From: "Frazee, Terry" <Terry.Frazee@DOH.WA.GOV>
To: "NRC-JPiccone (E-mail)" <JMP1@nrc.gov>
Date: 3/21/03 2:57PM
Subject: Request for NRC to Review Proposed Rules for Compatibility

Enclosed is a copy of proposed revisions to the Washington rules for Radiation Protection. The proposed revisions were filed with the Washington Code Reviser on March 19 and will be published in the State Register on April 2 as WSR 03-07-094. All licensees will be provided a notice directly from us on or about April 2 and the proposed rule will also appear at our web site. The public hearing will be on April 22 in our Tumwater office. Comments are due by that date as well. The proposed changes to existing rule are identified by line-in/line-out text and new sections are identified as such.

The proposed rule is intended to bring Washington state rules into compatibility with NRC's regulations, specifically as identified in RATS ID # 2000-1 and 2000-2. We believe that adoption of these revisions satisfies the compatibility and health and safety
categories established in the Office of State and Tribal Programs (STP) Procedure SA-200.

If you have any questions, please feel free to contact me via e-mail (or phone, below).

<<OTS-5986.2.doc>> <<OTS-5987.2.doc>> <<102.DOC>>
****
"The Department of Health works to protect and improve the health of people in Washington State"
****
This message from Terry C. Frazee
e-mail terry.frazee@doh.wa.gov

Quick ways to reach me:
Voice = 360-236-3213 (Please note new number!)
FAX = 360-236-2255

Also, visit our Home Page at
http://www.doh.wa.gov/ehp/rp

CC: "Scroggs, Arden" <Arden.Scroggs@DOH.WA.GOV>, "'John Zabko'" <JGZ@nrc.gov>, "Dodson, Dorrie" <Dorrie.Dodson@DOH.WA.GOV>

PROPOSED RULE MAKING
(RCW 34.05.320)

CR-102 (7/22/01)
Do NOT use for expedited rule making

Agency: **Department of Health**

☐ Preproposal Statement of Inquiry was filed as WSR _____ ; or
☐ Expedited Rule Making -- Proposed notice was filed as WSR _____; or
☒ Proposal is exempt under RCW 34.05.310(4).

☒ Original Notice
☐ Supplemental Notice to WSR _____
☐ Continuance of WSR _____

(a) Title of rule: (Describe Subject) Update of well-logging and dosimetry requirement, WAC 246-243-150, WAC 246-244-020, 080, 110, 115, 160, and 240.

Purpose: To bring radiation protection regulations into conformance with the US Nuclear Regulatory Commission rules and RCW 70.98.050 regarding well-logging operations and to allow licensees to use dosimetry from providers accredited by the National Institute of Standards and Technology.

Other identifying information:

(b) Statutory authority for adoption: RCW 70.98.050

Statute being implemented: RCW 70.98.050

(c) Summary: The proposed rule adds basic definitions (WAC 246-244-020); allows use of energy compensation and tritium neutron generator target sources (WAC 246-244-115); updates design, performance and testing criteria (WAC 246-244-110); updates leak testing requirements for sources (WAC 246-244-080); updates requirements related to abandonment procedures (WAC 246-244-030 and 246-244-240); and allows the use of accredited personnel dosimetry providers (WAC 246-232-150 and 246-244-160).

Reasons supporting proposal:

(d) Name of Agency Personnel Responsible for:		Office Location	Telephone
1. Drafting.....	Terry C. Frazee	7171 Cleanwater Lane, Tumwater	360-236-3221
2. Implementation....	Terry C. Frazee	7171 Cleanwater Lane, Tumwater	360-236-3221
3. Enforcement.....	Terry C. Frazee	7171 Cleanwater Lane, Tumwater	360-236-3221

(e) Name of proponent (person or organization):
Washington State Department of Health

☐ Private
☐ Public
☒ Governmental

(f) Agency comments or recommendations, if any, as to statutory language, implementation, enforcement and fiscal matters:
None

(g) Is rule necessary because of:

Federal Law?	☒ Yes	☐ No	If yes, ATTACH COPY OF TEXT
Federal Court Decision?	☐ Yes	☒ No	Citation: 65 FR 20337; 65 FR 63750
State Court Decision?	☐ Yes	☒ No	

(h) HEARING LOCATION.
Washington State Department of Health
Radiation Materials Section
7171 Cleanwater Lane
Building 5 Conference Room
Tumwater, Washington 98504

Date: April 22, 2003 Time: 1:30 p.m.

Assistance for persons with disabilities: Contact
Terry Frazee by April 15, 2003

TDD (800) 833-6388 or FAX (360) 236-2255

Submit written comments to:
Terry C. Frazee, Supervisor
Radioactive Materials Section
PO. Box 47827
Olympia, WA 98504-7827
360-236-3213
e-mail terry.frazee@doh.wa.gov

DATE OF INTENDED ADOPTION: April 22, 2003

CODE REVISER USE ONLY

NAME (TYPE OR PRINT)
Mary C. Selecky

SIGNATURE

TITLE
Secretary

DATE

(COMPLETE REVERSE SIDE)

(j) Short explanation of rule, its purpose, and anticipated effects:
This rule updates the requirements for well-logging operations (including revised procedures for certain emergencies such as source abandonment, design specifications and testing criteria for use of certain small sources, and specific leak testing criteria) and allows licensees to use nationally accredited providers of personnel dosimetry. These changes are required for compatibility with the US Nuclear Regulatory Commission and RCW 70.98.050. The anticipated effect of these changes is to bring Washington's radioactive materials licensees into conformance with national standards.

Does proposal change existing rules? ☒ YES ☐ NO If yes, describe changes:
WAC 246-244-020 is amended to add certain required definitions; WAC 246-244-030 and –240 are amended to update notification procedures for inadvertent intrusion and source abandonment; WAC 246-244-080 is amended to spell out leak testing requirements; WAC 246-244-110 is amended to specify design, performance and testing criteria for radioactive sources; and WAC 246-243-150 and 246-244-160 are amended to allow the use of accredited dosimetry providers.

(k) Has a small business economic impact statement been prepared under chapter 19.85 RCW?

☐ Yes. Attach copy of small business economic impact statement.
A copy of the statement may be obtained by writing to:

Telephoning: ( )
Faxing: ( )

☒ No. Explain why no statement was prepared
This rule change is exempt from the small business impact statement requirement under RCW 19.85.025(3) because it adopts federal regulations without material change. This rule includes several federal rule changes for which "Regulatory Flexibility Certifications" were prepared by NRC stating that the "rule will not have a significant economic impact upon a substantial number of small entities".

(l) Does RCW 34.05.328 apply to this rule adoption? ☐ Yes ☒ No
Please explain:
Under RCW 34.05.328(5)(b)(iii) and (iv), RCW 34.05.328 does not apply to this rule adoption because this rule adopts federal regulations without material change and clarifies the language of a rule or otherwise makes housekeeping changes. This rule is for conformance with the US NRC regulations and is mandatory under our Agreement State status with the federal government.

AMENDATORY SECTION (Amending WSR 00-08-013, filed 3/24/00, effective 4/24/00)

WAC 246-243-150 Personnel monitoring control. (1) ((~~No~~)) A licensee ((~~shall~~)) may not permit any individual to act as a radiographer or as a radiographer's assistant unless, at all times during radiographic operations, ((~~each such~~)) the individual ((~~shall~~)) wears ((~~on the trunk of the body a combination of an approved personnel dosimeter such as a film or TLD badge,~~)) a direct reading pocket dosimeter, ((~~and~~)) an alarming rate meter, and a personnel dosimeter that is processed and evaluated by an accredited National Voluntary Laboratory Accreditation Program (NVLAP) processor on the trunk of the body. In permanent facilities where other appropriate alarming or warning devices are in routine use, the wearing of an alarming rate meter is not required.

(a) Pocket dosimeters ((~~shall~~)) must be capable of measuring exposures from zero to at least 200 milliroentgens. Electronic personal dosimeters may only be used in place of ion-chamber pocket dosimeters.

(b) ((~~A film or TLD badge or other approved~~)) Each personnel dosimeter shall be assigned to and worn by only one individual.

(c) Film badges must be replaced at periods not to exceed one month and ((~~TLDs~~)) other personnel dosimeters processed and evaluated by an accredited NVLAP processor must be replaced at periods not to exceed three months.

(d) After replacement, each ((~~film badge or TLD~~)) personnel dosimeter must be processed as soon as possible.

(2)(a) Direct reading dosimeters such as pocket dosimeters or electronic personal dosimeters shall be read and exposures recorded at the beginning and end of each shift. Pocket dosimeters shall be charged at the beginning of each shift. Pocket dosimeters shall be checked annually at periods not to exceed twelve months for correct response to radiation. Acceptable dosimeters shall read within plus or minus twenty percent of the true radiation exposure.

(b) Each alarming rate meter must:

(i) Be checked to ensure that the alarm functions properly (sounds) prior to use at the start of each shift;

(ii) Be set to give an alarm signal at a maximum preset rate of 5 mSv/hr. (500 mR/hr.);

(iii) Require special means to change the preset alarm functions; and

(iv) Be calibrated annually at periods not to exceed twelve months for correct response to radiation: Acceptable rate meters must alarm within plus or minus twenty percent of the true radiation exposure rate.

(3) If an individual's pocket dosimeter is found to be off-scale, or if his or her electronic personal dosimeter reads greater than 2 millisieverts (200 millirems), and the possibility of radiation exposure cannot be ruled out as the cause, the individual's ((~~film badge or TLD~~)) personnel dosimeter must be sent for processing within twenty-four hours. In addition, the individual may not resume work associated with licensed material use until a determination of the individual's radiation exposure has been made. This determination shall be made by the RSO or the RSO's designee.

(4) If ((~~a film badge or TLD~~)) the personnel dosimeter required by this section is lost or damaged, the worker shall cease work immediately until a replacement ((~~film badge or TLD~~)) personnel dosimeter is provided and the exposure is calculated for the time period from issuance to loss or damage of the ((~~film badge or TLD~~)) personnel dosimeter.

(5) Each licensee shall maintain the following exposure records:

(a) Direct reading dosimeter readings and yearly operability checks required by subsection (2) of this section for three years after the record is made.

(b) Records of alarm rate meter calibrations for three years after the record is made.

(c) Reports received from the ((~~film badge or TLD~~)) personnel dosimeter accredited NVLAP processor until the department terminates the licensee.

(d) Records of estimates of exposures as a result of: Off-scale personal direct reading dosimeters, or lost or damaged ((~~film badges or TLDs~~)) personnel dosimeters, until the department terminates the license. The time period for which the personnel dosimeter was lost or damaged shall be included in the records.

AMENDATORY SECTION (Amending Order 121, filed 12/27/90, effective 1/31/91)

WAC 246-244-020 Definitions. As used in this chapter, the following definitions apply:

(1) "Casing" means a metal pipe or tube used as a lining for oil or gas wells to prevent collapse of the well-bore.

(2) "Energy compensation source" (ECS) means a small sealed source, with an activity not exceeding 3.7 MBq (100 microcuries), used within a logging tool, or other tool components, to provide a reference standard to maintain the tool's calibration when in use.

(3) "Field station" means a facility where radioactive sources may be stored or used and from which equipment is dispatched to temporary job sites.

((~~(3)~~)) (4) "Fresh water aquifer" means a geological formation that is capable of yielding a significant amount of fresh water to a well or spring.

((~~(4)~~)) (5) "Injection tool" means a device used for controlled subsurface injection of radioactive tracer material.

((~~(5)~~)) (6) "Irretrievable well-logging source" means any sealed source containing licensed material that is pulled off or not connected to the wireline that suspends the source in the well and for which all reasonable effort at recovery has been expended.

((~~(6)~~)) (7) "Logging assistant" means an individual who assists the logging supervisor in performing the well-logging operations.

((~~(7)~~)) (8) "Logging supervisor" means an individual who provides personal supervision of the use of licensed material at the temporary job site and who is responsible to the licensee for assuring compliance with requirements of the department's regulations and the conditions of the license.

((~~(8)~~)) (9) "Logging tool" means a device used subsurface to perform well-logging.

((~~(9)~~)) (10) "Mineral logging" means any logging performed for the purpose of mineral (including water) exploration other than oil or gas.

((~~(10)~~)) (11) "Personal supervision" means guidance and instruction by the supervisor who is physically present at the job site and watching the performance of the operation in such proximity that contact is maintained and immediate assistance given as required.

((~~(11)~~)) (12) "Radioactive marker" means licensed material

used for the purpose of depth determination or direction orientation. This term includes radioactive collar markers and radioactive iron nails.

((~~(12)~~)) (13) "Sealed source" means any licensed material that is encased in a capsule designed to prevent leakage or escape of the radioactive material.

((~~(13)~~)) (14) "Source holder" means the housing or assembly into which a radioactive source is placed for the purpose of facilitating the handling and use of such source in well-logging operations.

((~~(14)~~)) (15) "Subsurface tracer study" means, for the purpose of this chapter, the release of unsealed licensed material or a substance labeled with licensed material in a single well or multiple wells for the purpose of tracing the movement or position of the material or substance in the well-bore or adjacent formation(s) (this term does not include the use of licensed material in field flooding studies).

((~~(15)~~)) (16) "Surface casing" means a pipe or tube used as a lining in a well to isolate the fresh water zone from the well.

((~~(16)~~)) (17) "Temporary job site" means any location to which radioactive materials have been dispatched or taken to perform wireline service operations or subsurface tracer studies.

((~~(17)~~)) (18) "Tritium neutron generator target source" means a tritium source used within a neutron generator tube to produce neutrons for use in well-logging applications.

(19) "Uranium sinker bar" means a weight containing depleted uranium used for the purpose of providing additional force to pull a logging tool down toward the bottom of a well.

((~~(18)~~)) (20) "Well-bore" means any drilled hole in which wireline service operations and/or subsurface tracer studies are performed.

((~~(19)~~)) (21) "Well-logging" means the lowering and raising of measuring devices or tools which contain sources of radiation into well-bores or cavities (salt domes, etc.) for the purpose of obtaining information about the well and/or adjacent formations which may be used in oil, gas, mineral or geological explorations.

((~~(20)~~)) (22) "Well-logging operation" means any activity involving licensed material performed in a well, including well-logging, mineral logging, subsurface tracer studies, use of radioactive markers, radioactive iron nails, uranium sinker bars, and radioactive sands, and transportation or storage of same.

((~~(21)~~)) (23) "Wireline" means a cable containing one or more electrical conductors which is used to lower and raise logging tools in the well-bore.

((~~(22)~~)) (24) "Wireline service operation" means any

evaluation or mechanical service which is performed in the well-bore using devices containing radioactive material on a wireline.

AMENDATORY SECTION (Amending Order 184, filed 7/24/91, effective 8/24/91)

WAC 246-244-030 ((~~Prohibitions.~~)) Agreement with well owner or operator. ((~~No licensee shall perform wireline service operations with a sealed source(s) or conduct subsurface tracer studies with sources of radiation unless, prior to commencement of the operation, the licensee has a written agreement with the well operator, well owner, drilling contractor, or land owner that:~~

~~(1) In the event a sealed source is lodged downhole every reasonable effort at recovery will be made;~~

~~(2) Potentially contaminated equipment or areas will not be released until an acceptable and documented survey is performed;~~

~~(3) Specific types of recovery operations which could endanger the integrity of the sealed source encapsulation will not be permitted or conducted; and~~

~~(4) In the event a decision is made to abandon the sealed source downhole, requirements of WAC 246-244-240 shall be met.~~))

(1) A licensee may perform well logging with a sealed source only after the licensee has a written agreement with the employing well owner or operator. This written agreement must identify who will meet the following requirements:

(a) If a sealed source becomes lodged in the well, a reasonable effort will be made to recover it.

(b) A person may not attempt to recover a sealed source in a manner which, in the licensee's opinion, could result in its rupture.

(c) The radiation monitoring required in WAC 246-244-210 will be performed.

(d) If the environment, any equipment, or personnel are contaminated with licensed material, they must be decontaminated before release from the site or release for unrestricted use.

(e) If the sealed source is classified as irretrievable after reasonable efforts at recovery have been expended, the following requirements must be implemented within thirty days:

(i) Each irretrievable well-logging source must be immobilized and sealed in place with a cement plug;

(ii) A means to prevent inadvertent intrusion on the source, unless the source is not accessible to any subsequent drilling operations; and

(iii) A permanent identification plaque, constructed of long lasting material such as stainless steel, brass, bronze, or monel, must be mounted at the surface of the well, unless the mounting of the plaque is not practical. The size of the plaque must be at least 17 cm (7 inches) square and 3 mm (1/8-inch) thick. The plaque must contain--

(A) The word "CAUTION";

(B) The radiation symbol (the color requirement in WAC 246-221-120(1) need not be met);

(C) The date the source was abandoned;

(D) The name of the well owner or well operator, as appropriate;

(E) The well name and well identification number(s) or other designation;

(F) An identification of the sealed source(s) by radionuclide and quantity;

(G) The depth of the source and depth to the top of the plug; and

(H) An appropriate warning, such as, "DO NOT REENTER THIS WELL."

(2) The licensee shall retain a copy of the written agreement for three years after the completion of the well-logging operation.

(3) A licensee may apply, under WAC 246-220-050, for department approval, on a case-by-case basis, of proposed procedures to abandon an irretrievable well-logging source in a manner not otherwise authorized in subsection (1)(e) of this section.

(4) A written agreement between the licensee and the well owner or operator is not required if the licensee and the well owner or operator are part of the same corporate structure or otherwise similarly affiliated. However, the licensee shall still otherwise meet the requirements in subsection (1) of this section.

AMENDATORY SECTION (Amending Order 184, filed 7/24/91, effective 8/24/91)

WAC 246-244-080 Leak testing of sealed sources. ((~~Each licensee utilizing sealed sources of radioactive material shall have the sources tested for leakage and/or contamination in accordance with WAC 246-221-080.~~)) (1) Testing and recordkeeping requirements. Each licensee who uses a sealed source shall have the source tested for leakage periodically. The licensee shall keep a record of leak test results in units of becquerels (or microcuries) and retain the record for inspection by the department for three years after the leak test is performed.

(2) Method of testing. The wipe of a sealed source must be performed using a leak test kit or method approved by the department, an agreement state, a licensing state, or the United States Nuclear Regulatory Commission. The wipe sample must be taken from the nearest accessible point to the sealed source where contamination might accumulate. The wipe sample must be analyzed for radioactive contamination. The analysis must be capable of detecting the presence of 185 Bq (0.005 microcurie) of radioactive material on the test sample and must be performed by a person approved by the department, an agreement state, a licensing state, or the United States Nuclear Regulatory Commission to perform the analysis.

(3) Test frequency.

(a) Each sealed source (except an energy compensation source (ECS)) must be tested at intervals not to exceed six months. In the absence of a certificate from a transferor that a test has been made within the six months before the transfer, the sealed source may not be used until tested.

(b) Each ECS that is not exempt from testing in accordance with subsection (5) of this section must be tested at intervals not to exceed three years. In the absence of a certificate from a transferor that a test has been made within the three years before the transfer, the ECS may not be used until tested.

(4) Removal of leaking source from service.

(a) If the test conducted under subsections (1) and (2) of this section reveals the presence of 185 Bq (0.005 microcurie) or more of removable radioactive material, the licensee shall remove the sealed source from service immediately and have it decontaminated, repaired, or disposed by a department, an agreement state, a licensing state, or a United States Nuclear Regulatory Commission licensee that is authorized to perform these functions. The licensee shall check the equipment

associated with the leaking source for radioactive contamination and, if contaminated, have it decontaminated or disposed of by a department, an agreement state, a licensing state, or a United States Nuclear Regulatory Commission licensee that is authorized to perform these functions.

(b) The licensee shall submit a report to the department within five days of receiving the test results. The report must describe the equipment involved in the leak, the test results, any contamination that resulted from the leaking source, and the corrective actions taken up to the time the report is made.

(5) Exemptions from testing requirements. The following sealed sources are exempt from the periodic leak test requirements set out in subsections (1) through (4) of this section:

(a) Hydrogen-3 (tritium) sources;

(b) Sources containing licensed material with a half-life of thirty days or less;

(c) Sealed sources containing licensed material in gaseous form;

(d) Sources of beta- or gamma-emitting radioactive material with an activity of 3.7 MBq (100 microcuries) or less; and

(e) Sources of alpha- or neutron-emitting radioactive material with an activity of 0.37 MBq (10 microcuries) or less.

AMENDATORY SECTION (Amending Order 121, filed 12/27/90, effective 1/31/91)

WAC 246-244-110 Design, performance, and certification criteria for sealed sources used in downhole operations. (1) Each sealed source, except those containing radioactive material in gaseous form, used in downhole operations shall be certified by the manufacturer, or other testing organization acceptable to the department, to meet the following minimum criteria:

(a) Be of doubly encapsulated construction;

(b) Contain radioactive material whose chemical and physical forms are as insoluble and nondispersible, respectively, as practical; and

(c) ((~~Has been individually pressure tested to at least 24,656 pounds per square inch absolute (170 MN/m²) without leakage or failure.~~)) Comply with subsection (2), (3), or (4) of this section.

(2) For a sealed source manufactured on or before July 14, 1989, a licensee may use the sealed source for use in well-logging applications if it meets the requirements of USASI N5.10-1968, "Classification of Sealed Radioactive Sources," or

the requirements in subsection (3) or (4) of this section.

(3) For a sealed source manufactured after July 14, 1989, a licensee may use the sealed source for use in well-logging applications if it meets the oil-well logging requirements of ANSI/HPS N43.6-1997, "Sealed Radioactive Sources--Classification."

(4) For a sealed source manufactured after July 14, 1989, a licensee may use the sealed source for use in well-logging applications, if--

The sealed source's prototype has been tested and found to maintain its integrity after each of the following tests:

(a) Temperature. The test source must be held at -40°C for twenty minutes, 600°C for one hour, and then be subject to a thermal shock test with a temperature drop from 600°C to 20°C within fifteen seconds.

(b) Impact test. A 5 kg steel hammer, 2.5 cm in diameter, must be dropped from a height of 1 m onto the test source.

(c) Vibration test. The test source must be subject to a vibration from 25 Hz to 500 Hz at 5 g amplitude for thirty minutes.

(d) Puncture test. A 1 gram hammer and pin, 0.3 cm pin diameter, must be dropped from a height of 1 m onto the test source.

(e) Pressure test. The test source must be subject to an external pressure of 1.695E7 pascals (24,600 pounds per square inch absolute).

(5) Except those containing radioactive material in gaseous form, in the absence of a certificate from a transferor certifying that an individual sealed source meets the requirements of subsection((~~s~~)) (1) ((~~and (3)~~)) of this section, the sealed source shall not be put into use until ((~~such~~)) these determinations and testings have been performed and acceptable documented results obtained.

((~~(3) Each sealed source, except those containing a radioactive material in gaseous form, used in downhole operations shall be certified by the manufacturer, or other testing organization acceptable to the department, to meet the sealed source performance requirements for oil well logging as contained in the January 1986 or most current American National Standard N542, *Sealed Radioactive Sources, Classification.*~~

~~(4)~~)) (6) Certification documents shall be maintained for inspection by the department for a period of three years after source disposal. If a source is abandoned downhole, the certification documents shall be maintained until the department authorizes disposition.

(7) The requirements in this section do not apply to energy compensation sources (ECS). ECSs must be registered with the commission under Section 10 CFR 32.210 or with an agreement state.

NEW SECTION

WAC 246-244-115 Energy compensation sources and tritium neutron generator target sources. (1) The licensee may use an energy compensation source (ECS) which is contained within a logging tool, or other tool components, only if the ECS contains quantities of licensed material not exceeding 3.7 MBq (100 microcuries).

(a) For well-logging applications with a surface casing for protecting fresh water aquifers, use of the ECS is only subject to the requirements of WAC 246-244-080, 246-244-090 and 246-244-100.

(b) For well-logging applications without a surface casing for protecting fresh water aquifers, use of the ECS is only subject to the requirements of WAC 246-244-030, 246-244-080, 246-244-090, 246-244-100 and 246-244-240.

(2) Use of a tritium neutron generator target source, containing quantities not exceeding 1,110 MBq (30 curies) and in a well with a surface casing to protect fresh water aquifers, is subject to the requirements of this chapter except WAC 246-244-030, 246-244-110, and 246-244-240.

(3) Use of a tritium neutron generator target source, containing quantities exceeding 1,110 MBq (30 curies) or in a well without a surface casing to protect fresh water aquifers, is subject to the requirements of this chapter except WAC 246-244-110.

AMENDATORY SECTION (Amending Order 184, filed 7/24/91, effective 8/24/91)

WAC 246-244-160 Personnel monitoring. (1) The licensee may not permit an individual to act as a logging supervisor or logging assistant unless that person wears, at all times during ((~~well-logging operations, either a film badge or thermoluminescent dosimeter (TLD)~~)) the handling of licensed radioactive materials, a personnel dosimeter that is processed by an accredited National Voluntary Laboratory Accreditation Program (NVLAP) processor. Each ((~~film badge or TLD~~)) personnel dosimeter must be assigned to and worn by only one individual. The film badge must be exchanged and analyzed at least monthly and ((~~TLD badges~~)) other personnel dosimeters exchanged and analyzed at least every three months. The licensee shall have each ((~~badge or TLD~~)) personnel dosimeter processed in a timely fashion.

(2) The licensee shall provide appropriate bioassay services to individuals using licensed materials for subsurface tracer studies.

(3) The licensee shall keep reports received from the ((~~badge or TLD~~)) accredited NVLAP personnel dosimeter processor and from the bioassay service laboratory for inspection until the department authorizes disposition or terminates the license.

(4) Personnel monitoring devices and equipment shall monitor for beta, gamma, and neutron radiation as appropriate.

(5) Each licensee shall adhere to the requirements of the department's Regulatory Guide 8.20 *Bioassay Program Criteria for I-125 and I-131.*

AMENDATORY SECTION (Amending WSR 98-13-037, filed 6/8/98, effective 7/9/98)

WAC 246-244-240 Notification of incidents, abandonment, and lost sources. (1) Notification of incidents and sources lost in other than downhole logging operations shall be made in accordance with appropriate provisions of chapter 246-221 WAC.

(2) The licensee shall immediately notify the state of Washington division of radiation protection by telephone (206 682-5327) and subsequently within five days by confirmatory letter if:

(a) Licensed material has been lost in or near a fresh water aquifer; or

(b) A sealed source has been ruptured. This notice must designate the well or other location and describe the magnitude and extent of licensed materials, assess the consequences of the loss or rupture, and explain efforts planned or being taken to mitigate these consequences.

(3) Whenever a sealed source or device containing radioactive material is lodged downhole, the licensee shall:

(a) Monitor the surface for the presence of radioactive contamination with an appropriate radiation survey instrument (not the logging tool itself) during logging tool recovery operations; and

(b) Notify the department immediately by telephone (206-682-5327) if radioactive contamination is detected at the surface or if the source appears to be damaged.

(4) When it becomes apparent that efforts to recover the radioactive source will not be successful, the licensee shall:

(a) Notify the department by telephone (206-682-5327) of the circumstances that resulted in the inability to retrieve the source and--

(i) Obtain department approval to implement abandonment procedures; or

(ii) That the licensee implemented abandonment before receiving department approval because the licensee believed there was an immediate threat to public health and safety; and

(b) Advise the well operator or owner, as appropriate, of the regulations of the state of Washington regarding abandonment, and an appropriate method of abandonment. The licensee shall ensure that such abandonment procedures are implemented within thirty days after the sealed source has been classified as irretrievable((~~. Such abandonment procedures shall include:~~

~~(i) Immobilization and sealing in place of the radioactive source with a cement plug;~~

~~(ii) The setting of a whipstock or deflection device; and~~

~~(iii) The mounting of a permanent identification plaque at the surface of the well, containing the appropriate information required by subsection (5) of this section;~~

~~(b) Immediately notify the department by telephone (206 682-5327), giving the circumstances of the loss, and request and receive approval of the proposed~~)) or request an extension of time if unable to complete the abandonment procedures; and

(c) File a written report with the department within thirty days of the abandonment, including a copy to each appropriate state or federal agency that issued permits or otherwise approved of the drilling operation, setting forth the following information:

(i) Date and time of occurrence and a brief description of

attempts to recover the source;

(ii) A description of the radioactive source(s) involved, including radionuclide, quantity, make, model and serial number, and chemical and physical form;

(iii) Surface location and identification of well;

(iv) Results of efforts to immobilize and seal the source in place;

(v) Depth of the radioactive source in meters or feet;

(vi) Depth to the top of cement plug in meters or feet;

(vii) Depth of the well in meters or feet; ((~~and~~))

(viii) ((~~Information contained on the permanent identification plaque~~)) The immediate threat to public health and safety justification for implementing abandonment if prior departmental approval was not obtained in accordance with subsection (4) of this section;

(ix) Any other information, such as a warning statement, contained on the permanent identification plaque; and

(x) State and federal agencies receiving a copy of this report.

((~~(5) Whenever a sealed source containing radioactive material is not recovered and is abandoned downhole, the licensee shall provide a permanent plaque at least eighteen centimeters square for posting the well or well bore (see Appendix A). This plaque shall:~~

~~(a) Be constructed of long lasting material, such as stainless steel or monel; and~~

~~(b) Contain the following information permanently and conspicuously engraved on its face:~~

~~(i) The word "CAUTION (or DANGER)";~~

~~(ii) The radiation symbol(s) with or without the conventional color requirement;~~

~~(iii) The date of abandonment (month/day/year);~~

~~(iv) The name of the well operator or well owner;~~

~~(v) The well name and well identification number(s) or other designation;~~

~~(vi) The sealed source(s) by radionuclide and quantity of activity (if more than one source is involved, information for each source shall be included);~~

~~(vii) The source depth and the depth to the top of the plug in meters or feet; and~~

~~(viii) An appropriate warning, depending on the specific circumstances of each abandonment.~~[1]

~~(6) The department may, at its own discretion, impose such other requirements as it may deem necessary.~~

[1] ~~An example of a suggested plaque is shown in Appendix A of this section. Appropriate warnings may include:~~

~~(a) "Do not drill below plug back depth";~~

~~(b) "Do not enlarge casing"; and/or~~

~~(c) "Do not reenter the hole before contacting the state of Washington division of radiation protection."~~

~~APPENDIX A~~

~~Example of Plaque for Identifying Wells Containing Sealed Sources Containing Radioactive Material Abandoned Downhole~~

~~Place (WAC 246-244-240) illustration here.~~

~~The size of the plaque should be convenient for use on active or inactive wells, and shall be at least eighteen centimeters square. Letter size of the word "CAUTION" or "DANGER" shall be approximately twice the letter size of the rest of the information, e.g., one-half inch and one-fourth inch letter size, respectively.~~))