

HB

318

Alaska State Legislature

House of Representatives



Official Business

State Capitol
Juneau, AK 99801-1182

SPONSOR STATEMENT FOR HB 150

BY: Representative Tom Anderson

"An Act requiring licensure of occupations relating to radiologic technology, radiation therapy, and nuclear medicine technology; and providing for an effective date."

The Radiologic Health Science professionals in the State of Alaska are dedicated to the preservation of life and health as well as the prevention and treatment of disease. The use of x-rays and other medical imaging disciplines is the most acceptable method for discovering and treating many conditions that might not otherwise be observed until it is too late for treatment.

The unregulated practice of Radiologic Technology, Nuclear Medicine Technology and Radiation Therapy by unqualified individuals represents a serious health risk to the citizens of Alaska. The Alaska Society of Radiologic Technologists has consistently supported the enactment of state standards for the education and credentialing of Radiologic Technologists, Radiation Therapists and Nuclear Medicine Technologists as a means of protecting Alaskans from the harmful effects of excessive and unnecessary exposure to medical radiation.

Any radiology procedure is only as effective as the person performing it. An underexposed chest x-ray cannot reveal pneumonia or a malignant lesion, just as an inadequate mammography technique cannot detect breast cancer. No matter what the procedure, the Radiologic Technologist's knowledge of anatomy, careful application of radiation and skillful operation of sophisticated medical equipment are the keys to its success. Patients have long benefited from Alaska's wisely implemented Radiology equipment performance standards but those benefits can easily be negated by under trained operators of the equipment. To be clinically useful, diagnostic imaging exams must be accurate. To stop invasive cancers, radiation therapy treatments must be precise.

To ensure that the citizens of the State of Alaska receive maximum protection practicable from the harmful effects of excessive and improper exposure to ionizing radiation, licensure must be passed to establish standards.

Establishing state standards will ensure that Alaskans will have access to safe and high quality radiologic care. Licensure for Radiologic Technologists, Radiation Therapists and Nuclear Medicine Technologists will establish radiation protection measures as well as education and credentialing standards that will ensure the competency of persons operating medical equipment emitting radiation.

I urge your support of this important piece of legislation.

24-LS0470\R

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Sectional Analysis for HB 150 BY: Representative Tom Anderson

Section 1. Amends AS 08 is amended to add a new section

Sec. 08.89.100 defines who needs to acquire a Radiological Technician license under this bill. Also provides exemptions for the license.

Sec. 08.89.110 limits the titles a person can use if they do not hold a license.

Sec. 08.89.120 defines the minimum requirements to receive a license

Sec. 08.89.130 describes how the Department of Health and Social Services shall approve licensure programs.

Sec. 08.89.140 describes the radiological licensure examinations.

Sec. 08.89.150 defines the qualifications for a limited radiological imager license

Sec. 08.89.160 describes how the Department of Health and Social Services shall approve limited radiological licensure programs.

Sec. 08.89.170 provides for the application and scope of a temporary permit for practice of radiology and allows a person to receive such a permit if they can prove they were performing radiological work before the passage of HB 150

Sec. 08.89.180 defines the license renewal process

Sec. 08.89.190 states that a licensee must keep their license or a copy of their license on file at their place of employment

Sec. 08.89.200 states that the licensee must notify the Department of a name or address change within 30 days

Sec. 08.89.210 states that a person whose license is revoked for a reason other than late payment of fees must wait 24 months before reapplying for a license.

Sec. 08.89.220 directs the Department to set fees for various aspect of the licensure process.

Sec. 08.89.300 limits the use of radiological equipment on a patient without a prescription.

Sec. 08.89.310 defines a civil penalty for practicing radiology without a license.

Sec. 08.89.320 defines a criminal penalty for a person who obtains or attempts to obtain a license through fraudulent means.

Sec.08.89.330 defines the grounds for disciplinary actions or denial of license.

Sec. 08.89.340 defines under what situations the Department may impose sanctions on a licensee.

Sec. 08.89.900 states that for the purposes of 08.01.065, all persons who hold a radiological license are considered to be engaged in the same occupation.

Sec. 08.89.990 outlines various definitions for terms in HB 150.

Section 2. Amends AS 44.64.030(a)(6)

This allows the Board of Radiological Technicians to conduct disciplinary hearings.

Section 3. The uncodified law of the State of Alaska is amended

Directs the Department of Commerce, Community and Economic Development and the division of occupational licensing to begin the process of adopting and implementing the regulations created by HB 150.

Section 4. The uncodified law of the State of Alaska is amended

Details revisors' instructions for reconciliation of sec. 2 of this bill with sec. 82, ch. 163, SLA 2004.

Section 5 Effective date of this act except as provided by sec. 6 and 7

Section 6. Effective date of AS 08.89.100 and AS 08.89.310

Section 7. Effective date of Section 3

24-LS0470\R
Mischel
1/12/06

CS FOR HOUSE BILL NO. 150()

**IN THE LEGISLATURE OF THE STATE OF ALASKA
TWENTY-FOURTH LEGISLATURE - SECOND SESSION**

BY

Offered:

Referred:

Sponsor(s): REPRESENTATIVE ANDERSON

A BILL

FOR AN ACT ENTITLED

1 **"An Act requiring licensure of occupations relating to radiologic technology, radiation**
2 **therapy, and nuclear medicine technology; and providing for an effective date."**

3 **BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:**

4 *** Section 1.** AS 08.01.010 is amended by adding a new paragraph to read:

5 (39) regulation of radiographers under AS 08.89.

6 *** Sec. 2.** AS 08 is amended by adding a new chapter to read:

7 **Chapter 89. Radiographers.**

8 **Article 1. Licensing Requirements.**

9 **Sec. 08.89.100. Unlicensed practice prohibited.** (a) Except as provided in (b)
10 of this section, a person may not knowingly

11 (1) use radioactive materials or equipment emitting radiation on a
12 human for diagnostic or therapeutic purposes without a license or permit issued under
13 this chapter that authorizes the person to do so; or

14 (2) employ another to use radioactive materials or equipment emitting

1 radiation on a human for diagnostic or therapeutic purposes unless the employee has
2 an appropriate license or permit issued under this chapter.

3 (b) The licensing or permit requirement in (a) of this section does not apply to
4 a person who is

5 (1) a licensed practitioner;

6 (2) a dental assistant who uses equipment emitting radiation on
7 humans under the supervision of a licensed practitioner;

8 (3) licensed under another provision of state law if the license
9 authorizes the person to use radioactive materials or equipment emitting radiation on a
10 human for diagnostic or therapeutic purposes; or

11 (4) a student enrolled in and attending a school or college of medicine,
12 osteopathy, dentistry, dental hygiene, chiropractic, podiatry, radiologic technology,
13 radiation therapy, or nuclear medicine, while, as part of course work in the school or
14 college, the student uses radioactive materials or equipment emitting radiation on
15 humans under

16 (A) the direct supervision of a licensed practitioner; or

17 (B) the direct supervision of a person fully licensed under this
18 chapter as a radiographer, radiation therapist, or nuclear medicine technologist,
19 as appropriate to the course.

20 (c) Violation of this section is a class A misdemeanor.

21 **Sec. 08.89.110. Use of title prohibited.** (a) Unless a person holds the
22 corresponding full or limited certificate of licensure or permit issued under this
23 chapter or proof of certification by the American Registry of Radiologic Technologists
24 or the Nuclear Medicine Technology Certification Board, a person may not use

25 (1) the title "radiographer," "radiation therapist," "nuclear medicine
26 technologist," "limited radiologic imager," "temporary permitted radiographer,"
27 "temporary permitted radiation therapist," "temporary permitted nuclear medicine
28 technologist," or "temporary permitted limited radiologic imager";

29 (2) an abbreviation that corresponds to a title listed in (1) of this
30 subsection; or

31 (3) another title, abbreviation, letters, figures, signs, or other devices

1 that would lead a reasonable person to believe that the person is licensed or permitted
2 under this chapter.

3 (b) Violation of this section is a class A misdemeanor.

4 **Sec. 08.89.120. Qualifications for full certificate licensure.** (a) In order to
5 receive a full certificate of licensure under this chapter, a person must apply to the
6 department in a manner that indicates whether the person is applying to practice as a
7 radiographer, radiation therapist, or nuclear medicine technologist. In addition, the
8 person shall

9 (1) be at least 18 years of age;

10 (2) have graduated from secondary school or have passed an approved
11 equivalency test;

12 (3) have graduated from a program approved by the department under
13 AS 08.89.130 in the area of practice for which the person seeks licensure;

14 (4) have met the examination requirement under AS 08.89.140 for the
15 area of practice for which the person seeks licensure; and

16 (5) pay the required fees.

17 (b) A full certificate shall specify the area of practice authorized under it.

18 (c) A person with a full certificate of licensure may practice in the authorized
19 area of practice only under the direction of a licensed practitioner.

20 **Sec. 08.89.130. Program approval; full certificates.** (a) The department
21 shall, upon application by a program, evaluate an educational program that trains
22 persons to receive full certificates of licensure under this chapter and approve or
23 disapprove the program according to the criteria in (b) of this section.

24 (b) The department shall approve a program evaluated under this section only
25 if

26 (1) the program is affiliated with at least one hospital that provides a
27 clinical component for the program that is considered to be adequate by the
28 department;

29 (2) the program's curriculum for each course of study in the areas of
30 practice licensed under AS 08.89.120 meets the standards approved by the Joint
31 Review Committee on Education in Radiologic Technology, the Joint Review

1 Committee on Educational Programs in Nuclear Medicine Technology, the United
2 States Department of Education, or another appropriate accreditation agency whose
3 standards are considered equivalent by the department; and

4 (3) a recognized national voluntary accrediting organization has
5 reviewed the program's application to the department and submitted the review
6 comments to the department.

7 **Sec. 08.89.140. Examinations; full certificates.** The examination requirement
8 under AS 08.89.120 may be met by meeting one of the following criteria:

9 (1) successfully passing an examination approved by the department in
10 the area of practice for which the full certificate of licensure is sought;

11 (2) proof of current certification by the American Registry of
12 Radiologic Technologists, Nuclear Medicine Technology Certification Board; or

13 (3) proof of current licensure in the area of practice for which a full
14 certificate of licensure is sought by another jurisdiction with standards for licensure
15 considered by the department to be equivalent to the standards of this state.

16 **Sec. 08.89.150. Qualifications for limited radiologic imager.** (a) In order to
17 be licensed as a limited radiologic imager, a person must

18 (1) be at least 18 years of age;

19 (2) have graduated from secondary school or have passed an approved
20 equivalency test;

21 (3) have graduated from a program approved by the department under
22 AS 08.89.160 or have demonstrated experience sufficient in the opinion of the
23 department to waive the program;

24 (4) have passed the exam approved by the department for limited
25 radiologic imager licensure; and

26 (5) pay the required fees.

27 (b) A limited radiologic imager

28 (1) may perform limited radiologic diagnostic imaging only under the
29 supervision of a fully licensed radiographer or a licensed practitioner;

30 (2) may perform only radiography of the chest, abdomen, and axial-
31 appendicular skeleton;

1 (3) may not perform radiologic procedures involving the use of
2 contrast media, use of fluoroscopic equipment, mammography, tomography, magnetic
3 resonance imaging (MRI), bone densitometry using ionizing radiation, nuclear
4 medicine, radiation therapy, or computed tomography imaging (CT scan).

5 **Sec. 08.89.160. Program approval for limited radiologic imager.** (a) The
6 department shall, upon application by a program, evaluate a program that trains
7 persons to be limited radiologic imagers and approve or disapprove the program
8 according to the criteria in (b) of this section.

9 (b) The department shall approve a program evaluated under this section only
10 if the program includes didactic instruction and clinical instruction considered
11 adequate by the department in axial-appendicular skeleton radiography, chest and
12 abdomen radiography, equipment maintenance and operation, radiation safety and
13 protection, image production and evaluation, radiographic anatomy and positioning
14 procedures, and applicable federal and state requirements relating to patient care and
15 safety; in this subsection, "clinical instruction" means hands-on experience in a health
16 facility setting, such as in a hospital or clinic, under the supervision of a licensed
17 practitioner or fully licensed radiographer.

18 **Sec. 08.89.170. Temporary permit.** (a) The department may issue a
19 nonrenewable temporary

20 (1) limited permit to a person authorizing practice in an area
21 corresponding to the person's scope of radiology training if the person

22 (A) is enrolled in a program for that area approved under
23 AS 08.89.160; and

24 (B) pays the appropriate fee; or

25 (2) full permit to a person authorizing practice in an area
26 corresponding to the person's scope of radiology training if the person

27 (A) has taken an examination described under AS 08.89.140 or
28 08.89.150 for that area and the results are not yet available;

29 (B) applies for the temporary permit within one year after
30 completing a program approved under AS 08.89.130; and

31 (C) pays the appropriate fee.

1 (b) A temporary permit issued under this section must indicate the area of
2 practice authorized. Except as provided in (c) and (d) of this section, the permit
3 expires one year after completion of the program described in (a)(1) of this section or
4 upon receipt of the examination results referred to in (a)(2) of this section, whichever
5 is earlier.

6 (c) Notwithstanding (a) and (b) of this section, the department may issue a
7 nonrenewable temporary permit valid for two years to an applicant who pays a fee
8 determined by the department and who demonstrates to the satisfaction of the
9 department that the applicant has been performing limited scope radiologic diagnostic
10 imaging under AS 08.89.150(b) for two years preceding July 1, 2008. A two-year
11 temporary permit issued under this subsection qualifies the applicant for employment
12 only as specified in AS 08.89.150(b).

13 (d) Notwithstanding (a) - (c) of this section, if an applicant has provided proof
14 of certification by a recognized national credentialing body that covers the area of
15 practice for which a certificate of licensure is sought, the department may issue a
16 nonrenewable temporary permit valid for a period of one year to the applicant upon
17 payment of a fee determined by the department .

18 (e) A person who holds a permit under this section is entitled to use the title
19 "temporary permitted radiographer," "temporary permitted radiation therapist,"
20 "temporary permitted nuclear medicine technologist," or "temporary permitted limited
21 radiologic imager."

22 **Sec. 08.89.180. License renewal; continuing education.** (a) The department
23 may not renew a full certificate of licensure issued under this chapter unless the
24 licensee pays the required fee and submits evidence satisfactory to the department that
25 the person has met the applicable continuing education requirements as determined by
26 the department.

27 (b) A person with a full certificate of licensure who is licensed to practice in
28 more than one area of practice is not required to complete more continuing education
29 than a person with a full certificate of licensure who is licensed in only one area of
30 practice. However, the department, in its communications with persons who have a
31 full certificate of licensure in more than one area of practice, shall encourage those

1 persons to receive continuing education in all of the areas for which they are licensed.

2 (c) The department may not renew a limited radiological imager license issued
3 under this chapter unless the licensee pays the required fee and submits evidence
4 satisfactory to the department that the person has met the applicable continuing
5 competency requirements as determined by the department.

6 **Sec. 08.89.190. License or permit to be kept on file.** A person licensed or
7 holding a permit under this chapter shall keep on file at each place of the person's
8 employment the license or permit document issued under this chapter or a verified
9 copy of the license or permit document.

10 **Sec. 08.89.200. Notification of address changes.** A licensee or permittee
11 under this chapter shall notify the department in writing within 30 days after a name or
12 address change.

13 **Sec. 08.89.210. Reapplication after revocation.** A person whose license or
14 permit is revoked by the department for a reason other than nonpayment of fees may
15 not apply to be licensed under this chapter until one year has elapsed from the date of
16 revocation. The department may require an examination for reinstatement.

17 **Sec. 08.89.220. Fees.** The department shall set fees under AS 08.01.065 for
18 each of the following:

- 19 (1) application;
- 20 (2) examination;
- 21 (3) full certificate of licensure;
- 22 (4) limited certificate of licensure;
- 23 (5) temporary full permit;
- 24 (6) temporary limited permit;
- 25 (7) license renewal;
- 26 (8) adding an area of practice to an existing license;
- 27 (9) program approval under AS 08.89.130.

28 **Article 2. Prohibitions; Penalties; Disciplinary Sanctions.**

29 **Sec. 08.89.300. Prescription required.** (a) A person holding a license or
30 permit issued under this chapter may not knowingly use a radioactive substance or
31 equipment for radiologic procedures on a human for diagnostic or therapeutic

1 purposes except as prescribed by a licensed practitioner.

2 (b) Violation of this section is a class A misdemeanor.

3 **Sec. 08.89.310. Civil penalty for unlicensed practice.** A person required to
4 be licensed or to have a permit under this chapter who engages or offers to engage in a
5 type of diagnostic radiologic imaging, radiation therapy, or nuclear medicine
6 technology for which the person is not licensed or for which the person does not hold
7 a permit may be fined up to \$5,000 under the citation procedures of AS 08.01.102 -
8 08.01.104.

9 **Sec. 08.89.320. Criminal penalty for certain fraudulent practices.** A person
10 who obtains or attempts to obtain a license or permit under this chapter by dishonest or
11 fraudulent means or who knowingly forges, counterfeits, or fraudulently alters a
12 license or permit issued under this chapter is guilty of a class B misdemeanor.

13 **Sec. 08.89.330. Grounds for disciplinary sanctions or denial of license.** The
14 department may impose a disciplinary sanction authorized under AS 08.89.340 on a
15 person licensed or holding a permit under this chapter or refuse to issue or renew a
16 license or permit if the department finds that the person

17 (1) used fraud or deceit in the procurement or holding of the license or
18 permit or in the application process for the license or permit;

19 (2) has been convicted of a felony in a court of competent jurisdiction,
20 either within or outside of this state, unless the conviction has been reversed and the
21 person has been discharged or acquitted, or unless the person has been pardoned with
22 full restoration of civil rights;

23 (3) is or has been afflicted with a medical problem, disability, or
24 addiction that, in the opinion of the department, impairs professional competence;

25 (4) has aided a person who is not licensed or permitted under this
26 chapter, or otherwise authorized to perform the duties of a licensee or permittee, to
27 perform diagnostic radiologic imaging, radiation therapy, or nuclear medicine
28 technology;

29 (5) has undertaken or engaged in a radiologic technology practice
30 beyond the scope of duties permitted by law;

31 (6) has, under an assumed name, impersonated a person licensed or

1 formerly licensed under this chapter or is performing duties of a fully certificated
2 licensee, a limited certificate licensee, or a person holding a permit;

3 (7) is a licensee or permittee under this chapter and has violated the
4 code of ethics established by the department;

5 (8) has interpreted a diagnostic image for a clinician, a patient, the
6 patient's family, or the public;

7 (9) is a licensee or permittee under this chapter and is or has been
8 incompetent or negligent in performance of the licensee's or permittee's duties.

9 **Sec. 08.89.340. Disciplinary sanctions.** (a) When it finds that a person
10 licensed or holding a permit under this chapter has committed an act listed in
11 AS 08.89.330, the department may impose the following sanctions singly or in
12 combination:

13 (1) permanently revoke a license to practice;

14 (2) suspend a license for a determinate period of time;

15 (3) censure a licensee;

16 (4) issue a letter of reprimand;

17 (5) place a licensee on probationary status and require the licensee to

18 (A) report regularly to the department on matters involving the
19 basis of probation;

20 (B) limit practice to those areas prescribed;

21 (C) continue professional education until a satisfactory degree
22 of skill has been attained in those areas determined by the department to need
23 improvement;

24 (6) impose limitations or conditions on the practice of a licensee.

25 (b) The department may withdraw a limitation, condition, or probationary
26 status if it finds that the deficiency that required the sanction has been remedied.

27 (c) The department may summarily suspend a license before final hearing or
28 during the appeals process if the department finds that the licensee poses a clear and
29 immediate danger to the public welfare and safety. A person is entitled to a hearing
30 conducted by the office of administrative hearings under AS 44.64.010 within seven
31 days after the suspension order is issued. A person may appeal an adverse decision

1 after hearing to the superior court.

2 (d) The department may reinstate a license that has been suspended or revoked
3 if the department finds after a hearing that the person is able to practice with
4 reasonable skill and safety.

5 Article 3. General Provisions.

6 Sec. 08.89.900. **Unified occupation for fee purposes.** For purposes of
7 AS 08.01.065, all persons licensed or holding a permit under this chapter are
8 considered to be engaged in the same occupation.

9 Sec. 08.89.910. **Regulations.** The department shall adopt regulations necessary
10 to implement this chapter.

11 Sec. 08.89.990. **Definitions.** In this chapter,

12 (1) "axial-appendicular skeleton" means the skull, including the
13 mandible, sinuses, and facial bones; spine, including cervical, thoracic, lumbar,
14 sacrum, and coccyx areas; pelvis; ribs; and upper and lower extremities;

15 (2) "contrast media" means an examination where contrast media is
16 introduced into a human body to define a part or parts not normally visualized on a
17 radiograph;

18 (3) "department" means the Department of Commerce, Community,
19 and Economic Development;

20 (4) "diagnostic radiologic imaging" means the making of film records
21 or digital records by passage of radiation through the body to act on specially
22 sensitized film or digital sensors;

23 (5) "direct supervision" means in the physical presence of a person
24 who assists, evaluates, and approves the performance of tasks;

25 (6) "knowingly" has the meaning given in AS 11.81.900(a);

26 (7) "licensed practitioner" means a physician, physician assistant,
27 nurse practitioner, podiatrist, osteopath, dentist, or chiropractor who is either licensed
28 in this state or, if practicing as a physician, podiatrist, or osteopath, is exempt from
29 licensure under AS 08.64.370(1) or (4);

30 (8) "limited radiologic imager" means a person licensed under
31 AS 08.89.150 to perform diagnostic radiologic imaging within the limits specified in

1 AS 08.89.150(b);

2 (9) "nuclear medicine technologist" means a person who prepares,
3 calibrates, and administers radiopharmaceutical agents to humans for diagnostic or
4 therapeutic purposes;

5 (10) "radiation therapist" means a person who applies radiation to
6 humans for therapeutic purposes;

7 (11) "radiographer" means a person who uses radiation on humans for
8 diagnostic purposes.

9 * Sec. 3. The uncodified law of the State of Alaska is amended by adding a new section to
10 read:

11 REGULATIONS. The Department of Commerce, Community, and Economic
12 Development may begin the process to adopt regulations to implement this Act. The
13 regulations take effect under AS 44.62 (Administrative Procedure Act) but not before the
14 effective date of the statutes implemented by the regulations.

15 * Sec. 4. Except as provided in secs. 5 and 6 of this Act, this Act takes effect July 1, 2006.

16 * Sec. 5. AS 08.89.100 and 08.89.310, enacted by sec. 2 of this Act, take effect July 1,
17 2008.

18 * Sec. 6. Section 3 of this Act takes effect immediately under AS 01.10.070(c).

FISCAL NOTE

STATE OF ALASKA
2005 LEGISLATIVE SESSION

Fiscal Note Number: 1
 Bill Version: CSHB 150(L&C)
 (H) Publish Date: 3/22/05

Revision Date/Time (Note if correction): _____ Dept. Affected: Commerce
 Title Licensing Radiologic Technicians RDU Occupational Licensing (117)
 Component Occupational Licensing
 Sponsor Anderson
 Requester House Labor & Commerce Component No. 2360

Expenditures/Revenues (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

OPERATING EXPENDITURES	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Personal Services	25.2	25.2	25.2	25.2	25.2	25.2
Travel	0.0	0.0	0.0	0.0	0.0	0.0
Contractual	6.0	6.0	6.0	6.0	6.0	6.0
Supplies	1.0	1.0	1.0	1.0	1.0	1.0
Equipment	6.0	0.0	0.0	0.0	0.0	0.0
Land & Structures						
Grants & Claims						
Miscellaneous						
TOTAL OPERATING	38.2	32.2	32.2	32.2	32.2	32.2

CAPITAL EXPENDITURES						
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CHANGE IN REVENUES (1156)	79.4	0.0	64.4	0.0	64.4	0.0
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FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts						
1003 GF Match						
1004 GF						
1005 GF/Program Receipts						
1037 GF/Mental Health						
Other 1156 - Receipt Supported Services	38.2	32.2	32.2	32.2	32.2	32.2
TOTAL	38.2	32.2	32.2	32.2	32.2	32.2

Estimate of any current year (FY2005) cost: 0.0

Check this box (X) if funding for this bill is included in the Governor's FY 2006 budget proposal:

POSITIONS

Full-time						
Part-time	1	1	1	1	1	1
Temporary						

ANALYSIS: (Attach a separate page if necessary)

HB 150 establishes licensure for occupations relating to radiologic technology. The division was advised that approximately 380 to 400 individuals will seek licensure under this bill. This fiscal note is based on the assumption there will be at least 400 licensees.

An explanation of the costs shown above are attached.

Prepared by: Jennifer Strickler, Administrative Manager Phone (907) 465-2144
 Division Occupational Licensing Date/Time 2/23/05 2:02 PM
 Approved by: Edgar Blatchford, Commissioner Date 2/23/2005
 Agency Commerce, Community, and Economic Development

FISCAL NOTE #1

**STATE OF ALASKA
2005 LEGISLATIVE SESSION**

BILL NO. CSHB 150(L&C)

ANALYSIS CONTINUATION

HB 150: Licensing Radiologic Technicians

Total PERSONAL SERVICES: \$25.2

- Occupational Licensing Examiner I position, PPT, Range 13

This fiscal note provides funding for half of an Occupational Licensing Examiner I position to provide support to this licensing program. Last year, the division had a half time position in support of another licensing program that could have been made to full-time with this funding to support this program as well; however, that option is no longer available since that position has been assigned to support other new licensing programs. Therefore, this fiscal note identifies funding for half of a position and a corresponding position count.

Total TRAVEL: \$0

Total CONTRACTUAL SERVICES: \$6.0

- Printing, postage, communication, and advertising costs, \$3.0
- Regulations-related costs to establish education criteria and standards, and other requirements; including AAG time, \$3.0

Information has been received that licensure examinations are available from The American Registry of Radiologic Technologists. The division will seek to make arrangements with this organization for use of the licensing examinations.

Total SUPPLIES: \$1.0

To fund daily operating supplies of the program.

Total EQUIPMENT (one-time costs): \$6.0

TOTAL FISCAL NOTE: \$38.2

REVENUE: Revenue will be generated by individuals who seek license under this bill. Based on 400 licensees, each licensee can be expected to pay approximately \$176.00 biennially (\$70.4 divided by 400) in direct costs; in addition to indirect costs of approximately \$100.00 per person, for an approximate initial licensing fee of \$276.00 biennially. Licensing fees will be adjusted at the first renewal based on actual costs and numbers of licensees.



States With Licensure or Certification Laws

U.S. States with Licensure/Certification Laws or Regulations and Year of Implementation

Arizona-1977	Montana-1977
Arkansas-1999	Nebraska-1987
California-1969	New Jersey-1968
Connecticut-1993	New Mexico-1983
Delaware-1989	New York-1965
Florida-1979	North Dakota-2003
Hawaii-1974	Ohio-1995
Illinois-1990	Oregon-1979
Indiana-1982	Rhode Island-1994
Iowa-1987	South Carolina-1999
Kansas-2004	Texas-1987
Kentucky-1978	Utah-1989
Louisiana-1984	Vermont-1984
Maine-1984	Virginia-1997
Maryland-1992	Washington-1991
Massachusetts-1987	West Virginia-1977
Mississippi-1996	Wyoming-1985

States With Partial Licensure Laws and/or Other Forms of Regulation

- **Colorado** – Laws for mammography and limited (non-ARRT registered) licensure only.
- **Michigan** – Laws for mammography only.
- **Nevada** – Laws for mammography only.
- **Pennsylvania** – Technologists who have not passed the ARRT or other board-approved examination must pass a state examination to perform patient examinations in physician, osteopathic physician, podiatrist, chiropractic or dentist offices.
- **Minnesota** – Operator of any x-ray equipment for human use must be either a registered radiologic technologist through the ARRT, a licensed person from another state (and are then given an x-ray operator equivalent standing) or have passed one of Minnesota's state approved exams.
- **Tennessee** – Technologists who have not passed the ARRT or other board-approved examination must pass a state examination to perform patient examinations in physician, osteopathic physician, podiatrist, chiropractic or dentist offices.
- **Wisconsin** – Requires that all CT technologists and radiation therapists be ARRT certified.

States without Licensure Laws or With Legislative Proposals Being Considered

Alabama	Missouri
Alaska	New Hampshire
District of Columbia	North Carolina
Georgia	Oklahoma
Idaho	South Dakota



Questions and Answers About Licensure

Q *How does the unregulated practice of radiologic technology harm or endanger the public?*

A As physics and radiation biology textbooks attest, there is no threshold level for damage to healthy tissue due to ionizing radiation. In other words, there is no dose so small that it cannot potentially cause biological damage.

Q *What about alternatives to licensure such as a proficiency examination or certification by a professional association?*

A The problem with some alternatives to licensure is that they are voluntary and many health care workers will choose not to comply. State licensure programs are the most effective way to control the practice of uncredentialed individuals. As a result, licensure offers the public the best protection from unnecessary exposure to ionizing radiation and the highest quality radiologic patient care.

Q *How will the public benefit from licensure of radiologic technologists?*

A The public benefits by receiving care from properly educated and credentialed professionals who have met all of the requirements to practice radiologic technology.

Q *How do we ensure the competencies of radiologic technologists?*

A No one can be 100 percent sure of the competencies of any professional, whether in medicine, law or radiologic technology. However, steps to ensure the competence of individual practitioners can be taken. Accredited educational programs and state licensure programs are the main mechanisms for ensuring the competence of radiologic technologists. The curriculum for educational programs in radiologic technology is competency based, meaning students must meet performance objectives. The national certification examination also is a criterion-referenced, performance-based examination that has demonstrated high validity and reliability.

Q *Do the benefits of licensure justify the costs?*

A As with any endeavor, licensure requires a cost vs. benefit analysis. This is especially important in light of rising health care costs. Many states that have already implemented licensure programs saved the cost of developing an examination by contracting with the American Registry of Radiologic Technologists to use the national certification examination as their state licensing examination. Also, many states use license fees to fund their licensure program. Overall, the impact on state budgets and the health care economy are minimal.

Q *How will licensure affect the job market? Will it drive wages up, forcing employers to cut costs or raise patient fees?*

A As with any other profession or occupation, the primary objective of licensing radiologic technologists is not to create a favorable supply/demand arrangement. Rather, the objective is to restrict practice to individuals who meet certain standards and improve the quality of patient care. In California and New York, states with long-standing licensure laws, there have been no appreciable increases in average salaries for radiologic technologists since the laws passed.

Q *Won't licensure lead to fragmented care and higher health care costs, in effect creating an obstacle to health care delivery?*

A The major objective of licensure is to solve the problem of uncredentialed practitioners performing radiologic examinations on human beings. Related objectives are to reduce unnecessary radiation exposure and reduce costs associated with repeat examinations. Far from creating obstacles, properly educated and credentialed practitioners streamline health care and ensure the highest possible quality of care.



American Society of
Radiologic Technologists

March 4, 2005

The Honorable Tom Anderson
Alaska House of Representatives
State Capitol Building, Room 408
Juneau, AK 99801-1182

Dear Representative Anderson:

The American Society of Radiologic Technologists, representing more than 116,000 medical imaging professionals nationally including 350 in Alaska, is pleased to hear of your introduction of HB 150 before the Alaska Legislature.

The ASRT's goals are educating the medical community and the public about the benefits and risks of radiologic and other diagnostic medical procedures while providing safe, effective examinations and treatments to patients. ASRT firmly believes that personnel performing diagnostic and therapeutic procedures on patients must be required to demonstrate competence through education and certification.

ASRT has pursued these goals by supporting the federal Consumer-Patient Radiation Health and Safety Act of 1981, which established basic certification and education guidelines for personnel who perform radiologic procedures. However there was no enforcement provision in this act, leaving the adoption of certification and education standards to the discretion of each state. To date, 41 states have enacted licensure, certification laws or regulations for medical imaging and radiation therapy professionals and the regulations vary widely from state to state. Hopefully Alaska will be the 42nd state to enact a law that guarantees that all members of the public—young, old, male and female—receive safe and high-quality radiologic examinations and treatments.

We have worked closely with our state affiliate society, the Alaska Society of Radiologic Technologists, to advocate education and credentialing standards for persons who perform medical imaging, plan and deliver radiation therapy treatments for Alaska's citizens. Please feel free to call upon me in the ASRT Government Relations department if I can be of further assistance.

Sincerely,

A handwritten signature in black ink that reads "David R. Harwell". The signature is written in a cursive style with a large, sweeping initial "D".

David R. Harwell
State Legislative Coordinator

3200 Providence Drive
P O Box 196604
Anchorage, Alaska
99519-6604

Tel 907 562.2211



February 22, 2005

The Honorable Tom Anderson
Alaska State House of Representatives
State Capitol (MS 3100)
Juneau, AK 99801-1182

Dear Representative Anderson:

I know you are aware that many interested parties have worked for quite some time to come to agreement on legislation for the licensure of occupations relating to radiological technology, radiation therapy, and nuclear medicine technology. I'm pleased to inform you that as a result of those efforts, and the tremendous effort put forth by you and your staff, Providence Health System in Alaska supports HB 150.

I appreciate your willingness to work with Providence and all other interested parties to come up with a piece of legislation that reflects a commitment to quality improvement in this facet of Alaska's health care delivery. Thank you for giving us the opportunity to work on this legislation and our sincere appreciation goes to you for your patience.

Sincerely,

Laurie Herman
Regional Director, Government Affairs

-----Original Message-----

From: Pearce, Clyde E
Sent: Monday, January 23, 2006 9:22 AM
To: Heath_Hilyard@legis.state.ak.us
Subject: FW: Mis-Use of radiation

-----Original Message-----

From: Pearce, Clyde E
Sent: Friday, January 20, 2006 1:38 PM
To: 'djru@sphosp.com'
Subject: Mis-Use of radiation

The review of cases is not complete, but I understand you are in a hurry to obtain this information so am sending it now.

MIS-USE OF RADIATION IN ALASKA - Findings from Radiological Health Inspections.

In **Anchorage** a small clinic using untrained staff exposed patients to at least 64 times the amount of radiation required to obtain a diagnostic image, because the operator had no idea what technique to use and her supervisor advised a corrective measure that actually increased the exposure. The image was totally black due to excessive radiation, but her supervisor advised her to increase the exposure because a black image meant to her that not enough radiation was used. The operator was ignorant and her supervisor, and supposedly "trainer", was also ignorant of basic imaging concepts. There is no way to tell how much exposure the patient actually received, only that it was *at least* 64 times more than required for that first image, based on retrospective testing by the Radiological Health Program.*

A patient was over-exposed in **Petersburg** also because no applicable technique chart was available and the operator did not verify the technique was correct prior to making the exposure. This problem of guessing at techniques has been found in approximately 20% of facilities statewide.*

A facility in **Fairbanks** was found to be using the "technique by guess" approach and after the inspector conducted a repeat analysis of their discard file found that approximately half the images were repeated due to overexposure or underexposure. Underexposure causes excessive exposure to patients because although they have already been exposed they must be exposed again at a higher amount in order to achieve a diagnostic image.*

A facility in **Fairbanks** routinely exposes patients to excessive amounts of radiation because the operator does not know anatomy and positioning, resulting in repeated exposures in an attempt to visualize the true nature of the patient's anatomy. A skull exam can be performed in a way that exposes the eye lens to twenty times (20) as much radiation as the correct method, while using the same radiation exposure technique for either. Likewise, a chest x-ray performed one way causes a woman's breasts to receive

thirteen (13) to twenty-two (22) times as much radiation even though the same exact exposure technique would be used either way. Slight modifications or errors in position result in failure to demonstrate anatomical features essential to enabling a physician to make a correct diagnosis, so that a solid background knowledge of human anatomy and radiographic positioning is essential to keeping radiation exposures low. This error is not correctable using automated x-ray machines.*

Two facilities in southeast Alaska (**Craig and Petersburg**) were routinely exposing patients to between eight (8) and ten (10) times the amount of radiation required for optimum images due to mismatched films and screens. Old films with old screens require more radiation than the newer rare earth screens with green-sensitive film. However, when old technology (old screens) was mixed with new technology (green sensitive extremity film) the exposures are much higher than the old technology alone. Even using matched film and screens can cause unacceptable exposure levels when screens designed for extremity imaging (improved details, with higher dose) are used inappropriately for axial body procedures. This error is not correctable using automated x-ray machines.

A digitized x-ray machine being used in **Eagle River** was causing higher exposures than the previously used film/screen combination because the machine was not adjusted properly. Unlike film/screen systems, the over exposures were not obvious to the operator because the electronic system automatically adjusts the image no matter what amount of radiation is used. Automatic imaging (Computed radiography and digital radiography units) has the POTENTIAL to reduce exposures, however they can be operated at higher exposure levels than is required for film if not used properly.

A facility in **Juneau** has been reported to routinely use fluoroscopy to pre-position patient's prior to exposing a film, in the apparent belief that this reduces repeats due to positioning errors. This ignores the fact that the patient has already been exposed to one of the highest exposure procedures, in addition to the follow-up radiography exposures. Follow-up of this report will be conducted. This error is not correctable using automated x-ray machines.*

Approximately forty-eight (48) % of facilities are unable to provide documentation that operators are provided facility specific radiation safety instructions as required by Alaska radiation control regulations (18 AAC 85.430).

A facility in **Fairbanks** had a gassy x-ray tube, but because neither the operator nor the owner were not knowledgeable about the characteristics of gassy tubes this was missed for a prolonged period of time. Gassy tubes are incapable of producing consistent output, making high repeat exposures inevitable. This error is not correctable using automated x-ray machines.

A facility on the **Alaska Peninsula** had two operators with no formal training in radiology practicing positioning and exposure techniques by x-raying each other. This is

illegal and hazardous to the operators. This error is not correctable using automated x-ray machines.*

Approximately thirty-one (31) percent of facilities do not have a processor quality control program. Increasing exposure to the patients until a useable image is obtained often compensates for poor processing conditions. This increases repeat images, and greatly increases the exposures beyond optimum requirements. Developer that is too cold, low replacement rates, pH errors and contamination of processing tanks contribute significantly to excessive exposures. *

Approximately thirty-six (36) percent of facilities do not perform repeat analysis of spoiled images. Repeat analysis is required by federal law for mammography, and encouraged for all imaging procedures to identify problems that are correctable and indications that a machine may need repair. As a result of failure to regularly perform repeat analysis inspections reveal that old procedures previously responsible for higher exposures than necessary continue to be followed, with no reduction in exposure to patients or operators.*

Facilities in **Kodiak, Petersburg and Juneau** have demonstrated lack of knowledge on how to use lead shielding correctly, resulting in exposure to reproductive organs that are up to one-hundred (100) times higher than necessary for the study. Aprons and gloves significantly reduce exposures to shield areas and are required by regulations. This error is not correctable using automated x-ray machines.*

A facility in **Petersburg** documented accidental exposure of the film storage bin to visible light on four different occasions, causing a direct financial loss of approximately \$4,000. However, in an attempt to salvage some of the loss spoiled film was used which had been sensitized to light and x-rays. This reduces image contrast and can mask pathology, as well as changing the film response speed so that techniques become less predictable and exposure repeat rates increase.

A facility in **Girdwood** experienced a fogged film bin and the operator had no awareness of the cause of that problem or its implications for diagnostic accuracy.

Inappropriate technique charts are posted which causes the wrong techniques to be used and increases the number of repeat exposures in eleven (11) percent of facilities. On inspections it is not unusual to find a high frequency generator where rare earth screens are used, green sensitive film is used, and a 10:1 grid is in the table or wall mounted cassette holder. But the facility has posted a technique chart for a single-phase full wave generator using blue tungstate screens and blue sensitive film with an 8:1 grid. There is no way that the posted techniques would work with the system they are using.

Twenty seven percent (27%) of facilities conduct no radiation safety in-service training, or require continuing education for their operators. This is not currently required in the regulations yet many new developments affect even older facilities that have not changed their procedures or equipment in many years. Occupational exposure limits have been

lowered, biological effects have been found to occur at lower exposures than previously believe, and some standard procedures have been found to be ineffective. This error is not correctable using automated x-ray machines.*

Thirteen (13) facilities failed to demonstrate evidence of collimation of the x-ray beam. Biological effects are directly related to the size and volume of tissue exposed and irradiation of large areas of the body, especially body parts that extend beyond the size of the film, causes unnecessary exposure to adjacent anatomical organs (including reproductive organs). In addition, when larger amounts of tissue are irradiated scatter is increased which diminishes image contrast and diagnostic quality. A missed diagnosis can result from excessive scatter. Operators increase their exposure to scatter when more scatter is produced. This error is not corrected by using automated x-ray machines.*

Seven (7) facilities were found to be routinely holding patients during exposures instead of using immobilizing devices or a family member. For the patient, and family member, the procedure may be a one-time event, but for operators who routinely do this it is a cumulative exposure to them. The primary source of radiation exposure to operators is scatter from the patient, and the primary beam is one thousand (1000) times greater than scatter radiation at one meter from the patient. This amounts to a considerable exposure to operators.*

Numerous failures occur that are not quantifiable in terms of exposure received or excess dollars spent.

Examples include failure to post a CAUTION RADIATION sign on a door, which creates the potential for a visitor or patient to inadvertently enter the room while x-rays are present, as they seek a restroom or exit.

Those items marked with an asterisk () are important historically as they related to a study performed by the University of Minnesota which found that operators of medical x-ray machines had three times the breast cancer rate of the general public. This applied only to those who practiced up through the 1940's and into the 1950's, but no longer applies nationally due to improvements in methods and procedures. The items marked with an asterisk and found in Alaska represent those practices that have changed nationally, but persist in Alaska. In other words, while breast cancer is not shown to exist at a higher rate among operators using newer procedures (thirty-nine states require formal training of operators) in Alaska many of the same conditions that contributed to that problem in the 1950's still exists. These include using excessive x-ray beam sizes, low energy/high quantity exposure techniques, no processing quality control program, no repeat analysis, operators x-raying each other, operators routinely holding patients during exposures, inappropriate use of fluoroscopy, and lack of appropriate technique charts.*

FURTHER COMMENTS:

Every state has radiation control regulations which recognize that although there is great value in using ionizing x-rays it can be hazardous to patients and operators if not used wisely. The National Institute of Environmental Sciences has formally re-affirmed in 2005 that x-radiation is a carcinogen.

New study results, presented by continuing education offerings in Alaska in 2005, revealed that the National Institutes of Health subcommittee, Biological Effects of Ionizing Radiation (BEIR) discovered greater biological effects from x-rays than had been believed previously. This resulted in the US Nuclear Regulatory Commission, and most states, adopting lower occupational exposure limits for operators. Alaska's current Radiation Control regulations do not reflect this new research finding.

Proper use of lead shielding can reduce exposures to reproductive organs as much as 95% if used, according to NCRP Report 34, and ICRP Report 16. If not used, of course, exposures are correspondingly higher than necessary.

A nationwide study still in process is being conducted by the Radiological Health Program to evaluate four questions:

1. After implementation of the requirement for operators of medical x-ray equipment to be formally trained in your state did you experience a significant reduction of available qualified operators?
2. After implementation of the requirement for operators of medical x-ray equipment to be formally trained in your state was there an increase in the salaries (therefore cost) of imaging services due to tighter restrictions?
3. After implementation of the requirement for operators of medical x-ray equipment to be formally trained in your state were there any offices, clinics, or hospitals closed as a result of restrictions on who could operate the x-ray equipment?
4. After implementation of the requirement for operators of medical x-ray equipment to be formally trained in your state were there any instances of limited or loss of access by patients to vitally needed imaging services?

To date, every response received has indicated none of these effects occurred in a state. Two states, California and Michigan indicated that there were cost savings that resulted from increased efficiencies brought about by requiring operators to know what they were doing.

Last year there were two reports on the effects of diagnostic x-rays which indicated that a percentage of cancers were caused by diagnostic x-rays, and that diagnostic exposure levels as seen in Alaska were shown to reduce intellectual capacity of men exposed as infants in Sweden. I will look up the details on percentages and researcher if this would be helpful. I believe the percentages were that 5% of all cancers were due to diagnostic x-rays, and 1% of diagnostic x-rays resulted in cancer... two different ways of looking at the same data.

Breast cancer is now detected much earlier than was the case prior to the federal mammography regulations which began in 1994, which requires extensive formal training of operators, and it has demonstrated clearly that lives are saved because of the required higher level of competency. While it is less obvious that other healthcare imaging procedures necessarily save lives there is abundant scientific evidence that radiation is a carcinogen and a measurable portion of cancers are caused by x-rays. What is less clear is what proportion of those cancers caused by x-rays lead to disfiguring or death. National standards imposed on mammographers in Alaska are analogous to a form of "licensure" already in effect to a restricted segment of operators of x-ray machines. Federal law prohibits anyone performing this procedure who has not completed a formal two-year program, passed a national examination, and also completed forty hours of formal training and supervised clinical experience in mammography. The latent period between radiation exposure and disease make it less obvious when a cancer is caused by the radiation. However, international research has confirmed repeatedly that there is that connection. By analogy, there is no doubt that the Holocaust in Europe occurred even though most people alive today did not personally see it. Similarly, there is no doubt that radiation abuse causes cancer, even when most people do not actually see those cases. There is also no doubt that radiation abuse occurs in Alaska, and lack of formal training in how to use it correctly is a major factor in that abuse.

From: Pearce, Clyde E [mailto:Clyde_Pearce@health.state.ak.us]
Sent: Monday, January 23, 2006 1:59 PM
To: Heath Hilyard
Subject: Costs - Another perspective FYI

Concerns have been raised about the costs of healthcare and how they might rise if operators of x-ray equipment in Alaska are required to be formally trained in how to use it safely. Although these concerns have been addressed in other communications, it is important to also consider the costs of not requiring formal training of operators. The belief that implementation might negatively impact costs, while ignoring that failure to implement has cost implications needs to be addressed. In other words, whether or not HB 150 passes there are cost considerations. There is no free lunch.

In any business the public is served by offering a product or service, and in exchange that public agrees to pay for the product or service offered if they want to have it. There is an implied obligation on the part of the seller that the product or service is useful and safe. The customer expects usefulness and safety. People only eat in restaurants where they perceive the food is safe to eat. They buy clothing that they expect will be useable for a reasonable period of time. We expect the cars, computers, tires, clothes driers and other technology to operate as advertised and to do so without causing a fire or the emission of dangerous fumes in our homes. When we visit a healthcare practitioner we expect to receive care that is competent and safe. We do not wish to spend money on methods or procedures that provide no benefit.

In order for a business to provide useful and safe products there are certain actions they must take, some of which cost the seller money. There are procedures for cleaning pots and pans, to make them safe for the preparation of food. If the cook drops a steak on the floor it should not be fed to a customer, so it becomes a useless expense to the vendor. If a vehicle gas tank explodes on impact or a tire fails at high speed the vendor must make good on any sales already made to customers, and discontinue selling that product until the problem is fixed. This represents a cost to the manufacturer, and part of the cost of operation. If a manufacturer or vendor is unable or unwilling to pay the costs to provide a safe and useful product they should not be allowed to continue in that business. What usually happens is that they meet the basic costs of doing business, and pass that cost on to customers so that they continue to earn sufficient profit to stay in business. The point is, there are costs to conducting business in a safe manner, and those costs must be met whether they are paid directly by the company or indirectly through charges to the customer.

Whenever a person has medical imaging performed in order to address a healthcare concern they likewise expect that the procedure performed will be useful and safe. With radiation it is not as obvious when a procedure is neither useful nor safe, as it would be with a tire that fails or a dryer that causes a fire. Unsafe procedures may cause cancer, but usually not until years after the exposure. Unsafe procedures can cause radiation burns, cataracts, shortening of lifespan and other adverse health effects. But these all

result after some delay due to the latent nature of radiation. Also, most healthcare practitioners do not have the education or experience to recognize a radiation injury when they see one, so that even when the effects occur people tend not to see them. But the scientific literature abounds with documentation that these effects occur. And they occur at diagnostic levels of exposure. A competent physician has the training to make decisions that weigh the risks against the benefits of exposure. Usually, the benefits and necessity of receiving the procedure outweigh the risks, if we assume the risks are "normal" for that procedure. The normal risks of having a pelvis x-ray are very small, when that procedure is performed using all of the techniques and procedures available to minimize radiation dose and maximize diagnostic quality. However, when exposure doses are several times higher than optimum, or when diagnostic quality is inadequate the risks rise exponentially. At some point the risks exceed the health benefit, and the patient who is fully informed might choose not to have that test performed.

A practitioner who hires a low wage untrained person to perform a complicated procedure, presumably to keep business costs down, appears to be saving money. However, the costs of performing the procedure in a safe manner that is useful (diagnostic) are what they are. An operator who does not know how to perform the procedure safely, cannot recognize non-diagnostic images, and does not know how to correct for errors is not saving the employer money. The costs to assure reasonable safety have been bypassed by the facility, but the costs must be met. So who pays them? It is obviously the patient who pays them. When a facility cuts costs by hiring unqualified staff it is their customers who pay the price of lack of safety. The customer pays every time the procedure must be repeated at a different facility because the first x-ray exam was inadequate. The customer pays every time they are re-exposed because the operator did not use standardized procedures, exposure tables, or quality control methods to insure the procedure was performed correctly the first time. The customer pays every time pathology is missed because the images were inadequate to make a proper diagnosis. The customer pays whenever they develop a radiation related disease such as cancer or cataracts because safety was not provided. The customer pays whenever proper treatment must be delayed and pain endured longer because the procedure was not performed correctly. The customer pays when the necessary x-ray exam should expose a small part of the body, but a much larger area was exposed because the operator was afraid to restrict the beam since it might "cut-off" some of the image. The customer pays when their unborn baby is exposed to radiation unnecessarily.

And it not just the customer who must pay. An operator of x-ray equipment who does not understand how to perform the procedures correctly is exposing him or her self to a radiological carcinogen at higher levels than if their work was in a non-radiation specialty. When the operator holds a patient without using a lead apron, or repeats exposures which increase their own exposure to scatter radiation, he or she is not acting in their own best health interests. The health of the operator should be a concern for the operator and for their family as well. Every family hopes and expects their parent(s) to work a long and productive life in whatever field they chose. Operators should not bear the costs for radiation abuse because their employer would not assume their responsibility

to insure the operator is fully knowledgeable of their own risks, or facility standards are not designed to minimize those risks to the lowest practical level.

In the end, the facility does not even escape paying the costs of radiation abuse. Informed patients share information, and some will not visit certain facilities because of their reputation. Studies have shown that the costs of requiring fully competent operators can be lower. There is potential waste in how much film, chemicals, and other supplies are used for medical imaging. Those costs increase when exposures are repeated. An x-ray tube that is misused will cost several thousand dollars to replace it, and it can be destroyed in a few exposures if misused. A facility in Alaska that documented film storage exposure incidents showed over four thousand dollars lost in wasted film just from improper use of the darkroom. Missed diagnoses and misdiagnoses are causes for legal action against facilities and staff. How many lost lawsuits does it take to make up the difference between the "cost" of hiring a person with no understanding or credentials in medical imaging versus a fully trained, tested, and experienced operator?

The bottom line is that there is a cost associated with providing safety. Customers expect safety to be an integral component of their health care. If the facility does not assume responsibility for guaranteeing safety for their customers, that cost is simply passed on directly to the customer. Unfortunately, there is no truth in packaging. Customers of medical imaging services do not usually know when responsibility for their safety has been passed directly to them. Customers of medical imaging services do not know how to even evaluate the safety of the procedures they have. This makes it a moral issue, when the customer is in no position to evaluate their risks it is an essential responsibility of the provider to take those steps necessary to protect their customers, that is, patients. It is unethical to shift that burden to patients based on their ignorance of the principle of caveat emptor in medical imaging.

If the provider of health care products or services fails to take that responsibility their services represent fraud. If the provider fails to act responsibly when their services have such profound potential health risks, it becomes necessary for some other entity to step in to advocate for the public. That entity in the case of HB 150 is state government.