assigned to John

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Date: 9/4/02 1:54PM
Subject: Proposed Text for Nevada License Amendents re: pendingregulations

Attached is text for
a. reciprocity license conditions which we have used for four years since review and approval by Lloyd Bolling.

b. medical license conditions. We intend to use this text as it is the same as the proposed regulation text; to simplify explanation to licensees, etc.

Other text for license conditions associated with the pending regulation adoption will be submitted for review in the near future.

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Reciprocity text which has been in use for approximately four years. This text has been reviewed and approved by Lloyd Bolling approximately fours ago.

10.A. Gauges containing radioactive material shall be stored and used at the licensee's facility described in Item 2 above and used at temporary job sites of the licensee anywhere in Nevada where the Nevada State Health Division maintains jurisdiction for regulating the use of radioactive material.

B. Before radioactive materials can be used at a temporary jobsite at any federal facility, the jurisdictional status of the jobsite must be determined. The federal agency should be contacted to determine if the jobsite is under exclusive federal jurisdiction. A dated, written response must be submitted which includes the name, title of the person and telephone number at the federal agency that provided the determination.

Authorization for the use of radioactive materials at jobsites under exclusive federal jurisdiction shall be obtained either by:

1. filing a Nuclear Regulatory Commission (NRC) Form-241 to the NRC in accordance with 10 CFR 150.20(b), "Recognition of Agreement State Licensees"; or

2. by applying for a NRC specific license.

C. Before radioactive material can be used at a temporary jobsite in another state, authorization shall be obtained from the state if it is an agreement state, or from the NRC or any non-agreement state by filing for reciprocity or applying for a specific license from the appropriate agency.

ram\reciprocity text

Proposed Medical License Conditions

NAC 459.256 Specific licenses: Release of natural person given radiopharmaceutical or radioactive implants; conduct of radiation surveys; calculation of total effective dose equivalent; provision of information to limit exposure of other persons to radiation emitted from natural person; records.

1.The licensee may authorize the release from its control of any individual who has been administered radiopharmaceuticals or permanent implants containing radioactive material if the total effective dose equivalent to any other individual from exposure to the released individual is not likely to exceed 0.5 rem (5 millisieverts).

NOTE: The Nuclear Regulatory Commission Regulatory Guide 8.39, "Release of Patients Administered Radioactive Materials," describes methods for calculating doses to other individuals and contains tables of activities not likely to cause doses exceeding 0.5 rem (5 millisieverts).

2. The licensee shall provide the released individual with instructions, including written instructions, on actions recommended to maintain doses to other individuals as low as is reasonably achievable if the total effective dose equivalent to any other individual is likely to exceed 0.1 rem (1 millisieverts). If the dose to a breast-feeding infant or child could exceed 0.1 rem (1 millisieverts), assuming there were no interruption of breast-feeding, the instructions shall also include.

(a) guidance on the interruption or discontinuation of breast-feeding, and

(b) information on the consequences of failure to follow the guidance.

3. The licensee shall maintain a record of the basis for authorizing the release of an individual, for three years after the date of release, if the total effective dose equivalent is calculated by:

(a) using the retained activity rather than the activity administered,

(b) using an occupancy factor less than 0.25 at 1 meter,

(c) using the biological or effective half-life, or

(d) considering the shielding by tissue.

4. The licensee shall maintain a record, for three years after the date of release, that instructions were provided to a breast-feeding woman if the radiation dose to the infant or child from continued breast-feeding could result in a total effective dose equivalent exceeding 0.5 rem (5 millisieverts).

5. Immediately after removing the last temporary implant source from a natural person, the licensee shall make a radiation survey of the natural person with a radiation detection survey instrument to confirm that all sources have been removed.

6. A licensee shall not release from confinement for medical care a natural person treated by temporary implant until all sources have been removed.

7. A licensee shall retain a record of the survey of natural persons for at least 3 years. Each record must include:

(a) The date of the survey;

(b) The name of the natural person;

(c) The dose rate from the natural person expressed as millirem per hour and measured at 1 meter from the natural person;

(d) The identity of the survey instrument used; and
(e) The initials of the person who made the survey.
8. Using the survey data required pursuant to subsection 5, the licensee shall calculate the total effective dose equivalent that a person who resides in the same house as the natural person is likely to receive from the natural person. If the licensee calculates that the total effective dose equivalent to any person from exposure to the released natural person could exceed 100 millirems in 1 year unless certain precautions are taken, the licensee shall provide verbal and written instructions to the natural person, which, if carefully followed by the natural person, should limit the exposure of other persons to the radiation emitted from the natural person to less than 100 millirems per year. If the natural person appears to have difficulty in understanding the instructions, the licensee shall contact a member of the family of the natural person, his guardian or other representative until a person is found who can communicate the meaning of the instructions to the natural person.
9. The licensee shall maintain for at least 3 years the records of a released natural person which must include a copy of the written instructions and the calculated total effective dose equivalent to the person likely to receive the highest dose.

NAC 459.307 Testing sealed sources for leakage.
1. Any licensee who possesses sealed sources shall have each sealed source containing radioactive material, other than hydrogen 3, with a half-life greater than 30 days in any form other than gas tested for leakage at intervals not to exceed 6 months, unless a longer interval is authorized by the division. In the absence of a certificate from a transferor indicating that a test has been made within 6 months prior to the transfer, the sealed sources should not be used until tested, but no leak tests are required when:
(a) The source contains 100 microcuries or less of beta or gamma emitting material or 10 microcuries or less of alpha emitting material; or
(b) The sealed source is stored and is not being used; the sources must be tested for leakage prior to any use or transfer unless they have been leak tested within 6 months prior to the date of use or transfer.
2. The leak test must be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. The test sample must be taken from the sealed source or from the surfaces of the device in which the sealed source is permanently mounted or stored on which contamination might be expected to accumulate. Records of leak test results must be kept in units of microcuries and maintained for 5 years for inspection by the division.
3. If the leak test reveals the presence of 0.005 microcurie or more of removable contamination (or 0.001 microcuries of radon-222 per 24 hours for brachytherapy sources manufactured to contain radium), the licensee shall immediately inform the radiological health section of the division by telephone, withdraw the sealed source, or the device in which it is permanently mounted, from use and cause it to be placed in locked storage. A report must be filed with the division within 5 days of the test describing the equipment involved, the test results and the location of the source.

NAC 459.320 Purpose; applicability; reasonable effort required. (NRS 459.030)

1. NAC 459.320 to 459.374, inclusive, establish standards for protection against radiation hazards. It is the purpose of those sections to control the receipt, possession, use, disposal and transfer of licensed or registered sources of radiation by any licensee or registrant in such a manner that the total dose to a natural person, including exposures to licensed or unlicensed or registered or unregistered sources of radiation, whether in the possession of the licensee, registrant or any other person, but not including exposure to radiation from natural background sources, medical diagnosis and therapy, individuals administered radioactive material and released in accordance with NAC 459.256 or exposure from voluntary participation in medical research programs does not exceed the standards of radiation protection set forth in those sections. Those sections will not be construed as limiting actions that may be necessary to protect the health and safety of the public.
2. Except as otherwise specifically provided, NAC 459.320 to 459.374, inclusive, apply to all licensees or registrants. Those sections do not limit the intentional exposure of natural persons to radiation for the purpose of medical use or the intentional exposure of natural persons to radiation who are voluntarily participating in programs for medical research.
3. In addition to complying with the requirements set forth in NAC 459.320 to 459.374, inclusive, a licensee or registrant shall make every reasonable effort to maintain exposures and releases of radioactive materials in effluents to unrestricted areas, as low as is reasonably achievable.

NAC 459.335 Dose limits for individual members of public; application for authorization to increase limits; imposition of additional restrictions.
1. Except as otherwise provided in this section, each licensee and registrant shall conduct operations to ensure that:
(a) The total effective dose equivalent to any member of the public from its licensed or registered operation does not exceed 0.1 rem per year, not including the dose contribution from background radiation, from any medical administration the natural person has received, from exposure to individuals administered radioactive material and released in accordance with NAC 459.256, from voluntary participation in medical research programs, and from disposal by the licensee of radioactive material into sanitary sewerage in accordance with NAC 459.3605; and
(b) The dose in any unrestricted area from external sources, exclusive of the dose contributions from patients administered radioactive material and released in accordance with NAC 459.256, does not exceed 0.002 rem per hour.
2. A licensee, a registrant or an applicant for a license or registration may apply to the division for authorization to increase the limit set forth in paragraph (a) of subsection 1 to 0.5 rem per year. The application must include:
(a) A statement of the need for and the expected duration of operations in excess of the limit specified in paragraph (a) of subsection 1;
(b) A description of the proposed program of the licensee or registrant to assess and control the dose within the annual limit of 0.5 rem; and
(c) The procedures to be followed to maintain the dose as low as is reasonably achievable.

3. The division may impose additional restrictions on radiation levels in unrestricted areas and on the total quantity of radionuclides that may be released in effluents in order to restrict the collective dose.

NAC 459.3565 Precautionary procedures: Exceptions to requirements for posting signs.
1. A licensee or registrant is not required to post signs pursuant to NAC 459.3555 in an area or room containing sources of radiation for periods of less than 8 hours if:
(a) The sources of radiation are constantly attended during these periods by a person who takes the precautions necessary to prevent the exposure of persons to sources of radiation in excess of the limits established in NAC 459.325, 459.331, 459.333 and 459.335; and
(b) The area or room is subject to the control of the licensee or registrant.
2. Rooms or other areas in hospitals that are occupied by patients are not required to be posted with signs pursuant to NAC 459.3555 provided that the patient could be released from licensee control pursuant to NAC 456.256 if:
(a) The patient is being treated with sealed sources of radiation or has been treated with unsealed radioactive material in quantities of less than 30 millicuries, or the measured dose rate at 1 meter from the patient is less than 0.005 rem per hour; and
(b) There are personnel in attendance who will take the necessary precautions to prevent the exposure of persons to radiation or radioactive materials in excess of the limits specified in NAC 459.325, 459.331, 459.333 and 459.335, and to maintain the level of radiation at a level which is as low as is reasonably achievable.
3. A room or area is not required to be posted with signs pursuant to NAC 459.3555 because of the presence of a sealed source of radiation if the level of radiation at 30 centimeters from the surface of the container or housing for the sealed source does not exceed 0.005 rem per hour.
4. Rooms in hospitals or clinics that are used for teletherapy are exempt from the requirement to post caution signs under NAC 459.3555 if:
(a) Access to the room is controlled pursuant to NAC 459.3901; and
(b) Personnel in attendance take necessary precautions to prevent the inadvertent exposure of workers, other patients, and members of the public to radiation in excess of the limits established in these regulations.

NAC 459.3881 Implant therapy: Duties of licensee regarding patient or human research subject. A licensee shall, for each patient or human research subject receiving implant therapy and not released pursuant to NAC 459.256:
1. Ensure that the patient or human research is not placed in the same room with another patient or human research subject who is not receiving radiation therapy unless the licensee can demonstrate compliance with the requirements of NAC 459.335 if the dosage is measured 1 meter from the implant.
2. Post on the outside of the door to the room of the patient or human research subject a sign bearing the radiation symbol and the words "RADIOACTIVE MATERIALS," and post a note on the door or in the chart of the patient or human research subject describing where and how long visitors may stay in the room of the patient or human

research subject.
3. Authorize visits by persons under 18 years of age only on a case-by-case basis with the approval of the authorized user after he has consulted with the radiation safety officer.
4. Promptly after implanting the brachytherapy sources, survey the dose rate in contiguous restricted and unrestricted areas with a radiation survey instrument to demonstrate compliance with the limits of radiation specified for those areas. The licensee shall retain a record of each survey for at least 3 years.
Each record must include:
(a) The time and date of the survey;
(b) A plan drawing of each area surveyed;
(c) The measured dose rate at several points expressed in millirems per hour;
(d) The identity of the survey instruments used to make the survey; and
(e) The initials of the person who performed the survey.
5. If the patient or human research subject was given a permanent implant, provide the patient or human research subject with radiation safety guidance that will help maintain the radiation dose to household members and the public as low as reasonably achievable before releasing the patient or human research subject.
6. Notify the radiation safety officer immediately if the patient or human research subject dies or has a medical emergency.

NAC 459.3924 Teletherapy: Radiation surveys for verification of dose rates and dose quantities per unit of time; records.
1. Before medical use, after each installation of a teletherapy source, and after making any change for which an amendment of his license is required, a licensee shall perform radiation surveys with a portable radiation detection survey instrument to verify that:
(a) The maximum and average dose rates at a distance of 1 meter from the teletherapy source with the source in the "off" position and the collimators set for a normal treatment field do not exceed 10 millirems per hour and 2 millirems per hour, respectively; and
(b) With the teletherapy source in the "on" position with the largest clinically available treatment field and with a scattering phantom in the primary beam of radiation, the:
(1) Radiation dose rates in restricted areas are not likely to cause any occupationally exposed individual to receive a dose in excess of the limits specified in NAC 459.325; and
(2) Radiation dose rates in controlled or unrestricted areas are not likely to cause any individual member of the public to receive a dose in excess of the limits specified in NAC 459.335.
2. If the results of the surveys required by subsection 1 indicate any radiation dose quantity per unit of time in excess of the respective limit specified, the licensee shall lock the control in the "off" position and not use the unit:
(a) Except as may be necessary to repair, replace, or test the shielding of the unit or the shielding of the treatment room;
(b) Until the licensee can make effective engineering changes in the unit or treatment room or administrative changes in the size and usage of the restricted area which would

bring the radiation dose quantity per unit of time or maximum potential exposure into compliance with the limits specified in subsection 1; or
(c) Until the licensee has received a specific exemption pursuant to NAC 459.120.
3. A licensee shall retain a record of the radiation measurements made following installation of a source for the duration of the license. Each record must include:
(a) The date of the measurements;
(b) The reason the survey is required;
(c) The identity of the manufacturer, model number and serial number of the teletherapy unit, the source, and the instrument used to measure radiation levels;
(d) Each rate of dosage measured around the teletherapy source while in the "off" position and the average of all measurements:
(e) A plan drawing of the areas surrounding the treatment room that were surveyed;
(f) The measured rate of dosage at several points in each area expressed in millirems per hour;
(g) The calculated maximum quantity of radiation over a period of 1 week for each restricted and unrestricted area; and
(h) The signature of the radiation safety officer.

NAC 459.3927 Teletherapy: Excessive radiation levels in unrestricted areas.
1. If the survey required by NAC 459.3924 indicates that any member of the public is likely to receive a dose in excess of that permitted by NAC 459.335, the licensee shall, before beginning a program of treatment:
(a) Either equip the unit with stops or add additional radiation shielding to ensure compliance with NAC 459.335;
(b) Perform the survey required by NAC 459.3924 again; and
(c) Include in the reports mailed to the division pursuant to NAC 459.393 the results of the initial survey, a description of the modifications made to comply with NAC 459.335, and the results of the second survey.
2. As an alternative to the requirements of subsection 1, the licensee may request a license amendment under NAC 459.204 that authorizes radiation levels in unrestricted areas greater than those permitted by NAC 459.335. The licensee may not begin the program of treatment until all of the reports mailed to the division pursuant to NAC 459.393 have been accepted as satisfactory by the division, or the requested amendment to the license has been issued.

NAC 459.394 Qualifications of radiation safety officer. (NRS 459.030) Except as otherwise provided in NAC 459.3942, a licensee shall require the person fulfilling the responsibilities of the radiation safety officer as provided in NAC 459.3821:
1. To be certified by one of the following organizations:
(a) The American Board of Health Physics, in comprehensive health physics;
(b) The American Board of Radiology;
(c) The American Board of Nuclear Medicine;
(d) The American Board of Science, in nuclear medicine;

(e) The Board of Pharmaceutical Specialties, in nuclear pharmacy;
(f) The American Board of Medical Physics, in radiation oncology physics;
(g) The American Osteopathic Board of Radiology;
(h) The American Osteopathic Board of Nuclear Medicine; or
(i) The Royal College of Physicians and Surgeons of Canada, in nuclear medicine; or
2. To have classroom and laboratory training and experience as follows:
(a) At least 200 hours of classroom and laboratory training that included:
(1) Radiation physics and instrumentation;
(2) Radiation protection;
(3) Mathematics pertaining to the use and measurement of radioactivity;
(4) Radiation biology; and
(5) Radiopharmaceutical chemistry; and
(b) At least 1 year of full-time experience as a radiation safety technologist at a medical institution under the supervision of the person identified as the radiation safety officer on a license issued by this state, the Nuclear Regulatory Commission or an agreement state that authorizes the medical use of radioactive material; or
3. To be an authorized user on the license of the licensee.