procedure No. 4.01, "Management of Allegations." The casework for two allegations was reviewed, one was referred to the State by the NRC and one was reported directly to the State. The Program evaluates each allegation and determines the proper level of response. The review of the casework and the files indicated that the Program took prompt and appropriate action in response to the concerns raised. Each of the allegations reviewed were appropriately closed, and the alleger was informed of the results. There were no performance issues identified from the review of the casework documentation.

The review team noted that Nebraska's Public Records Law requires that all public documents be made available for inspection and copying unless specifically exempted from disclosure. The State makes every effort to protect an alleger's identity, but it cannot be guaranteed. The State has a "Nondisclosure Statement" that is provided to the alleger when possible, otherwise

the alleger is informed by phone or letter of the degree to which his/her identity can and will be protected.

Based on the IMPEP evaluation criteria, the review team recommends that Nebraska's performance with respect to the indicator, Response to Incidents and Allegations, be found satisfactory.

4.0 NON-COMMON PERFORMANCE INDICATORS

IMPEP identifies four non-common performance indicators to be used in reviewing Agreement State Programs: (1) Legislation and Program Elements Required for Compatibility; (2) Sealed Source and Device Evaluation Program; (3) Low-Level Radioactive Waste Disposal Program; and (4) Uranium Recovery Program. Nebraska's Agreement does not authorize regulation of uranium recovery activities, so only the first three non-common performance indicators were applicable to this review.

4.1 Legislation and Program Elements Required for Compatibility

4.1.1 Legislation

In addition to their response to the questionnaire, the State provided the review team with the opportunity to review copies of legislation that affect the radiation control program. The currently effective statutory authority for the Department is contained in Nebraska Radiation Control Act 71-3501 to 71-3519. The Department of Health and Human Services, Regulation and Licensure, is the State's radiation control agency. The review team noted that two pieces of legislation affecting the radiation control program were passed during the review period, LB-93 and LB-1021.

4.1.2 Program Elements Required for Compatibility

The Nebraska Regulations for Control of Radiation, Title 180, Nebraska Administrative Code, applies to all ionizing radiation. Nebraska requires a license for possession and use of all radioactive material including naturally occurring materials, such as radium, and accelerator-produced radionuclides. Nebraska also requires registration of all equipment designed to produce x-rays or other ionizing radiation. A copy of the effective Nebraska regulations, including the last amendments which became effective as of July 22, 2001 was given to the review team.

The review team examined the State's administrative rulemaking process and found that the process takes approximately 12 months from the development stage to the final filing with the Secretary of State, after which the rules become effective in five days. The process includes the development stage, public hearing stage, approval stage, and the filing stage. All rules and regulations for adoption must be adopted in accordance with the Administrative Procedures Act, Section 84-901- 84-920 et seq. of the Nebraska Revised Statutes, signed by the Governor, then filed with the Secretary of State. The public, the NRC, other agencies, and all potentially impacted licensees and registrants are offered an opportunity to comment during the process. Comments are considered and incorporated as appropriate before the regulations are finalized. The State cannot adopt other agency regulations by reference; however, the State can adopt other requirements such as Title 10 of the Code of Federal Regulations by attaching the

specific regulation, with the effective date to the State's proposed regulations during the adoption process. The State has the authority to issue legally binding requirements (e.g., license conditions) in lieu of regulations until compatible regulations become effective.

The review team evaluated the Program's responses to the questionnaire, reviewed the status of regulations required to be adopted by the State under the Commission's adequacy and compatibility policy and verified the adoption of regulations with data obtained from the Office of State and Tribal Program's (STP) State Regulation Status Data Sheet. Since the previous IMPEP review, the Department adopted eight amendments in one rule package that became effective in May 2000. The review team found one amendment, "Deliberate Misconduct by Unlicensed Persons, (63 FR 1890; 63 FR 13773)," was not adopted within the three-year time frame established in STP's Management Directive 5.8. The adoption of this NRC amendment required changes to the State's statute and legislative approval. Legislative approval was delayed a year. The State has drafted regulations to meet the amendment requirements and the rule is currently under review by the State's legal counsel. The State plans to send a draft copy of the rules to STP for review during the public comment period. The review team reviewed the draft rule and it appears to meet the adequacy and compatibility requirements as established in STP Procedure SA-200.

During the review, the team noted that the Program had not submitted five of their adopted final regulations to NRC for review. The review team reviewed the final rules and they appear to meet the adequacy and compatibility requirements as established in STP Procedure SA-201. Program management agreed to submit these amendments for a review in a timely manner. In their response to the draft report, the Program noted that the five adopted final regulations had been sent to the NRC for review.

The Program will need to address the following six regulations in upcoming rulemakings or by adopting alternate legally binding requirements:

- "Respiratory Protection and Controls to Restrict Internal Exposures," 10 CFR Part 20 amendment (64 FR 54543; 64 FR 55524) that became effective February 2, 2000.

- "Energy Compensation Sources for Well Logging and Other Regulatory Clarifications," 10 CFR Part 39 amendment (65 FR 20337) that became effective May 17, 2000.

- "New Dosimetry Technology," 10 CFR Parts 34, 36, and 39 amendments (65 FR 63749) that became effective January 8, 2001.

- "Requirements for Certain Generally Licensed Industrial Devices Containing Byproduct Material," 10 CFR Parts 30, 31, and 32 amendments (65 FR 79162) that became effective February 16, 2001.
- "Revision of the Skin Dose Limit," 10 CFR Part 20 amendment (67 FR 16298) that became effective April 5, 2002.

- "Medical Use of Byproduct Material," 10 CFR 20, 32, and 35 amendments (67 FR 20249) that became effective October 24, 2002.

Based on IMPEP evaluation criteria, the review team recommends that Nebraska's performance with respect to the indicator, Legislation and Program Elements Required for Compatibility, be found satisfactory.

4.2 Sealed Source and Device (SS&D) Evaluation Program

During the review period, no SS&D certificates were issued by the Program and there are currently no manufacturers of sealed sources or devices in the State. The review team did not evaluate this indicator further.

4.3 Low-Level Radioactive Waste (LLRW) Disposal Program

At the time of the last IMPEP review, Nebraska was the designated host State in the Central Interstate Low-Level Radioactive Waste Compact (the Compact) for the LLRW disposal facility. In December 1998, the State formally denied the application for the disposal facility based on the hydrological condition of the site and the weak financial condition of the site operator (U.S. Ecology). In January 1999, the Nebraska legislature passed and the Governor signed legislation withdrawing Nebraska from the Compact. One of the conditions for withdrawal from the Compact is to provide other member States five-year notice. Subsequently, a total of six lawsuits are currently pending regarding Nebraska's denial of the application and withdrawal from the Compact. The first of the lawsuits went to trial in June 2002 with the other members of the Compact suing the State of Nebraska. On September 30, 2002, the judge awarded the plaintiffs 151 million dollars. The State is appealing the judge's decision.

After the State's withdrawal from the Compact, technical staff in the Department and the Department of Environmental Quality LLRW programs were reassigned to other positions. The only action taken by the State during the review period was the formal denial of the application. The preliminary denial of the application and the technical basis for the denial was reviewed during the last IMPEP in September 1998. The State identified that there was no change in conclusions between the draft and final package. Consequently, the review team did not review this indicator.

5.0 SUMMARY

As noted in Sections 3 and 4 above, Nebraska's performance was found to be satisfactory for all six performance indicators. Accordingly, the review team recommended and the MRB concurred in finding the Nebraska Agreement State program adequate to protect public health and safety and compatible with NRC's program. Based on the results of the current IMPEP review, the review team recommended and the MRB concurred that the next full review should be in approximately four years.

RECOMMENDATION:

1. The review team recommends that NRC's Office of Nuclear Material Safety and Safeguards review the contractor's procedure for inputting NMED data and review the database information for accuracy and completeness. (Section 3.5)

LIST OF APPENDICES AND ATTACHMENTS

Appendix A	IMPEP Review Team Members
Appendix B	Nebraska Organization Charts
Appendix C	Inspection Casework Reviews
Appendix D	License Casework Reviews
Appendix E	Incident Casework Reviews
Attachment	December 3, 2002 Letter from Robert Leopold Nebraska's Response to Draft IMPEP Report

APPENDIX A

IMPEP REVIEW TEAM MEMBERS

Name	**Area of Responsibility**
Duncan White, Region I	Team Leader Technical Quality of Licensing Actions
Robert Gallaghar, Massachusetts	Technical Quality of Inspections
Linda McLean, Region IV	Technical Staffing and Training Response to Incidents and Allegations Inspection Accompaniments
John Zabko, STP	Status of Materials Inspection Program Legislation and Program Elements Required for Compatibility

APPENDIX B

NEBRASKA DEPARTMENT OF HEALTH AND HUMAN SERVICES

ORGANIZATION CHARTS

ML022950306

APPENDIX C

INSPECTION CASEWORK REVIEWS

NOTE: CASEWORK LISTED WITHOUT COMMENT ARE INCLUDED FOR COMPLETENESS ONLY; NO SIGNIFICANT COMMENTS WERE IDENTIFIED BY THE IMPEP TEAM.

File No.: 1
Licensee: Millard Refrigerator Services License No.: 01-95-01
Location: Omaha, NE Inspection Type: Routine, Unannounced
License Type: Industrial Radiography Priority: 1
Inspection Date: 6/26/02 Inspector: BM

Comment:
a) Inspection field notes did not contain documentation for one of the items of non-compliance cited in the letter to the licensee.

File No.: 2
Licensee: Bryan LGH Medical Center License No.: 02-06-03
Location: Lincoln, NE Inspection Type: Routine, Unannounced
License Type: Nuclear Medicine and HDR Priority: 1
Inspection Date: 6/27/02 Inspector: BM

File No.: 3
Licensee: Geotechnical Services License No.: 01-38-01
Location: Omaha, NE Inspection Type: Reinspection, Unannounced
License Type: Portable Gauge Priority: 5
Inspection Date: 6/2/99 Inspector: JD

Comment:
a) Previous inspection, June 1997, identified 12 items of non-compliance and recommended the next inspection be performed in February 1998. The next inspection was not performed until June 1999.

File No.: 4
Licensee: Nebraska Health System License No.: 01-52-01
Location: Omaha, NE Inspection Type: Routine, Announced
License Type: Mobile Nuclear Medicine Priority: 2
Inspection Date: 7/31/00 Inspector: JD

File No.: 5
Licensee: University of Nebraska License No.: 02-01-03
Location: Lincoln, NE Inspection Type: Routine, Unannounced
License Type: Medical Broad Scope Priority: 2
Inspection Date: 11/9-10 and 12-13/98 Inspectors: HS, JD, BF

File No.: 6
Licensee: Nebraska Wesleyan University License No.: 02-09-01
Location: Lincoln, NE Inspection Type: Routine, Announced
License Type: Research and Development Priority: 5
Inspection Date: 5/28/02 Inspector: JD

File No.: 7
Licensee: Becton-Dickenson Vacutainer Systems License No.: 04-01-01

Location: Broken Bow, NE Inspection Type: Routine, Unannounced
License Type: Panoramic Irradiator Priority: 1
Inspection Date: 6/27-28/01 Inspectors: HS, BM

File No.: 8
Licensee: Filter Specialists, Inc. License No.: 08-11-01
Location: Grand Island, NE Inspection Type: Routine, Unannounced
License Type: Industrial Radiography Priority: 1
Inspection Date: 9/10/01 Inspector: BM

File No.: 9
Licensee: The Fleming Heart & Health Institute License No.: 01-91-01
Location: Omaha, NE Inspection Type: Announced, Initial
License Type: Nuclear Medicine Priority: 3
Inspection Date: 9/28/99 Inspector: BM

File No.: 10
Licensee: University of Nebraska Medical Center License No.: 01-50-01
Location: Omaha, NE Inspection Type: Routine, Unannounced
License Type: Academic Broad Scope Priority: 2
Inspection Date: 12/12/01 Inspectors: HS, JF

Comment:
a) Letter transmitting inspection results identify individuals by name.

File No.: 11
Licensee: American Red Cross License No.: 01-81-01
Location: Omaha, NE Inspection Type: Routine, Unannounced
License Type: Self-shielded Irradiator Priority: 5
Inspection Date: 5/23/01 Inspector: HS

File No.: 12
Licensee: City of Grand Island License No.: 08-04-01
Location: Grand Island, NE Inspection Type: Routine, Unannounced
License Type: Fixed Gauge Priority: 5
Inspection Date: 11/24/98 Inspectors: TH, JD

File No.: 13
Licensee: City of Omaha - Papillion Creek WWTP License No.: 01-40-02
Location: Bellevue, NE Inspection Type: Routine, Unannounced
License Type: Fixed Gauge Priority: 5
Inspection Date: 4/26/00 Inspector: JF

File No.: 14
Licensee: Nebraska Health Systems License No.: 01-88-02
Location: Omaha, NE Inspection Type: Initial, Announced
License Type: Self-Shielded Irradiator Priority: 5
Inspection Date: 11/17/99 Inspector: BM

File No.: 15
Licensee: Professional Service Industries, Inc. License No.: 01-08-03
Location: Omaha, NE Inspection Type: Routine, Unannounced
License Type: Industrial Radiography Priority: 1
Inspection Date: 4/9/02 Inspector: BM

Comment:
a) Inspection did not include a temporary job site. Last inspection of a temporary job site performed 10/99.

File No.: 16
Licensee: Presbyterian-St. Lukes Medical Center License No.: REC0160
Location: Denver, CO Inspection Type: Unannounced, Reciprocity
License Type: Mobile Nuclear Medicine Priority: 2
Inspection Date: 6/18/01 Inspector: JF

File No.: 17
Licensee: Nucletron Corporation License No.: REC0182
Location: Columbia, MD Inspection Type: Announced, Reciprocity
License Type: Service - Source Installation Priority: 1
Inspection Date: 6/26/02 Inspector: BM

File No.: 18
Licensee: Conam Inspection License No.: REC0202
Location: Glendale, IL Inspection Type: Unannounced, Reciprocity
License Type: Industrial Radiography Priority: 3
Inspection Date: 5/6/99 Inspector: BM

File No.: 19
Licensee: Midwest Inspection Services License No.: REC0134
Location: Elk City, OK Inspection Type: Unannounced, Reciprocity
License Type: Industrial Radiography Priority: 1
Inspection Date: 8/23/01 Inspector: HS

File No.: 20
Licensee: Log-Tech, Inc. License No.: REC0165
Location: Hays, KS Inspection Type: Unannounced, Reciprocity
License Type: Well Logging Priority: 3
Inspection Date: 1/12/01 Inspector: BM

In addition, the following inspection accompaniments were made as part of the onsite IMPEP review:

Accompaniment No.: 1
Licensee: Millard Refrigerator Services License No.: 01-95-01
Location: Omaha, NE Inspection Type: Routine, Unannounced
License Type: Portable Gauge Priority: 5
Inspection Date: 6/26/02 Inspector: BM

Accompaniment No.: 2
Licensee: Bryan LGH Medical Center License No.: 02-06-03
Location: Lincoln, NE Inspection Type: Routine, Unannounced
License Type: Nuclear Medicine and HDR Priority: 1
Inspection Date: 6/27/02 Inspector: BM

APPENDIX D

LICENSE CASEWORK REVIEWS

NOTE: CASEWORK LISTED WITHOUT COMMENT ARE INCLUDED FOR COMPLETENESS ONLY; NO SIGNIFICANT COMMENTS WERE IDENTIFIED BY THE IMPEP TEAM.

File No.: 1
Licensee: Bryan LGH Medical Center — License No.: 02-06-02
Location: Lincoln, NE — Amendment No.: 20
License Type: Teletherapy — Type of Action: Termination
Date Issued: 8/7/02 — License Reviewer: BM

File No.: 2
Licensee: Central Pharmacy Services, Inc. — License No.: 01-87-01
Location: West Monroe, NE — Amendment No.: 13
License Type: Nuclear Pharmacy — Type of Action: Amendment
Date Issued: 9/7/01 — License Reviewer: BM

File No.: 3
Licensee: MDS Pharm Services (US) Inc. — License No.: 02-01-03
Location: Lincoln, NE — Amendment No.: 50
License Type: Human Use Research — Type of Action: Amendment
Date Issued: 3/30/99 — License Reviewer: BF

File No.: 4
Licensee: Pfizer, Inc. — License No.: 02-19-01
Location: Lincoln, NE — Amendment No.: 25
License Type: Research and Development — Type of Action: Termination
Date Issued: 11/21/00 — License Reviewer: HS

Comment:
a) Closeout survey did not include storage cabinet or refrigerator located in the room where licensed material was used.

File No.: 5
Licensee: Dale Electronics — License No.: 10-02-01
Location: Columbus, NE — Amendment No.: 34
License Type: Manufacturer, Research and Development — Type of Action: Amendment
Date Issued: 2/11/00 — License Reviewer: BM

File No.: 6
Licensee: Southeast Community College — License No.: 16-01-01
Location: Milford, NE — Amendment No.: 11
License Type: Industrial Radiography — Type of Action: Renewal
Date Issued: 6/15/00 — License Reviewer: HS

File No.: 7
Licensee: Phelps Memorial Health Center License No.: 37-04-01
Location: Holdrege, NE Amendment No.: NA
License Type: Medical Institution, no QMP required Type of Action: New
Date Issued: 7/16/01 License Reviewer: BM

File No.: 8
Licensee: The Kendall Company License No.: 07-02-01
Location: Norfork, NE Amendment No.: 36
License Type: Panoramic Irradiator Type of Action: Renewal
Date Issued: 7/1/99 License Reviewer: JF

Comment:
a) Renewal issued 17 months after receipt of application.

File No.: 9
Licensee: Bryan LGH Medical Center License No.: 02-06-04
Location: Lincoln, NE Amendment No.: NA
License Type: Gamma Knife Type of Action: New
Date Issued: 8/31/99 License Reviewer: JF, BF

File No.: 10
Licensee: Nebraska Health Systems License No.: 01-88-01
Location: Omaha, NE Amendment No.: 13
License Type: Medical Institution - QMP required, Brachytherapy Type of Action: Amendment
Date Issued: 2/14/02 License Reviewer: BM

File No.: 11
Licensee: University of Nebraska Medical Center License No.: 01-50-01
Location: Omaha, NE Amendment No.: 44
License Type: Academic Broad Scope and Irradiator Other Type of Action: Renewal
Date Issued: 8/4/99 License Reviewer: CR

Comment:
a) Amount of financial assurance listed in Condition 28 of license is $150,000. Based on the possession limits listed on license, the amount of financial assurance should be $750,000.

File No.: 12
Licensee: Good Samaritan Hospital License No.: 09-02-01
Location: Kearney, NE Amendment No.: 62
License Type: Medical Institution - QMP required, Brachytherapy Type of Action: Amendment
Date Issued: 8/21/02 License Reviewer: JD

File No.: 13
Licensee: Insight Health Services Corporation
Location: New Port Beach, CA
License Type: Mobile Scanning
Date Issued: 8/22/02
License No.: 99-58-01
Amendment No.: NA
Type of Action: New
License Reviewer: HS

File No.: 14
Licensee: City of Hastings
Location: Hastings, NE
License Type: Portable Gauge
Date Issued: 6/29/00
License No.: 14-06-01
Amendment No.: 4
Type of Action: Renewal
License Reviewer: BM

File No.: 15
Licensee: Nebraska Methodist Hospital
Location: Omaha, NE
License Type: Self-Shielded Irradiator
Date Issued: 11/6/00
License No.: 01-07-07
Amendment No.: 9
Type of Action: Renewal
License Reviewer: BM

APPENDIX E

INCIDENT CASEWORK REVIEWS

NOTE: CASEWORK LISTED WITHOUT COMMENT IS INCLUDED FOR COMPLETENESS ONLY; NO SIGNIFICANT COMMENTS WERE IDENTIFIED BY THE IMPEP TEAM.

File No.: 1
Licensee: GP Express
License No.: General License GL0447
Site of Incident: Grand Prairie, NE
Incident Log No.: 000014001 (NMED # 000649)
Date of Incident: 3/22/99
Type of Incident: Lost radioactive materials
Investigation Date: 3/22/99
Type of Investigation: Phone

Summary of Incident and Final Disposition: GP Express purchased a comparator, model CPI-25, serial #3419, from Self Powered Lighting containing a 74 GBq (2 Ci) tritium source. A comparator is a portable device that is used to perform comparisons of light output. GP Express filed for Chapter 11 bankruptcy in January 1996, but continued operating until August 1996. They filed for Chapter 7 bankruptcy on 9/19/96. The State contacted the U.S. Bankruptcy Court in March 2000, and learned that equipment was sold in Grand Island, Nebraska, as well as in Florida and North Carolina. The court had no way of knowing where or if the comparator was sold. GP Express also transferred equipment to other locations in the country from January 1996 until August 1996. As of March 2000, the device had not been returned to the manufacturer. GI Avionics, who now occupies the hanger where the GP Express was located, stated that there was no equipment in the hanger when they moved in.

File No.: 2
Licensee: University of Nebraska
License No.: NE-02-01-03
Site of Incident: Lincoln, NE
Incident Log No.: 990001001(NMED #990324)
Date of Incident: 4/21/99
Type of Incident: Lost radioactive materials
Investigation Date: 4/26/99 & 5/5/99
Type of Investigation: Reactive Inspection

Summary of Incident and Final Disposition: The licensee reported the loss of a shipment of 18.5 MBq (500 uCi) of P-32 as a result of an internal delivery problem. Federal Express delivered the radioactive material, consisting of one box holding two shielded vials containing 9.3 MBq (250 uCi) of P-32 each, as scheduled to the Radiation Safety Officer (RSO). The RSO office logged the delivery, performed a wipe test for contamination, and contacted the licensee's courier service for delivery. However, the authorized user did not receive the material. The RSO's office searched the corridor looking in each laboratory, cooler, and freezer, but the shipment was not found. To prevent recurrence, the licensee changed their procedures to include the use of a dual signature chain of custody document during licensed material transfer.

File No.: 3
Licensee: Monroe School
License No.: General License GL0574
Site of Incident: Columbus, NE
Incident Log No.: 000017001(NMED #010080)
Date of Incident: 11/11/99
Type of Incident: Lost radioactive materials
Investigation Date: 12/20/00
Type of Investigation: Phone

Summary of Incident and Final Disposition: The Nebraska Department of Health reported that a Safety Light radioluminescent exit sign, model 2040-01R-20BA, containing tritium with a maximum activity of 3.7 GBq (100 mCi) could not be located. The sign was installed in Monroe School, general license GL0574, by Marley Electric in October 1999. After a Fire Marshal inspection, it was decided to replace the sign with a new electric sign. Pat Sackett Electric replaced the sign on 11/11/99. Pat Sackett Electric stated that they left the sign in Monroe School and the Monroe School stated that the sign was taken from the facility by Pat Sackett Electric.

File No.: 4
Licensee: Bryan LGH West
License No.: NE-02-06-04
Site of Incident: Lincoln, NE
Incident Log No.: 000015001(NMED #000650)
Date of Incident: 11/15/99
Type of Incident: Equipment Problems
Investigation Date: 11/15/99
Type of Investigation: Reactive Inspection

Summary of Incident and Final Disposition: The licensee reported an equipment problem involving an Elekta Radiosurgery Gamma Knife, model 23004 type B-2, serial #43047, containing 244.2 TBq (6600 Ci) of Co-60. A helmet hoist used to place a collimator helmet into position on the treatment table of the gamma knife did not engage with a switch to allow operator control of table movement. A nut holding the switch was loose. The physicist manually engaged the switch with his finger to allow a helmet to be loaded onto the table. When the physicist removed his finger from the switch, the table moved away from the unit. The cables attached to the collimator helmet snapped an electrical cable. The manufacturer was contacted to isolate the problem and repair the switch. No unnecessary exposures were reported as a result of this incident.

File No.: 5
Licensee: Geotechnical Services, Inc. License No.: NE-01-38-01
Site of Incident: Omaha, NE Incident Log No.: 000019001(NMED #010078)
Date of Incident: 09/27/00 Type of Incident: Lost radioactive materials
Investigation Date: 9/27/00 Type of Investigation: Reactive Inspection

Summary of Incident and Final Disposition: The licensee reported the loss and recovery of a Troxler moisture/density gauge, model 3430, serial #29483, that had fallen from the back of one of their pickup trucks. The gauge contained a 1.48 GBq (40 mCi) Am-Be source and a 0.3 GBq (8 mCi) Cs-137 source. The licensee stated that the gauge had fallen out of the truck between the corner of 72nd Street and Military Avenue, and Exit 442 of Interstate 80 in Omaha, Nebraska. The hasps for the case had not been fully secured before leaving the job-site. It was determined that the gauge case could only be fully secured by use of a padlock, because one of the hasps was damaged. A licensee employee stated that he had not used the padlock and that he discovered the gauge was missing when he checked the cargo after he noticed the truck tailgate was down. The licensee dispatched teams to retrace the route taken in an attempt to locate the gauge. Two State employees were also deployed to assist in the search. Shortly after the gauge fell out of the truck onto the road, a member of the public recovered the gauge approximately six blocks from the job-site. The citizen took the gauge home and tried to use the gauge, but was unaware of proper operational techniques so he never actually extended the source rod. The citizen put a lost and found advertisement in the newspaper and called 911 on 9/28/00. The citizen's property was surveyed and no radiation was found. The gauge was delivered to the licensee and a leak test was performed by a radiological consultant with negative results. The licensee conducted retraining for involved personnel.

File No.: 6
Licensee: Nucor Corp. License No.: NE-07-04-01
Site of Incident: Norfolk, NE Incident Log No.: 10001001(NMED #010438)
Date of Incident: 01/29/01 Type of Incident: Equipment Problems
Investigation Date: 01/29/01 Type of Investigation: Reactive Inspection

Summary of Incident and Final Disposition: The licensee, dba Nucor Steel, reported a damaged EG&G Berthold level gauge, model LB-300-ML, serial #3775, that contained an 111 MBq (3 mCi) Co-60 source, Berthold model P 2608-100. The damage to the gauge was caused by mechanical impact. While disassembling the mold system, it was discovered that the four hex bolts used to secure the flange and the gauge housing had failed. The gauge housing had separated from its mounting flange. The gauge housing was approximately six inches down from its normal position. Therefore, six inches of the internal source cylinder was exposed. Surveys were performed by the licensee's RSO. The lead cylinder of the device, along with the carbon steel walls of the caster, provided enough attenuation to keep exposure rates below 2 mR/hour. The perimeter area was posted with barricade tape and signs, along with monitored personnel to prohibit unauthorized access to the area. A representative for the mold manufacturer arrived to investigate the damaged gauge. The rod source was removed and placed in a designated storage vault onsite. The empty gauge was packaged and shipped to the manufacturer's Oak Ridge facility for further evaluation. The manufacturer representative physically and operationally inspected the remaining four gauges. The representative deemed that the gauges met the manufacturer's operational specifications and reported that they were ready to be placed back into service. As a precautionary measure at the request of the licensee and the Program, all the bolts on all four gauges were replaced.

File No.: 7

Licensee: Syncor International License No.: NE-02-37-01
Site of Incident: Ainsworth, NE Incident Log No.: 10002001(NMED #010120)
Date of Incident: 02/07/01 Type of Incident: Transportation
Investigation Date: 02/07/01 Type of Investigation: Reactive Inspection

Summary of Incident and Final Disposition: The Program reported that a Silverhawk Aviation Aircraft, carrying three ammo boxes of Syncor radiopharmaceuticals to Cherry County Hospital, crashed approximately one mile from the Ainsworth, Nebraska, airport. The three boxes contained 18 unit doses with a total of 23.4 GBq (632 mCi) of Tc-99m. State Highway Patrol verified that two of the three boxes were unopened and that the third box was breached. One unopened box read 10 uSv/hour (1 mrem/hour) on contact, the other unopened box read 1 mSv/hour (100 mrem/hour) at one meter and 3 mSv/hour (300 mrem/hour) on contact, and the third box was broken open in the plane and no unit doses were left in the box. Contamination was found on scene. A Bryan Enterprises Mobile Nuclear Medicine van was available to survey the area. The site was secured for three days to allow the decay of the Tc-99m. All but two syringes were found and collected, along with some contaminated soil. These items were barreled up, labeled, and taken to the licensee's facility in Lincoln, Nebraska.

File No.: 8
Licensee: Nebraska Public Power District License No.: NE-10-03-03
Site of Incident: Sutherland, NE Incident Log No.: 990001001(NMED #010414)
Date of Incident: 05/01/01 Type of Incident: Radiation Overexposure
Investigation Date: 05/01/01 Type of Investigation: Reactive Inspection

Summary of Incident and Final Disposition: The licensee reported an event involving four maintenance workers being exposed to a radioactive source. The event took place at a coal plant where a Texas Nuclear fixed level/density gauge, model 5197, serial #B5417, was installed on a coal chute. The gauge contained a 5.5 GBq (148 mCi) Cs-137 source. As a result of not following established maintenance procedures, the workers entered the coal chute with the source exposed. A radiation field of approximately 450 mR/hour existed. The original whole body exposure estimate, based on a five-hour stay time, was 2.25 cSv (rem) to the highest exposed individual. The other three workers received calculated whole body exposures of 1.36 cSv (rem), 0.61 cSv (rem) and 0.45 cSv (rem). The individuals were approximately one foot away from the beam port. The licensee contracted a certified health physicist to do another dose study. That study determined that the original dose estimates had not included the 1/4 inch steel shield and had not adequately characterized the geometry of the source. The health physicist calculated the actual exposures to be 2.85, 1.82, 0.87 and 0.57 mSv (285, 182, 87 and 57 mrem). The licensee originally stated that all four of the workers were radiation workers. However, it was determined that three of the workers were not radiation workers, one of whom received a dose of 2.85 mSv (285 mrem). The other two non-radiation workers received doses below the regulatory limit. The three non-radiation workers were working under contract to the licensee. The licensee determined that an inadequate lockout/tagout procedure was the root cause along with personnel turnover causing degradation in the corporate body of knowledge. An inspection was performed by the Program, which verified the licensee's evaluation. Additional contributing factors included: (1) no current radiation protection program audit, (2) no postings indicating high radiation areas combined with lack of locks on the access hatchways, and (3) inadequate training. The power plant has added locks and signs, upgraded their training, and performed an audit.

File No.: 9
Licensee: Geotechnical Services, Inc. License No.: NE-01-38-01

Site of Incident: Colombus, NE Incident Log No.: 010003002 (NMED #011130)
Date of Incident: 05/14/01 Type of Incident: Damaged Equipment
Investigation Date: 05/14/01 Type of Investigation: Reactive Inspection

Summary of Incident and Final Disposition: The licensee reported that a CPN moisture/density gauge, model MC-1-DR, serial #MD90505076, was damaged when run over by a pickup truck. The gauge contained a 1.85 GBq (50 mCi) Am-Be source and a 0.37 GBq (10 mCi) Cs-137 source. The gauge was in use with the technician 15 to 25 feet away when the pickup backed over the gauge. The technician was unsuccessful in warning the driver of the truck. The impact bent the probe that was extended into the ground, such that the source rod could not be returned to the shielded position. Following direction from the gauge manufacturer, the source rod was straightened enough to return the source to its shielded position. The gauge was returned to the licensee's storage facility where a survey was performed. The survey indicated normal levels of radiation from the gauge at one meter. No external damage to the gauge was observed. The gauge was returned to the manufacturer for repair.

File No.: 10
Licensee: Thompson, Dreesen, & Dorner, Inc. License No.: NE-01-70-01
Site of Incident: Sarpy County, NE Incident Log No.: 010004 (NMED # 010872)
Date of Incident: 09/27/01 Type of Incident: Damaged Equipment
Investigation Date: 09/27/01 Type of Investigation: Reactive Inspection

Summary of Incident and Final Disposition: A Humboldt moisture/density gauge, model 5001, serial #845, was run over by a construction grader at the Sarpy County landfill near Springfield, Nebraska. The gauge contained a 1.48 GBq (40 mCi) Am-Be source and a 0.37 GBQ (10 mCi) Cs-137 source. The gauge was broken; flattened to approximately two inches thick with fragments strewn out over a four foot area. At the time of the event, the sources were secured in their stored position and no contamination occurred. The licensee's consultant, in coordination with a State inspector, tested the area for contamination and oversaw the packing of the device fragments for return to the manufacturer. No exposure to the public occurred. The cause of the event was failure to maintain constant surveillance of the gauge. Corrective actions taken by the licensee included providing personnel with additional training.

File No.: 11
Licensee: Syncor International License No.: NE-01-65-01
Site of Incident: Omaha, NE Incident Log No.: 020001 (NMED #020675)
Date of Incident: 07/05/02 Type of Incident: Stolen radioactive materials
Investigation Date: 07/05/02 Type of Investigation: Phone

Summary of Incident and Final Disposition: An Express Messenger courier vehicle, carrying a package containing 4.14 GBQ (112 mCi) of Tc-99m, was stolen in Omaha, Nebraska. The package consisted of a lead-shielded vial inside a DOT 7A ammunition can style delivery case. The driver left the vehicle unattended with the motor running to perform a personnel errand while on a delivery to the Faith Regional Health Center in Norfolk, Nebraska. The local police and the Department were notified. The driver was terminated and the Express Messenger initiated a comprehensive retraining program for all employees and subcontractors.

File No.: 12
Licensee: Geotechnical Services, Inc.
License No.: NE-01-38-01
Site of Incident: Omaha, NE
Incident Log No.: 010003002 (NMED #020704)
Date of Incident: 07/23/02
Type of Incident: Lost radioactive materials
Investigation Date: 07/23/02
Type of Investigation: Reactive Inspection

Summary of Incident and Final Disposition: Thiel Geotech notified the Department that one of their clients had recovered a CPN moisture/density gauge, model CPN-131, serial #MD00105439, in a padlocked transport container at a construction site in Omaha, Nebraska. The gauge contained an Am-Be source with a maximum activity of 1.85 GBQ (50 mCi) and a Cs-137 source with a maximum activity of 0.37 GBQ (10 mCi). The package was opened and no observable damage was noted and the radiation survey results were normal. The owner of the gauge was identified via an ownership label and the serial number. Approximately an hour and a half after Thiel Geotech notified the State, the licensee reported the loss of the gauge. The licensee also notified local law enforcement. The gauge was returned to the licensee on 7/24/02. A State investigation determined that the gauge had not been properly secured in the vehicle, and the employee that lost the gauge had not been properly trained and was not an authorized user.

ATTACHMENT

December 3, 2002 Letter from Robert Leopold
Nebraska's Response to Draft IMPEP Report

ML023400525