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Virginia Register of Regulations

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THE VIRGINIA REGISTER OF REGULATIONS (USPS-001831) is published biweekly, with quarterly cumulative indices published in January, April, July and October, for $168.00 per year by LexisNexis Matthew Bender, 1275 Broadway, Albany, NY 12204. Periodical postage is paid at Albany, NY and at additional mailing offices. POSTMASTER: Send address changes to LexisNexis Matthew Bender, 1275 Broadway, Albany, NY 12204.

THE VIRGINIA REGISTER INFORMATION PAGE

THE VIRGINIA REGISTER OF REGULATIONS is an official state publication issued every other week throughout the year. Indexes are published quarterly, and are cumulative for the year. The *Virginia Register* has several functions. The new and amended sections of regulations, both as proposed and as finally adopted, are required by law to be published in the *Virginia Register*. In addition, the *Virginia Register* is a source of other information about state government, including petitions for rulemaking, emergency regulations, executive orders issued by the Governor, the Virginia Tax Bulletin issued periodically by the Department of Taxation, and notices of public hearings and open meetings of state agencies.

ADOPTION, AMENDMENT, AND REPEAL OF REGULATIONS

An agency wishing to adopt, amend, or repeal regulations must first publish in the *Virginia Register* a notice of intended regulatory action; a basis, purpose, substance and issues statement; an economic impact analysis prepared by the Department of Planning and Budget; the agency's response to the economic impact analysis; a summary; a notice giving the public an opportunity to comment on the proposal; and the text of the proposed regulation.

Following publication of the proposal in the Virginia Register, the promulgating agency receives public comments for a minimum of 60 days. The Governor reviews the proposed regulation to determine if it is necessary to protect the public health, safety and welfare, and if it is clearly written and easily understandable. If the Governor chooses to comment on the proposed regulation, his comments must be transmitted to the agency and the Registrar no later than 15 days following the completion of the 60-day public comment period. The Governor's comments, if any, will be published in the *Virginia Register*. Not less than 15 days following the completion of the 60-day public comment period, the agency may adopt the proposed regulation.

The Joint Commission of Administrative Rules (JCAR) or the appropriate standing committee of each house of the General Assembly may meet during the promulgation or final adoption process and file an objection with the Registrar and the promulgating agency. The objection will be published in the *Virginia Register*. Within 21 days after receipt by the agency of a legislative objection, the agency shall file a response with the Registrar, the objecting legislative body, and the Governor.

When final action is taken, the agency again publishes the text of the regulation as adopted, highlighting all changes made to the proposed regulation and explaining any substantial changes made since publication of the proposal. A 30-day final adoption period begins upon final publication in the *Virginia Register*.

The Governor may review the final regulation during this time and, if he objects, forward his objection to the Registrar and the agency. In addition to or in lieu of filing a formal objection, the Governor may suspend the effective date of a portion or all of a regulation until the end of the next regular General Assembly session by issuing a directive signed by a majority of the members of the appropriate legislative body and the Governor. The Governor's objection or suspension of the regulation, or both, will be published in the *Virginia Register*. If the Governor finds that changes made to the proposed regulation have substantial impact, he may require the agency to provide an additional 30-day public comment period on the changes. Notice of the additional public comment period required by the Governor will be published in the *Virginia Register*.

The agency shall suspend the regulatory process for 30 days when it receives requests from 25 or more individuals to solicit additional public comment, unless the agency determines that the changes have minor or inconsequential impact.

A regulation becomes effective at the conclusion of the 30-day final adoption period, or at any other later date specified by the promulgating agency, unless (i) a legislative objection has been filed, in which event the regulation, unless withdrawn, becomes effective on the date specified, which shall be after the expiration of the 21-day objection period; (ii) the Governor exercises his authority to require the agency to provide for additional public comment, in which event the regulation, unless withdrawn, becomes effective on the date specified, which shall be after the expiration of the period for which the Governor has provided for additional public comment; (iii) the Governor and the General Assembly exercise their authority to suspend the effective date of a regulation until the end of the next regular legislative session; or (iv) the agency suspends the regulatory process, in which event the regulation, unless withdrawn, becomes effective on the date specified, which shall be after the expiration of the 30-day public comment period and no earlier than 15 days from publication of the readopted action.

Proposed regulatory action may be withdrawn by the promulgating agency at any time before the regulation becomes final.

FAST-TRACK RULEMAKING PROCESS

Section 2.2-4012.1 of the Code of Virginia provides an exemption from certain provisions of the Administrative Process Act for agency regulations deemed by the Governor to be noncontroversial. To use this process, Governor's concurrence is required and advance notice must be provided to certain legislative committees. Fast-track regulations will become effective on the date noted in the regulatory action if no objections to using the process are filed in accordance with § 2.2-4012.1.

EMERGENCY REGULATIONS

If an agency demonstrates that (i) there is an immediate threat to the public's health or safety; or (ii) Virginia statutory law, the appropriation act, federal law, or federal regulation requires a regulation to take effect no later than (a) 280 days from the enactment in the case of Virginia or federal law or the appropriation act, or (b) 280 days from the effective date of a federal regulation, it then requests the Governor's approval to adopt an emergency regulation. The emergency regulation becomes operative upon its adoption and filing with the Registrar of Regulations, unless a later date is specified. Emergency regulations are limited to addressing specifically defined situations and may not exceed 12 months in duration. Emergency regulations are published as soon as possible in the *Register*.

During the time the emergency status is in effect, the agency may proceed with the adoption of permanent regulations through the usual procedures. To begin promulgating the replacement regulation, the agency must (i) file the Notice of Intended Regulatory Action with the Registrar within 60 days of the effective date of the emergency regulation and (ii) file the proposed regulation with the Registrar within 180 days of the effective date of the emergency regulation. If the agency chooses not to adopt the regulations, the emergency status ends when the prescribed time limit expires.

STATEMENT

The foregoing constitutes a generalized statement of the procedures to be followed. For specific statutory language, it is suggested that Article 2 (§ 2.2-4006 et seq.) of Chapter 40 of Title 2.2 of the Code of Virginia be examined carefully.

CITATION TO THE *VIRGINIA REGISTER*

The *Virginia Register* is cited by volume, issue, page number, and date. **23:7 VA.R. 1023-1140 December 11, 2006,** refers to Volume 23, Issue 7, pages 1023 through 1140 of the *Virginia Register* issued on December 11, 2006.

The Virginia Register of Regulations is published pursuant to Article 6 (§ 2.2-4031 et seq.) of Chapter 40 of Title 2.2 of the Code of Virginia.

PUBLICATION SCHEDULE AND DEADLINES

This schedule is available on the *Register*'s Internet home page (http://register.state.va.us).

May 2008 through March 2009

Volume: Issue	Material Submitted By Noon*	Will Be Published On
24:18	April 23, 2008	May 12, 2008
24:19	May 7, 2008	May 26, 2008
24:20	May 21, 2008	June 9, 2008
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24:24	July 16, 2008	August 4, 2008
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25:5	October 22, 2008	November 10, 2008
25:6	November 5, 2008	November 24, 2008
25:7	November 18, 2008 **(Tuesday)**	December 8, 2008
INDEX 1 Volume 25		**January 2009**
25:8	December 3, 2008	December 22, 2008
25:9	December 16, 2008 **(Tuesday)**	January 5, 2009
25:10	December 30, 2008 **(Tuesday)**	January 19, 2009
25:11	January 14, 2009	February 2, 2009
25:12	January 28, 2009	February 16, 2009
25:13	February 11, 2009	March 2, 2009
25:14	February 25, 2009	March 16, 2009

*Filing deadlines are Wednesdays unless otherwise specified.

CUMULATIVE TABLE OF VIRGINIA ADMINISTRATIVE CODE SECTIONS ADOPTED, AMENDED, OR REPEALED

The table printed below lists regulation sections, by Virginia Administrative Code (VAC) title, that have been amended, added or repealed in the *Virginia Register* since the regulations were originally published or last supplemented in VAC (the Fall 2007 VAC Supplement includes final regulations published through *Virginia Register* Volume 23, Issue 21, dated June 25, 2007). Emergency regulations, if any, are listed, followed by the designation "emer," and errata pertaining to final regulations are listed. Proposed regulations are not listed here. The table lists the sections in numerical order and shows action taken, the volume, issue and page number where the section appeared, and the effective date of the section.

SECTION NUMBER	ACTION	CITE	EFFECTIVE DATE
Title 1. Administration			
1 VAC 55-30-10 through 1 VAC 55-30-90	Added	23:26 VA.R. 4413-4416	10/3/07
1 VAC 55-30-10 through 1 VAC 55-30-90	Erratum	24:7 VA.R. 940	--
Title 2. Agriculture			
2 VAC 5-30-10	Amended	24:17 VA.R. 2318	6/12/08
2 VAC 5-30-20	Amended	24:17 VA.R. 2318	6/12/08
2 VAC 5-50-20	Amended	24:17 VA.R. 2320	6/12/08
2 VAC 5-50-70	Amended	24:17 VA.R. 2320	6/12/08
2 VAC 5-50-100	Amended	24:17 VA.R. 2320	6/12/08
2 VAC 5-50-110	Amended	24:17 VA.R. 2321	6/12/08
2 VAC 5-90-30	Amended	24:17 VA.R. 2322	6/12/08
2 VAC 5-110 (Forms)	Amended	23:26 VA.R. 4452	--
2 VAC 5-150-10	Amended	24:17 VA.R. 2323	6/12/08
2 VAC 5-180-20	Amended	24:17 VA.R. 2326	6/12/08
2 VAC 5-180-30	Amended	24:17 VA.R. 2327	6/12/08
2 VAC 5-180-50	Amended	24:17 VA.R. 2327	6/12/08
2 VAC 5-180-60	Amended	24:17 VA.R. 2327	6/12/08
2 VAC 5-180-80	Amended	24:17 VA.R. 2327	6/12/08
2 VAC 5-180-120	Amended	24:17 VA.R. 2328	6/12/08
2 VAC 5-210-30	Amended	24:9 VA.R. 1096	12/11/07
2 VAC 5-210-41	Amended	24:9 VA.R. 1097	12/11/07
2 VAC 5-390-180	Amended	24:15 VA.R. 2023	3/11/08
2 VAC 5-400-5	Added	24:17 VA.R. 2330	6/12/08
2 VAC 5-501-80	Amended	24:17 VA.R. 2332	6/12/08
2 VAC 5-501-100	Amended	24:17 VA.R. 2336	6/12/08
2 VAC 5-510-10	Amended	24:17 VA.R. 2340	6/12/08
2 VAC 5-510-50	Amended	24:17 VA.R. 2341	6/12/08
2 VAC 5-510-60	Repealed	24:17 VA.R. 2341	6/12/08
2 VAC 5-510-70	Repealed	24:17 VA.R. 2341	6/12/08
2 VAC 5-510-80	Repealed	24:17 VA.R. 2342	6/12/08
2 VAC 5-510-90	Amended	24:17 VA.R. 2342	6/12/08
2 VAC 5-510-100	Repealed	24:17 VA.R. 2344	6/12/08
2 VAC 5-510-110	Amended	24:17 VA.R. 2344	6/12/08
2 VAC 5-510-120	Repealed	24:17 VA.R. 2345	6/12/08
2 VAC 5-510-130	Amended	24:17 VA.R. 2345	6/12/08
2 VAC 5-510-140	Repealed	24:17 VA.R. 2347	6/12/08
2 VAC 5-510-150	Amended	24:17 VA.R. 2347	6/12/08
2 VAC 5-510-160	Repealed	24:17 VA.R. 2348	6/12/08
2 VAC 5-510-170	Amended	24:17 VA.R. 2348	6/12/08
2 VAC 5-510-180	Repealed	24:17 VA.R. 2348	6/12/08

SECTION NUMBER	ACTION	CITE	EFFECTIVE DATE
2 VAC 5-510-190	Amended	24:17 VA.R. 2348	6/12/08
2 VAC 5-510-200	Repealed	24:17 VA.R. 2349	6/12/08
2 VAC 5-510-210	Amended	24:17 VA.R. 2349	6/12/08
2 VAC 5-510-220	Repealed	24:17 VA.R. 2349	6/12/08
2 VAC 5-510-230	Repealed	24:17 VA.R. 2349	6/12/08
2 VAC 5-510-240	Amended	24:17 VA.R. 2349	6/12/08
2 VAC 5-510-250	Repealed	24:17 VA.R. 2349	6/12/08
2 VAC 5-510-260	Amended	24:17 VA.R. 2349	6/12/08
2 VAC 5-510-270	Repealed	24:17 VA.R. 2350	6/12/08
2 VAC 5-510-290	Amended	24:17 VA.R. 2350	6/12/08
2 VAC 5-510-300	Repealed	24:17 VA.R. 2350	6/12/08
2 VAC 5-510-310	Amended	24:17 VA.R. 2350	6/12/08
2 VAC 5-510-320	Repealed	24:17 VA.R. 2350	6/12/08
2 VAC 5-510-330	Amended	24:17 VA.R. 2350	6/12/08
2 VAC 5-510-340	Repealed	24:17 VA.R. 2351	6/12/08
2 VAC 5-510-350	Amended	24:17 VA.R. 2351	6/12/08
2 VAC 5-510-360	Repealed	24:17 VA.R. 2351	6/12/08
2 VAC 5-510-390	Amended	24:17 VA.R. 2351	6/12/08
2 VAC 5-510-400	Repealed	24:17 VA.R. 2352	6/12/08
2 VAC 5-510-410	Amended	24:17 VA.R. 2352	6/12/08
2 VAC 5-510-420	Amended	24:17 VA.R. 2352	6/12/08
2 VAC 5-510-500	Amended	24:17 VA.R. 2352	6/12/08
2 VAC 5-510-510	Amended	24:17 VA.R. 2353	6/12/08
2 VAC 5-531-50	Amended	24:16 VA.R. 2235	5/29/08
2 VAC 5-531-140	Amended	24:16 VA.R. 2241	5/29/08
2 VAC 5-580-10 through 2 VAC 5-580-310	Repealed	24:2 VA.R. 72	10/16/07
2 VAC 5-585-10 through 2 VAC 5-585-4070	Added	24:2 VA.R. 72-133	10/16/07
2 VAC 15-20-81	Amended	24:16 VA.R. 2242	4/14/08
2 VAC 20-20-70	Amended	24:17 VA.R. 2355	6/12/08
2 VAC 20-20-130	Amended	24:17 VA.R. 2355	6/12/08
2 VAC 20-20-210	Amended	24:17 VA.R. 2355	6/12/08
2 VAC 20-40-50	Amended	24:17 VA.R. 2357	6/12/08
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3 VAC 5-50-40	Amended	23:25 VA.R. 4107	*
3 VAC 5-50-50	Amended	23:25 VA.R. 4108	*
3 VAC 5-50-80	Amended	23:25 VA.R. 4108	*
3 VAC 5-50-100	Amended	23:25 VA.R. 4108	*
3 VAC 5-50-130	Amended	23:25 VA.R. 4109	*
3 VAC 5-50-140	Amended	23:25 VA.R. 4110	*
3 VAC 5-50-140 emer	Amended	24:11 VA.R. 1344	1/9/08-1/8/09
3 VAC 5-50-145 emer	Added	24:11 VA.R. 1345	1/9/08-1/8/09
3 VAC 5-70-220	Amended	24:14 VA.R. 1891	5/1/08
3 VAC 5-70-225 emer	Added	24:10 VA.R. 1257	1/2/08-1/1/09
Title 4. Conservation and Natural Resources			
4 VAC 5-36-50	Amended	24:6 VA.R. 638	1/1/08
4 VAC 5-36-60	Amended	24:6 VA.R. 644	1/1/08
4 VAC 5-36-70	Amended	24:6 VA.R. 645	1/1/08
4 VAC 5-36-90	Amended	24:6 VA.R. 647	1/1/08
4 VAC 5-36-100	Amended	24:6 VA.R. 649	1/1/08

* Objection to Fast-Track Rulemaking 24:1

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4 VAC 5-36-110	Amended	24:6 VA.R. 654	1/1/08
4 VAC 5-36-120	Amended	24:6 VA.R. 655	1/1/08
4 VAC 5-36-130	Amended	24:6 VA.R. 656	1/1/08
4 VAC 5-36-140	Amended	24:6 VA.R. 657	1/1/08
4 VAC 5-36-150	Amended	24:6 VA.R. 659	1/1/08
4 VAC 5-36-200	Amended	24:6 VA.R. 662	1/1/08
4 VAC 5-36-210	Amended	24:6 VA.R. 670	1/1/08
4 VAC 5-36-220	Amended	24:6 VA.R. 675	1/1/08
4 VAC 5-50-10 through 4VAC5-50-170	Repealed	24:17 VA.R. 2357	5/28/08
4 VAC 15-20-50	Amended	24:10 VA.R. 1258	1/1/08
4 VAC 15-20-130	Amended	24:10 VA.R. 1259	1/1/08
4 VAC 15-20-200	Amended	24:10 VA.R. 1261	1/1/08
4 VAC 15-20-210	Amended	24:10 VA.R. 1261	1/1/08
4 VAC 15-30-5	Amended	24:10 VA.R. 1262	1/1/08
4 VAC 15-30-40	Amended	24:10 VA.R. 1262	1/1/08
4 VAC 15-200-10	Amended	24:6 VA.R. 676	10/26/07
4 VAC 15-270-40	Amended	24:6 VA.R. 676	7/1/08
4 VAC 15-270-80	Added	24:6 VA.R. 676	10/26/07
4 VAC 15-270-90	Added	24:6 VA.R. 677	1/1/08
4 VAC 15-320-25	Amended	24:10 VA.R. 1265	1/1/08
4 VAC 15-330-30	Amended	24:10 VA.R. 1272	1/1/08
4 VAC 15-330-100	Amended	24:10 VA.R. 1272	1/1/08
4 VAC 15-330-120	Amended	24:10 VA.R. 1272	1/1/08
4 VAC 15-330-160	Amended	24:10 VA.R. 1272	1/1/08
4 VAC 15-330-171	Amended	24:10 VA.R. 1273	1/1/08
4 VAC 15-330-200	Amended	24:10 VA.R. 1273	1/1/08
4 VAC 15-340-10	Amended	24:10 VA.R. 1273	1/1/08
4 VAC 15-340-30	Amended	24:10 VA.R. 1274	1/1/08
4 VAC 15-350-20	Amended	24:10 VA.R. 1275	1/1/08
4 VAC 15-350-30	Amended	24:10 VA.R. 1275	1/1/08
4 VAC 15-350-60	Amended	24:10 VA.R. 1275	1/1/08
4 VAC 15-350-70	Amended	24:10 VA.R. 1275	1/1/08
4 VAC 15-360-10	Amended	24:10 VA.R. 1276	1/1/08
4 VAC 20-20-50	Amended	24:5 VA.R. 555	11/1/07
4 VAC 20-150-30	Amended	24:10 VA.R. 1277	1/1/08
4 VAC 20-252-55	Amended	24:10 VA.R. 1278	1/1/08
4 VAC 20-252-90	Amended	24:4 VA.R. 471	10/1/07
4 VAC 20-252-100	Amended	24:4 VA.R. 471	10/1/07
4 VAC 20-252-120	Amended	24:10 VA.R. 1278	1/1/08
4 VAC 20-252-150	Amended	24:10 VA.R. 1279	1/1/08
4 VAC 20-252-160	Amended	24:10 VA.R. 1279	1/1/08
4 VAC 20-252-230	Amended	24:10 VA.R. 1281	1/1/08
4 VAC 20-260-10	Amended	24:4 VA.R. 472	10/1/07
4 VAC 20-260-20	Amended	24:4 VA.R. 472	10/1/07
4 VAC 20-260-30	Amended	24:4 VA.R. 473	10/1/07
4 VAC 20-260-35	Added	24:4 VA.R. 474	10/1/07
4 VAC 20-260-40	Amended	24:4 VA.R. 474	10/1/07
4 VAC 20-260-60	Amended	24:4 VA.R. 474	10/1/07
4 VAC 20-270-55	Amended	24:15 VA.R. 2023	3/1/08
4 VAC 20-320-50	Amended	24:12 VA.R. 1456	2/1/08

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4 VAC 20-530-20	Amended	24:12 VA.R. 1456	2/1/08
4 VAC 20-530-31	Amended	24:13 VA.R. 1735	2/5/08
4 VAC 20-530-32	Repealed	24:12 VA.R. 1457	2/1/08
4 VAC 20-610-20	Amended	24:8 VA.R. 959	12/1/07
4 VAC 20-610-25	Added	24:8 VA.R. 959	12/1/07
4 VAC 20-610-30	Amended	24:8 VA.R. 960	12/1/07
4 VAC 20-610-30	Amended	24:15 VA.R. 2024	3/1/08
4 VAC 20-610-50	Amended	24:8 VA.R. 961	12/1/07
4 VAC 20-610-60	Amended	24:8 VA.R. 961	12/1/07
4 VAC 20-620-30	Amended	24:10 VA.R. 1281	12/27/07
4 VAC 20-620-40 emer	Amended	24:8 VA.R. 962	11/28/07-12/27/07
4 VAC 20-620-40	Amended	24:10 VA.R. 1282	12/27/07
4 VAC 20-620-50	Amended	24:15 VA.R. 2025	3/1/08
4 VAC 20-620-70	Amended	24:15 VA.R. 2026	3/1/08
4 VAC 20-650-20	Amended	24:4 VA.R. 474	10/1/07
4 VAC 20-650-30	Amended	24:4 VA.R. 475	10/1/07
4 VAC 20-650-40	Amended	24:4 VA.R. 475	10/1/07
4 VAC 20-700-20	Amended	24:15 VA.R. 2026	3/1/08
4 VAC 20-720-20	Amended	24:4 VA.R. 475	10/1/07
4 VAC 20-720-20	Erratum	24:5 VA.R. 621	--
4 VAC 20-720-40 through 4 VAC 20-720-80	Amended	24:4 VA.R. 478-480	10/1/07
4 VAC 20-720-40	Amended	24:12 VA.R. 1457	2/1/08
4 VAC 20-720-50	Amended	24:12 VA.R. 1458	2/1/08
4 VAC 20-720-60	Amended	24:12 VA.R. 1458	2/1/08
4 VAC 20-720-80	Amended	24:12 VA.R. 1458	2/1/08
4 VAC 20-720-95	Added	24:4 VA.R. 480	10/1/07
4 VAC 20-720-110	Amended	24:4 VA.R. 480	10/1/07
4 VAC 20-750-10	Amended	24:15 VA.R. 2026	3/1/08
4 VAC 20-750-30	Amended	24:15 VA.R. 2026	3/1/08
4 VAC 20-751-15	Added	24:15 VA.R. 2027	3/1/08
4 VAC 20-751-20	Amended	24:15 VA.R. 2027	3/1/08
4 VAC 20-752-30	Amended	24:16 VA.R. 2246	4/1/08
4 VAC 20-755-10	Amended	24:2 VA.R. 133	9/1/07
4 VAC 20-755-20	Amended	24:2 VA.R. 133	9/1/07
4 VAC 20-755-30	Amended	24:2 VA.R. 136	9/1/07
4 VAC 20-910-45	Amended	24:5 VA.R. 556	11/1/07
4 VAC 20-950-47	Amended	24:15 VA.R. 2028	3/1/08
4 VAC 20-950-48	Amended	24:15 VA.R. 2028	3/1/08
4 VAC 20-950-48.1	Amended	24:15 VA.R. 2029	3/1/08
4 VAC 20-960-45	Amended	24:8 VA.R. 964	1/1/08
4 VAC 20-960-47	Amended	24:8 VA.R. 964	1/1/08
4 VAC 20-1040-20	Amended	24:8 VA.R. 964	1/1/08
4 VAC 20-1040-35	Added	24:12 VA.R. 1459	2/1/08
4 VAC 20-1090-30	Amended	24:8 VA.R. 965	12/1/07
4 VAC 20-1120-20	Amended	23:23 VA.R. 3871	6/28/07
4 VAC 20-1130-10 through 4 VAC 20-1130-70	Added	24:8 VA.R. 968-970	12/1/07
4 VAC 25-20 (Forms)	Amended	23:24 VA.R. 3968	--
4 VAC 25-50-10 through 4 VAC 25-50-110	Repealed	23:22 VA.R. 3696	8/8/07
4 VAC 25-130 (Forms)	Amended	24:11 VA.R. 1424	--
4 VAC 25-130-777.17	Amended	23:22 VA.R. 3696	8/8/07
4 VAC 25-150-90	Amended	24:17 VA.R. 2359	6/12/08

SECTION NUMBER	ACTION	CITE	EFFECTIVE DATE
Title 5. Corporations			
5 VAC 5-20-20	Amended	24:11 VA.R. 1347	2/15/08
5 VAC 5-20-140	Amended	24:11 VA.R. 1347	2/15/08
5 VAC 5-20-150	Amended	24:11 VA.R. 1348	2/15/08
5 VAC 5-20-170	Amended	24:11 VA.R. 1348	2/15/08
5 VAC 5-20-240	Amended	24:11 VA.R. 1349	2/15/08
5 VAC 5-30-10	Amended	23:23 VA.R. 3872	7/1/07
5 VAC 5-30-20	Amended	23:23 VA.R. 3872	7/1/07
5 VAC 5-30-30	Amended	23:23 VA.R. 3873	7/1/07
5 VAC 5-30-40	Amended	23:23 VA.R. 3873	7/1/07
5 VAC 5-30-50	Amended	23:23 VA.R. 3874	7/1/07
5 VAC 5-30-60	Amended	23:23 VA.R. 3874	7/1/07
5 VAC 5-30-70	Amended	23:23 VA.R. 3875	7/1/07
Title 6. Criminal Justice and Corrections			
6 VAC 15-20-10 through 6 VAC 15-20-230	Amended	23:22 VA.R. 3697-3703	8/9/07
6 VAC 15-61-10 through 6 VAC 15-61-300	Repealed	24:8 VA.R. 970	1/24/08
6 VAC 15-62-10 through 6 VAC 15-62-120	Added	24:8 VA.R. 970-979	1/24/08
6 VAC 15-62-110	Amended	24:13 VA.R. 1736	3/3/08
6 VAC 15-62 (Forms)	Amended	24:12 VA.R. 1523	--
6 VAC 20-120-40	Amended	23:25 VA.R. 4177	9/19/07
6 VAC 35-20-37 emer	Amended	23:25 VA.R. 4178	8/1/07-7/31/08
6 VAC 35-180-10 through 6 VAC 35-180-170	Added	24:5 VA.R. 557-561	1/1/08
6 VAC 35-190-10 through 6 VAC 35-190-110	Added	24:2 VA.R. 137-139	10/31/07
6 VAC 40-50-10 through 6 VAC 40-50-80 emer	Added	23:23 VA.R. 3876	7/1/06-12/29/07
6 VAC 40-50-10 through 6 VAC 40-50-80	Added	24:9 VA.R. 1103-1104	2/6/08
Title 8. Education			
8 VAC 20-21-10 through 8 VAC 20-21-730	Repealed	23:25 VA.R. 4179	9/21/07
8 VAC 20-22-10 through 8 VAC 20-22-760	Added	23:25 VA.R. 4179-4214	9/21/07
8 VAC 20-160-10	Amended	23:23 VA.R. 3876	8/27/07
8 VAC 20-160-20	Amended	23:23 VA.R. 3878	8/27/07
8 VAC 20-160-30	Amended	23:23 VA.R. 3878	8/27/07
8 VAC 20-160-40	Amended	23:23 VA.R. 3879	8/27/07
8 VAC 20-160-50	Amended	23:23 VA.R. 3879	8/27/07
8 VAC 20-160-60	Amended	23:23 VA.R. 3879	8/27/07
8 VAC 20-190-10	Repealed	24:5 VA.R. 562	1/1/08
8 VAC 20-500-10	Repealed	24:5 VA.R. 563	1/1/08
8 VAC 20-541-10 through 8 VAC 20-541-60	Repealed	23:25 VA.R. 4214	9/21/07
8 VAC 20-542-10 through 8 VAC 20-542-600	Added	23:25 VA.R. 4214-4270	9/21/07
8 VAC 35-60-10	Added	24:1 VA.R. 25	8/28/07
8 VAC 35-60-20	Added	24:1 VA.R. 25	8/28/07
8 VAC 35-60-30	Added	24:1 VA.R. 25	8/28/07
8 VAC 40-140-10 through 8 VAC 40-140-90	Added	23:22 VA.R. 3704-3706	7/1/07
Title 9. Environment			
9 VAC 5-20-203	Amended	24:5 VA.R. 564	12/12/07
9 VAC 5-20-204	Amended	24:5 VA.R. 565	12/12/07
9 VAC 5-40-20	Amended	24:5 VA.R. 566	12/12/07
9 VAC 5-50-20	Amended	24:5 VA.R. 570	12/12/07
9 VAC 5-50-400	Amended	24:5 VA.R. 573	12/12/07
9 VAC 5-50-410	Amended	24:5 VA.R. 573	12/12/07
9 VAC 5-60-60	Amended	24:5 VA.R. 579	12/12/07

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9 VAC 5-60-90	Amended	24:5 VA.R. 579	12/12/07
9 VAC 5-60-92	Added	24:5 VA.R. 579	12/12/07
9 VAC 5-60-95	Amended	24:5 VA.R. 579	12/12/07
9 VAC 5-60-100	Amended	24:5 VA.R. 580	12/12/07
9 VAC 5-91-20	Amended	24:5 VA.R. 587	12/12/07
9 VAC 5-140-1061	Added	24:6 VA.R. 679	12/26/07
9 VAC 5-140-1062	Added	24:6 VA.R. 680	12/26/07
9 VAC 5-140-2061	Added	24:6 VA.R. 681	12/26/07
9 VAC 5-140-2062	Added	24:6 VA.R. 682	12/26/07
9 VAC 5-140-3061	Added	24:6 VA.R. 683	12/26/07
9 VAC 5-140-3062	Added	24:6 VA.R. 683	12/26/07
9 VAC 5-140-3400	Amended	24:5 VA.R. 594	12/12/07
9 VAC 20-60-18	Amended	24:9 VA.R. 1106	2/6/08
9 VAC 20-130-10	Amended	24:4 VA.R. 480	11/28/07
9 VAC 20-130-40	Amended	24:4 VA.R. 484	11/28/07
9 VAC 20-130-60	Amended	24:4 VA.R. 484	11/28/07
9 VAC 20-130-70	Amended	24:4 VA.R. 484	11/28/07
9 VAC 20-130-90	Amended	24:4 VA.R. 485	11/28/07
9 VAC 20-130-110	Amended	24:4 VA.R. 485	11/28/07
9 VAC 20-130-120	Amended	24:4 VA.R. 486	11/28/07
9 VAC 20-130-120	Erratum	24:6 VA.R. 889	--
9 VAC 20-130-125	Added	24:4 VA.R. 488	11/28/07
9 VAC 20-130-125	Erratum	24:6 VA.R. 889	--
9 VAC 20-130-130	Amended	24:4 VA.R. 489	11/28/07
9 VAC 20-130-140	Repealed	24:4 VA.R. 489	11/28/07
9 VAC 20-130-150	Repealed	24:4 VA.R. 489	11/28/07
9 VAC 20-130-165	Amended	24:4 VA.R. 489	11/28/07
9 VAC 20-130-175 through 9 VAC 20-130-230	Amended	24:4 VA.R. 490-493	11/28/07
9 VAC 20-130-200	Erratum	24:6 VA.R. 889	--
9 VAC 25-20-10	Amended	24:6 VA.R. 701	1/1/08
9 VAC 25-20-20	Amended	24:6 VA.R. 702	1/1/08
9 VAC 25-20-30	Repealed	24:6 VA.R. 702	1/1/08
9 VAC 25-20-40	Amended	24:6 VA.R. 702	1/1/08
9 VAC 25-20-50	Amended	24:6 VA.R. 703	1/1/08
9 VAC 25-20-60	Amended	24:6 VA.R. 703	1/1/08
9 VAC 25-20-90	Amended	24:6 VA.R. 704	1/1/08
9 VAC 25-20-100	Amended	24:6 VA.R. 704	1/1/08
9 VAC 25-20-110	Amended	24:6 VA.R. 705	1/1/08
9 VAC 25-20-120	Amended	24:6 VA.R. 706	1/1/08
9 VAC 25-20-130	Amended	24:6 VA.R. 708	1/1/08
9 VAC 25-20-146	Added	24:6 VA.R. 708	1/1/08
9 VAC 25-20-147	Added	24:6 VA.R. 709	1/1/08
9 VAC 25-20-148	Added	24:6 VA.R. 709	1/1/08
9 VAC 25-20-149	Added	24:6 VA.R. 709	1/1/08
9 VAC 25-31-100	Amended	24:3 VA.R. 313	11/14/07
9 VAC 25-31-100	Amended	24:6 VA.R. 711	1/1/08
9 VAC 25-31-120	Amended	24:3 VA.R. 309	11/14/07
9 VAC 25-31-165	Amended	24:3 VA.R. 333	11/14/07
9 VAC 25-31-220	Amended	24:6 VA.R. 731	1/1/08
9 VAC 25-31-290	Amended	24:6 VA.R. 735	1/1/08
9 VAC 25-31-460	Amended	24:6 VA.R. 738	1/1/08

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9 VAC 25-31-475	Added	24:6 VA.R. 738	1/1/08
9 VAC 25-31-485	Added	24:6 VA.R. 738	1/1/08
9 VAC 25-31-505	Added	24:6 VA.R. 739	1/1/08
9 VAC 25-32 (Forms)	Amended	24:6 VA.R. 739	--
9 VAC 25-32 (Forms)	Amended	24:13 VA.R. 1738	--
9 VAC 25-32-40	Amended	24:6 VA.R. 739	1/1/08
9 VAC 25-32-60	Amended	24:6 VA.R. 739	1/1/08
9 VAC 25-32-80	Amended	24:6 VA.R. 740	1/1/08
9 VAC 25-32-100	Amended	24:6 VA.R. 743	1/1/08
9 VAC 25-32-140	Amended	24:6 VA.R. 743	1/1/08
9 VAC 25-32-210	Amended	24:6 VA.R. 744	1/1/08
9 VAC 25-32-220	Amended	24:6 VA.R. 745	1/1/08
9 VAC 25-32-240	Amended	24:6 VA.R. 745	1/1/08
9 VAC 25-32-300	Amended	24:6 VA.R. 745	1/1/08
9 VAC 25-32-310 through 9 VAC 25-32-760	Added	24:6 VA.R. 746-781	1/1/08
9 VAC 25-120-10	Amended	24:9 VA.R. 1107	2/6/08
9 VAC 25-120-20	Amended	24:9 VA.R. 1107	2/6/08
9 VAC 25-120-50	Amended	24:9 VA.R. 1108	2/6/08
9 VAC 25-120-60	Amended	24:9 VA.R. 1108	2/6/08
9 VAC 25-120-70	Amended	24:9 VA.R. 1108	2/6/08
9 VAC 25-120-80	Amended	24:9 VA.R. 1109	2/6/08
9 VAC 25-196-20	Amended	24:9 VA.R. 1124	2/6/08
9 VAC 25-196-40	Amended	24:9 VA.R. 1124	2/6/08
9 VAC 25-196-60	Amended	24:9 VA.R. 1124	2/6/08
9 VAC 25-196-70	Amended	24:9 VA.R. 1125	2/6/08
9 VAC 25-210-10	Amended	24:9 VA.R. 1132	2/6/08
9 VAC 25-210-60	Amended	24:9 VA.R. 1136	2/6/08
9 VAC 25-210-116	Amended	24:9 VA.R. 1140	2/6/08
9 VAC 25-210-130	Amended	24:9 VA.R. 1142	2/6/08
9 VAC 25-260-5	Amended	24:4 VA.R. 536	8/14/07
9 VAC 25-260-30	Amended	24:2 VA.R. 139	9/11/07
9 VAC 25-260-30	Amended	24:2 VA.R. 140	9/11/07
9 VAC 25-260-30	Amended	24:7 VA.R. 908	*
9 VAC 25-260-30	Amended	24:13 VA.R. 1741	*
9 VAC 25-260-50	Amended	24:4 VA.R. 536	8/14/07
9 VAC 25-260-187	Added	24:4 VA.R. 536	8/14/07
9 VAC 25-260-310	Amended	24:4 VA.R. 536	8/14/07
9 VAC 25-260-480	Amended	24:4 VA.R. 536	8/14/07
9 VAC 25-660-10	Amended	24:9 VA.R. 1144	2/6/08
9 VAC 25-660-60	Amended	24:9 VA.R. 1145	2/6/08
9 VAC 25-660-70	Amended	24:9 VA.R. 1147	2/6/08
9 VAC 25-660-80	Amended	24:9 VA.R. 1148	2/6/08
9 VAC 25-660-100	Amended	24:9 VA.R. 1148	2/6/08
9 VAC 25-670-10	Amended	24:9 VA.R. 1156	2/6/08
9 VAC 25-670-70	Amended	24:9 VA.R. 1157	2/6/08
9 VAC 25-670-80	Amended	24:9 VA.R. 1158	2/6/08
9 VAC 25-670-100	Amended	24:9 VA.R. 1159	2/6/08
9 VAC 25-680-10	Amended	24:9 VA.R. 1170	2/6/08

* Effective upon filing notice of U.S. EPA approval with Registrar of Regulations

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9 VAC 25-680-60	Amended	24:9 VA.R. 1172	2/6/08
9 VAC 25-680-70	Amended	24:9 VA.R. 1174	2/6/08
9 VAC 25-680-80	Amended	24:9 VA.R. 1175	2/6/08
9 VAC 25-680-100	Amended	24:9 VA.R. 1176	2/6/08
9 VAC 25-690-10	Amended	24:9 VA.R. 1188	2/6/08
9 VAC 25-690-70	Amended	24:9 VA.R. 1190	2/6/08
9 VAC 25-690-80	Amended	24:9 VA.R. 1191	2/6/08
9 VAC 25-690-100	Amended	24:9 VA.R. 1191	2/6/08
9 VAC 25-720-50	Amended	23:23 VA.R. 3881	10/22/07
9 VAC 25-720-50	Amended	23:23 VA.R. 3888	10/22/07
9 VAC 25-720-50	Amended	23:23 VA.R. 3895	10/22/07
9 VAC 25-720-50	Amended	24:2 VA.R. 140	11/15/07
9 VAC 25-720-80	Amended	23:23 VA.R. 3901	10/22/07
9 VAC 25-720-90	Amended	24:2 VA.R. 147	11/15/07
9 VAC 25-790-10	Amended	24:6 VA.R. 784	1/1/08
9 VAC 25-790-50	Amended	24:6 VA.R. 787	1/1/08
9 VAC 25-790-60	Amended	24:6 VA.R. 787	1/1/08
9 VAC 25-790-120	Amended	24:6 VA.R. 788	1/1/08
9 VAC 25-790-130	Amended	24:6 VA.R. 790	1/1/08
9 VAC 25-790-150	Amended	24:6 VA.R. 790	1/1/08
9 VAC 25-790-180	Amended	24:6 VA.R. 791	1/1/08
9 VAC 25-790-200	Amended	24:6 VA.R. 791	1/1/08
9 VAC 25-790-240	Amended	24:6 VA.R. 791	1/1/08
9 VAC 25-790-540	Amended	24:6 VA.R. 792	1/1/08
9 VAC 25-790-550	Amended	24:6 VA.R. 792	1/1/08
9 VAC 25-790-570	Amended	24:6 VA.R. 795	1/1/08
9 VAC 25-790-580	Amended	24:6 VA.R. 797	1/1/08
9 VAC 25-790-590	Amended	24:6 VA.R. 797	1/1/08
9 VAC 25-790-600	Amended	24:6 VA.R. 798	1/1/08
9 VAC 25-790-660	Amended	24:6 VA.R. 799	1/1/08
9 VAC 25-790-880	Amended	24:6 VA.R. 799	1/1/08
Title 11. Gaming			
11 VAC 10-45-10	Amended	24:5 VA.R. 595	12/12/07
11 VAC 10-45-25	Added	24:5 VA.R. 596	12/12/07
11 VAC 10-130-60	Amended	24:16 VA.R. 2247	4/14/08
11 VAC 10-180-10	Amended	24:16 VA.R. 2247	4/14/08
11 VAC 10-180-20	Repealed	24:16 VA.R. 2248	4/14/08
11 VAC 10-180-25	Added	24:16 VA.R. 2250	4/14/08
11 VAC 10-180-35	Added	24:16 VA.R. 2250	4/14/08
11 VAC 10-180-60	Amended	24:16 VA.R. 2251	4/14/08
11 VAC 10-180-70	Amended	24:16 VA.R. 2256	4/14/08
11 VAC 10-180-75	Added	24:16 VA.R. 2256	4/14/08
11 VAC 10-180-80	Amended	24:16 VA.R. 2257	4/14/08
11 VAC 10-180-85	Amended	24:16 VA.R. 2258	4/14/08
11 VAC 10-180-110	Amended	24:16 VA.R. 2259	4/14/08
Title 12. Health			
12 VAC 5-31-2300 through 12 VAC 5-31-2970	Added	24:6 VA.R. 806-818	1/1/08
12 VAC 5-40-10 through 12 VAC 5-40-190	Repealed	24:6 VA.R. 806	1/1/08
12 VAC 5-90-80 emer	Amended	24:5 VA.R. 597	10/24/07-10/23/08
12 VAC 5-125-10 through 12 VAC 5-125-180	Added	23:23 VA.R. 3904-3919	9/1/07
12 VAC 5-220-10	Amended	24:11 VA.R. 1350	3/5/08

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12 VAC 5-220-110	Amended	24:11 VA.R. 1353	3/5/08
12 VAC 5-220-130	Amended	24:11 VA.R. 1354	3/5/08
12 VAC 5-220-200	Amended	24:11 VA.R. 1354	3/5/08
12 VAC 5-371-150	Amended	24:11 VA.R. 1357	3/5/08
12 VAC 5-381-10 through 12VAC5-381-40	Amended	24:11 VA.R. 1358-1361	3/5/08
12 VAC 5-381-60 through 12VAC5-381-100	Amended	24:11 VA.R. 1361-1362	3/5/08
12 VAC 5-381-120	Amended	24:11 VA.R. 1362	3/5/08
12 VAC 5-381-140	Amended	24:11 VA.R. 1362	3/5/08
12 VAC 5-381-150	Amended	24:11 VA.R. 1362	3/5/08
12 VAC 5-381-240	Amended	24:11 VA.R. 1363	3/5/08
12 VAC 5-381-280	Amended	24:11 VA.R. 1363	3/5/08
12 VAC 5-391-10	Amended	24:11 VA.R. 1364	3/5/08
12 VAC 5-391-30 through 12 VAC 5-391-100	Amended	24:11 VA.R. 1366-1368	3/5/08
12 VAC 5-391-120	Amended	24:11 VA.R. 1368	3/5/08
12 VAC 5-391-130	Amended	24:11 VA.R. 1368	3/5/08
12 VAC 5-391-150	Amended	24:11 VA.R. 1369	3/5/08
12 VAC 5-391-160	Amended	24:11 VA.R. 1369	3/5/08
12 VAC 5-391-250	Amended	24:11 VA.R. 1370	3/5/08
12 VAC 5-391-280	Amended	24:11 VA.R. 1370	3/5/08
12 VAC 5-410-230	Amended	24:11 VA.R. 1371	3/5/08
12 VAC 5-421-10	Amended	24:2 VA.R. 149	10/16/07
12 VAC 5-421-90	Amended	24:2 VA.R. 157	10/16/07
12 VAC 5-421-100	Amended	24:2 VA.R. 157	10/16/07
12 VAC 5-421-120	Amended	24:2 VA.R. 158	10/16/07
12 VAC 5-421-140	Amended	24:2 VA.R. 158	10/16/07
12 VAC 5-421-160	Amended	24:2 VA.R. 159	10/16/07
12 VAC 5-421-170	Amended	24:2 VA.R. 159	10/16/07
12 VAC 5-421-180	Amended	24:2 VA.R. 159	10/16/07
12 VAC 5-421-190	Amended	24:2 VA.R. 159	10/16/07
12 VAC 5-421-200	Amended	24:2 VA.R. 160	10/16/07
12 VAC 5-421-230	Amended	24:2 VA.R. 160	10/16/07
12 VAC 5-421-250	Amended	24:2 VA.R. 160	10/16/07
12 VAC 5-421-270	Amended	24:2 VA.R. 160	10/16/07
12 VAC 5-421-295	Added	24:2 VA.R. 160	10/16/07
12 VAC 5-421-300	Amended	24:2 VA.R. 160	10/16/07
12 VAC 5-421-330	Amended	24:2 VA.R. 161	10/16/07
12 VAC 5-421-340	Amended	24:2 VA.R. 161	10/16/07
12 VAC 5-421-350	Amended	24:2 VA.R. 161	10/16/07
12 VAC 5-421-360	Amended	24:2 VA.R. 161	10/16/07
12 VAC 5-421-430	Amended	24:2 VA.R. 162	10/16/07
12 VAC 5-421-440	Amended	24:2 VA.R. 162	10/16/07
12 VAC 5-421-450	Amended	24:2 VA.R. 162	10/16/07
12 VAC 5-421-460	Added	24:2 VA.R. 162	10/16/07
12 VAC 5-421-500	Amended	24:2 VA.R. 162	10/16/07
12 VAC 5-421-520	Amended	24:2 VA.R. 163	10/16/07
12 VAC 5-421-530	Amended	24:2 VA.R. 163	10/16/07
12 VAC 5-421-550	Amended	24:2 VA.R. 163	10/16/07
12 VAC 5-421-560	Amended	24:2 VA.R. 163	10/16/07
12 VAC 5-421-570	Amended	24:2 VA.R. 163	10/16/07
12 VAC 5-421-580	Amended	24:2 VA.R. 163	10/16/07

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12 VAC 5-421-590	Amended	24:2 VA.R. 164	10/16/07
12 VAC 5-421-600	Amended	24:2 VA.R. 164	10/16/07
12 VAC 5-421-620	Amended	24:2 VA.R. 164	10/16/07
12 VAC 5-421-670	Amended	24:2 VA.R. 164	10/16/07
12 VAC 5-421-680	Amended	24:2 VA.R. 164	10/16/07
12 VAC 5-421-700	Amended	24:2 VA.R. 164	10/16/07
12 VAC 5-421-720	Amended	24:2 VA.R. 166	10/16/07
12 VAC 5-421-760	Amended	24:2 VA.R. 166	10/16/07
12 VAC 5-421-765	Added	24:2 VA.R. 166	10/16/07
12 VAC 5-421-780	Amended	24:2 VA.R. 166	10/16/07
12 VAC 5-421-790	Amended	24:2 VA.R. 166	10/16/07
12 VAC 5-421-800	Amended	24:2 VA.R. 167	10/16/07
12 VAC 5-421-820	Amended	24:2 VA.R. 167	10/16/07
12 VAC 5-421-830	Amended	24:2 VA.R. 167	10/16/07
12 VAC 5-421-840	Amended	24:2 VA.R. 169	10/16/07
12 VAC 5-421-850	Amended	24:2 VA.R. 169	10/16/07
12 VAC 5-421-860	Amended	24:2 VA.R. 170	10/16/07
12 VAC 5-421-870	Amended	24:2 VA.R. 170	10/16/07
12 VAC 5-421-880	Added	24:2 VA.R. 171	10/16/07
12 VAC 5-421-890	Added	24:2 VA.R. 171	10/16/07
12 VAC 5-421-900	Added	24:2 VA.R. 171	10/16/07
12 VAC 5-421-910	Added	24:2 VA.R. 171	10/16/07
12 VAC 5-421-920	Added	24:2 VA.R. 171	10/16/07
12 VAC 5-421-930	Added	24:2 VA.R. 171	10/16/07
12 VAC 5-421-940	Amended	24:2 VA.R. 172	10/16/07
12 VAC 5-421-950	Amended	24:2 VA.R. 172	10/16/07
12 VAC 5-421-960	Amended	24:2 VA.R. 173	10/16/07
12 VAC 5-421-970	Amended	24:2 VA.R. 173	10/16/07
12 VAC 5-421-990	Amended	24:2 VA.R. 173	10/16/07
12 VAC 5-421-1000	Amended	24:2 VA.R. 173	10/16/07
12 VAC 5-421-1010	Amended	24:2 VA.R. 173	10/16/07
12 VAC 5-421-1020	Amended	24:2 VA.R. 173	10/16/07
12 VAC 5-421-1030	Amended	24:2 VA.R. 173	10/16/07
12 VAC 5-421-1040	Amended	24:2 VA.R. 173	10/16/07
12 VAC 5-421-1070	Amended	24:2 VA.R. 174	10/16/07
12 VAC 5-421-1090	Amended	24:2 VA.R. 174	10/16/07
12 VAC 5-421-1120	Amended	24:2 VA.R. 174	10/16/07
12 VAC 5-421-1200	Amended	24:2 VA.R. 174	10/16/07
12 VAC 5-421-1260	Amended	24:2 VA.R. 174	10/16/07
12 VAC 5-421-1270	Amended	24:2 VA.R. 174	10/16/07
12 VAC 5-421-1300	Amended	24:2 VA.R. 174	10/16/07
12 VAC 5-421-1310	Amended	24:2 VA.R. 174	10/16/07
12 VAC 5-421-1320	Amended	24:2 VA.R. 175	10/16/07
12 VAC 5-421-1330	Amended	24:2 VA.R. 175	10/16/07
12 VAC 5-421-1340	Amended	24:2 VA.R. 175	10/16/07
12 VAC 5-421-1350	Amended	24:2 VA.R. 175	10/16/07
12 VAC 5-421-1360	Amended	24:2 VA.R. 175	10/16/07
12 VAC 5-421-1370	Amended	24:2 VA.R. 176	10/16/07
12 VAC 5-421-1460	Amended	24:2 VA.R. 176	10/16/07
12 VAC 5-421-1510	Amended	24:2 VA.R. 176	10/16/07
12 VAC 5-421-1520	Amended	24:2 VA.R. 176	10/16/07

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12 VAC 5-421-1530	Amended	24:2 VA.R. 177	10/16/07
12 VAC 5-421-1540	Amended	24:2 VA.R. 177	10/16/07
12 VAC 5-421-1620	Amended	24:2 VA.R. 177	10/16/07
12 VAC 5-421-1640	Amended	24:2 VA.R. 177	10/16/07
12 VAC 5-421-1660	Amended	24:2 VA.R. 177	10/16/07
12 VAC 5-421-1670	Amended	24:2 VA.R. 178	10/16/07
12 VAC 5-421-1680	Amended	24:2 VA.R. 178	10/16/07
12 VAC 5-421-1690	Amended	24:2 VA.R. 178	10/16/07
12 VAC 5-421-1700	Amended	24:2 VA.R. 178	10/16/07
12 VAC 5-421-1710	Amended	24:2 VA.R. 179	10/16/07
12 VAC 5-421-1720	Amended	24:2 VA.R. 179	10/16/07
12 VAC 5-421-1730	Amended	24:2 VA.R. 179	10/16/07
12 VAC 5-421-1750	Amended	24:2 VA.R. 179	10/16/07
12 VAC 5-421-1760	Amended	24:2 VA.R. 179	10/16/07
12 VAC 5-421-1780	Amended	24:2 VA.R. 179	10/16/07
12 VAC 5-421-1810	Amended	24:2 VA.R. 180	10/16/07
12 VAC 5-421-1820	Amended	24:2 VA.R. 180	10/16/07
12 VAC 5-421-1880	Amended	24:2 VA.R. 180	10/16/07
12 VAC 5-421-1890	Amended	24:2 VA.R. 180	10/16/07
12 VAC 5-421-1900	Amended	24:2 VA.R. 180	10/16/07
12 VAC 5-421-1960	Amended	24:2 VA.R. 181	10/16/07
12 VAC 5-421-2010	Amended	24:2 VA.R. 181	10/16/07
12 VAC 5-421-2080	Amended	24:2 VA.R. 181	10/16/07
12 VAC 5-421-2190	Amended	24:2 VA.R. 181	10/16/07
12 VAC 5-421-2200	Amended	24:2 VA.R. 181	10/16/07
12 VAC 5-421-2210	Amended	24:2 VA.R. 181	10/16/07
12 VAC 5-421-2270	Amended	24:2 VA.R. 181	10/16/07
12 VAC 5-421-2310	Amended	24:2 VA.R. 182	10/16/07
12 VAC 5-421-2320	Amended	24:2 VA.R. 182	10/16/07
12 VAC 5-421-2520	Amended	24:2 VA.R. 182	10/16/07
12 VAC 5-421-2630	Amended	24:2 VA.R. 182	10/16/07
12 VAC 5-421-2680	Amended	24:2 VA.R. 182	10/16/07
12 VAC 5-421-2710	Amended	24:2 VA.R. 182	10/16/07
12 VAC 5-421-2790	Amended	24:2 VA.R. 182	10/16/07
12 VAC 5-421-2810	Amended	24:2 VA.R. 182	10/16/07
12 VAC 5-421-2820	Amended	24:2 VA.R. 183	10/16/07
12 VAC 5-421-2840	Amended	24:2 VA.R. 183	10/16/07
12 VAC 5-421-2850	Amended	24:2 VA.R. 183	10/16/07
12 VAC 5-421-2870	Amended	24:2 VA.R. 183	10/16/07
12 VAC 5-421-2880	Amended	24:2 VA.R. 183	10/16/07
12 VAC 5-421-2930	Amended	24:2 VA.R. 183	10/16/07
12 VAC 5-421-2990	Amended	24:2 VA.R. 184	10/16/07
12 VAC 5-421-3040	Amended	24:2 VA.R. 184	10/16/07
12 VAC 5-421-3120	Amended	24:2 VA.R. 184	10/16/07
12 VAC 5-421-3200	Amended	24:2 VA.R. 184	10/16/07
12 VAC 5-421-3210	Amended	24:2 VA.R. 184	10/16/07
12 VAC 5-421-3230	Amended	24:2 VA.R. 184	10/16/07
12 VAC 5-421-3310	Amended	24:2 VA.R. 184	10/16/07
12 VAC 5-421-3370	Amended	24:2 VA.R. 185	10/16/07
12 VAC 5-421-3380	Amended	24:2 VA.R. 185	10/16/07

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12 VAC 5-421-3450	Amended	24:2 VA.R. 185	10/16/07
12 VAC 5-421-3510	Amended	24:2 VA.R. 185	10/16/07
12 VAC 5-421-3560	Amended	24:2 VA.R. 185	10/16/07
12 VAC 5-421-3580	Amended	24:2 VA.R. 185	10/16/07
12 VAC 5-421-3590	Amended	24:2 VA.R. 186	10/16/07
12 VAC 5-421-3620	Amended	24:2 VA.R. 186	10/16/07
12 VAC 5-421-3660	Amended	24:2 VA.R. 186	10/16/07
12 VAC 5-421-3700	Amended	24:2 VA.R. 186	10/16/07
12 VAC 5-421-3750	Amended	24:2 VA.R. 187	10/16/07
12 VAC 5-421-3760	Amended	24:2 VA.R. 188	10/16/07
12 VAC 5-421-3800	Amended	24:2 VA.R. 188	10/16/07
12 VAC 5-421-3815	Added	24:2 VA.R. 188	10/16/07
12 VAC 5-421-3860	Amended	24:2 VA.R. 188	10/16/07
12 VAC 5-421-3900	Amended	24:2 VA.R. 188	10/16/07
12 VAC 5-421-3960	Amended	24:2 VA.R. 189	10/16/07
12 VAC 5-421-3970	Amended	24:2 VA.R. 189	10/16/07
12 VAC 5-421-4000	Amended	24:2 VA.R. 189	10/16/07
12 VAC 5-421-4035	Added	24:2 VA.R. 190	10/16/07
12 VAC 5-421-4050	Amended	24:2 VA.R. 191	10/16/07
12 VAC 5-421-4070	Amended	24:2 VA.R. 191	10/16/07
12 VAC 5-585-70	Amended	24:5 VA.R. 602	12/17/07
12 VAC 5-585-510	Amended	24:5 VA.R. 602	12/17/07
12 VAC 5-585-600	Amended	24:5 VA.R. 607	12/17/07
12 VAC 5-585-610	Amended	24:5 VA.R. 607	12/17/07
12 VAC 5-585-620	Amended	24:5 VA.R. 612	12/17/07
12 VAC 5-585-630	Amended	24:5 VA.R. 614	12/17/07
12 VAC 5-585-760 through 12 VAC 5-585-830	Added	23:25 VA.R. 4298-4301	10/1/07
12 VAC 30-10-820	Added	24:2 VA.R. 191	10/31/07
12 VAC 30-60-500 emer	Added	23:26 VA.R. 4427	8/8/07-8/7/08
12 VAC 30-80-30	Erratum	24:17 VA.R. 2473	--
12 VAC 30-80-40 emer	Amended	24:3 VA.R. 377	10/1/07-9/30/08
12 VAC 30-120	Erratum	23:24 VA.R. 4080	--
12 VAC 30-120-70	Amended	24:13 VA.R. 1791	7/1/08
12 VAC 30-120-90	Amended	24:13 VA.R. 1793	7/1/08
12 VAC 30-120-140	Amended	24:13 VA.R. 1794	7/1/08
12 VAC 30-120-211	Amended	24:13 VA.R. 1797	7/1/08
12 VAC 30-120-213	Amended	24:13 VA.R. 1800	7/1/08
12 VAC 30-120-225	Amended	24:13 VA.R. 1802	7/1/08
12 VAC 30-120-229	Amended	24:13 VA.R. 1804	7/1/08
12 VAC 30-120-237	Amended	24:13 VA.R. 1805	7/1/08
12 VAC 30-120-247	Amended	24:13 VA.R. 1807	7/1/08
12 VAC 30-120-370 emer	Amended	23:24 VA.R. 4029	9/1/07-8/31/08
12 VAC 30-120-380 emer	Amended	23:24 VA.R. 4032	9/1/07-8/31/08
12 VAC 30-120-700	Amended	24:13 VA.R. 1808	7/1/08
12 VAC 30-120-710	Amended	24:13 VA.R. 1812	7/1/08
12 VAC 30-120-754	Amended	24:13 VA.R. 1813	7/1/08
12 VAC 30-120-758	Amended	24:13 VA.R. 1815	7/1/08
12 VAC 30-120-762	Amended	24:13 VA.R. 1815	7/1/08
12 VAC 30-120-770	Amended	24:13 VA.R. 1816	7/1/08
12 VAC 30-120-900	Amended	24:13 VA.R. 1818	7/1/08
12 VAC 30-120-910	Amended	24:13 VA.R. 1820	7/1/08

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12 VAC 30-120-920	Amended	24:13 VA.R. 1821	7/1/08
12 VAC 30-120-970	Amended	24:13 VA.R. 1823	7/1/08
12 VAC 30-120-1500 through 12 VAC 30-120-1550	Added	24:6 VA.R. 819-829	12/26/07
12 VAC 30-120-1500	Amended	24:13 VA.R. 1825	7/1/08
12 VAC 30-120-1510	Amended	24:13 VA.R. 1827	7/1/08
12 VAC 30-120-1550	Amended	24:13 VA.R. 1828	7/1/08
12 VAC 30-120-1560	Added	24:13 VA.R. 1830	7/1/08
12 VAC 30-120-2000	Added	24:13 VA.R. 1832	7/1/08
12 VAC 30-120-2010	Added	24:13 VA.R. 1833	7/1/08
12 VAC 30-135-100 through 12 VAC 30-135-360	Added	24:2 VA.R. 196-218	12/1/07
12 VAC 35-105-115	Added	24:11 VA.R. 1372	3/5/08
12 VAC 35-115-10 through 12 VAC 35-115-250	Amended	23:25 VA.R. 4301-4340	9/19/07
12 VAC 35-115-90	Erratum	24:6 VA.R. 889	--
12 VAC 35-115-145	Added	23:25 VA.R. 4329	9/19/07
12 VAC 35-115-146	Added	23:25 VA.R. 4330	9/19/07
12 VAC 35-115-160	Repealed	23:25 VA.R. 4332	9/19/07
Title 13. Housing			
13 VAC 5-21-10	Amended	24:14 VA.R. 1894	5/1/08
13 VAC 5-21-20	Amended	24:14 VA.R. 1894	5/1/08
13 VAC 5-21-31	Amended	24:14 VA.R. 1895	5/1/08
13 VAC 5-21-41	Amended	24:14 VA.R. 1895	5/1/08
13 VAC 5-21-45	Amended	24:14 VA.R. 1895	5/1/08
13 VAC 5-21-51	Amended	24:14 VA.R. 1895	5/1/08
13 VAC 5-21-61	Amended	24:14 VA.R. 1896	5/1/08
13 VAC 5-31-20 through 13 VAC 5-31-50	Amended	24:14 VA.R. 1897-1898	5/1/08
13 VAC 5-31-70 through 13 VAC 5-31-170	Repealed	24:14 VA.R. 1898-1903	5/1/08
13 VAC 5-31-75	Added	24:14 VA.R. 1898	5/1/08
13 VAC 5-31-85	Added	24:14 VA.R. 1900	5/1/08
13 VAC 5-31-200	Amended	24:14 VA.R. 1904	5/1/08
13 VAC 5-31-210	Amended	24:14 VA.R. 1904	5/1/08
13 VAC 5-31-215 through 13 VAC 5-31-270	Added	24:14 VA.R. 1904-1905	5/1/08
13 VAC 5-51-21 through 13 VAC 5-51-51	Amended	24:14 VA.R. 1907-1910	5/1/08
13 VAC 5-51-81	Amended	24:14 VA.R. 1910	5/1/08
13 VAC 5-51-85	Amended	24:14 VA.R. 1921	5/1/08
13 VAC 5-51-91	Amended	24:14 VA.R. 1924	5/1/08
13 VAC 5-51-130 through 13 VAC 5-51-135	Amended	24:14 VA.R. 1925-1928	5/1/08
13 VAC 5-51-143	Added	24:14 VA.R. 1928	5/1/08
13 VAC 5-51-145	Amended	24:14 VA.R. 1932	5/1/08
13 VAC 5-51-150	Amended	24:14 VA.R. 1932	5/1/08
13 VAC 5-51-152	Repealed	24:14 VA.R. 1937	5/1/08
13 VAC 5-51-154	Amended	24:14 VA.R. 1937	5/1/08
13 VAC 5-51-155	Amended	24:14 VA.R. 1939	5/1/08
13 VAC 5-63-10 through 13 VAC 5-63-50	Amended	24:14 VA.R. 1941	5/1/08
13 VAC 5-63-70	Amended	24:14 VA.R. 1941	5/1/08
13 VAC 5-63-80	Amended	24:14 VA.R. 1941	5/1/08
13 VAC 5-63-100 through 13 VAC 5-63-130	Amended	24:14 VA.R. 1941	5/1/08
13 VAC 5-63-150	Amended	24:14 VA.R. 1941	5/1/08
13 VAC 5-63-160	Amended	24:14 VA.R. 1941	5/1/08
13 VAC 5-63-190 through 13 VAC 5-63-260	Amended	24:14 VA.R. 1941	5/1/08
13 VAC 5-63-225	Repealed	24:14 VA.R. 1941	5/1/08

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13 VAC 5-63-265	Repealed	24:14 VA.R. 1941	5/1/08
13 VAC 5-63-267	Added	24:14 VA.R. 1941	5/1/08
13 VAC 5-63-270	Amended	24:14 VA.R. 1941	5/1/08
13 VAC 5-63-280	Amended	24:14 VA.R. 1941	5/1/08
13 VAC 5-63-300 through 13 VAC 5-63-360	Amended	24:14 VA.R. 1941	5/1/08
13 VAC 5-63-335	Added	24:14 VA.R. 1941	5/1/08
13 VAC 5-63-400	Amended	24:14 VA.R. 1941	5/1/08
13 VAC 5-63-430	Amended	24:14 VA.R. 1941	5/1/08
13 VAC 5-63-432	Repealed	24:14 VA.R. 1941	5/1/08
13 VAC 5-63-434 through 13 VAC 5-63-450	Amended	24:14 VA.R. 1941	5/1/08
13 VAC 5-63-470 through 13 VAC 5-63-500	Amended	24:14 VA.R. 1941	5/1/08
13 VAC 5-63-520	Amended	24:14 VA.R. 1941	5/1/08
13 VAC 5-63-525	Added	24:14 VA.R. 1941	5/1/08
13 VAC 5-63-550	Repealed	24:14 VA.R. 1941	5/1/08
13 VAC 5-91-20	Amended	24:14 VA.R. 1943	5/1/08
13 VAC 5-91-100	Amended	24:14 VA.R. 1943	5/1/08
13 VAC 5-91-110	Repealed	24:14 VA.R. 1944	5/1/08
13 VAC 5-91-115	Added	24:14 VA.R. 1944	5/1/08
13 VAC 5-91-120	Amended	24:14 VA.R. 1944	5/1/08
13 VAC 5-91-160	Amended	24:14 VA.R. 1945	5/1/08
13 VAC 5-91-270	Amended	24:14 VA.R. 1945	5/1/08
13 VAC 5-95-10	Amended	24:14 VA.R. 1947	5/1/08
13 VAC 5-95-30	Amended	24:14 VA.R. 1948	5/1/08
13 VAC 5-112-340	Amended	24:8 VA.R. 979	1/23/08
13 VAC 10-40-20	Amended	24:7 VA.R. 911	11/13/07
13 VAC 10-40-60	Amended	24:7 VA.R. 914	11/13/07
13 VAC 10-40-80	Amended	24:7 VA.R. 915	11/13/07
13 VAC 10-40-100	Amended	24:7 VA.R. 916	11/13/07
13 VAC 10-40-110	Amended	24:7 VA.R. 917	11/13/07
13 VAC 10-40-120	Amended	24:7 VA.R. 917	11/13/07
13 VAC 10-40-130	Amended	24:7 VA.R. 917	11/13/07
13 VAC 10-40-170	Amended	24:7 VA.R. 920	11/13/07
13 VAC 10-40-190	Amended	24:7 VA.R. 920	11/13/07
13 VAC 10-40-210	Amended	24:7 VA.R. 921	11/13/07
13 VAC 10-40-230	Amended	24:7 VA.R. 921	11/13/07
13 VAC 10-180-10	Amended	24:11 VA.R. 1373	2/4/08
13 VAC 10-180-50	Amended	24:11 VA.R. 1374	2/4/08
13 VAC 10-180-60	Amended	24:11 VA.R. 1376	2/4/08
13 VAC 10-180-60	Amended	24:11 VA.R. 1387	2/4/08
13 VAC 10-180-100	Amended	24:11 VA.R. 1397	2/4/08
Title 14. Insurance			
14 VAC 5-30-30	Amended	24:15 VA.R. 2153	4/1/08
14 VAC 5-200-185	Amended	24:15 VA.R. 2155	4/1/08
14 VAC 5-215 (Forms)	Amended	24:17 VA.R. 2452	--
14 VAC 5-215-20	Amended	23:22 VA.R. 3768	7/1/07
14 VAC 5-215-30	Amended	23:22 VA.R. 3768	7/1/07
14 VAC 5-215-50	Amended	23:22 VA.R. 3769	7/1/07
14 VAC 5-215-60	Amended	23:22 VA.R. 3770	7/1/07
14 VAC 5-215-80	Amended	23:22 VA.R. 3770	7/1/07
14 VAC 5-270-10 through 14 VAC 5-270-150	Amended	24:12 VA.R. 1460-1470	1/1/10
14 VAC 5-270-144	Added	24:12 VA.R. 1467	1/1/10

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14 VAC 5-270-146	Added	24:12 VA.R. 1468	1/1/10
14 VAC 5-270-148	Added	24:12 VA.R. 1469	1/1/10
14 VAC 5-270-170	Amended	24:12 VA.R. 1470	1/1/10
14 VAC 5-270-174	Added	24:12 VA.R. 1470	1/1/10
14 VAC 5-270-180	Amended	24:12 VA.R. 1470	1/1/10
14 VAC 5-420-10 through 14 VAC 5-420-60	Added	24:7 VA.R. 926-931	2/15/08
Title 16. Labor and Employment			
16 VAC 15-21-30	Amended	23:23 VA.R. 3933	8/23/07
16 VAC 25-90-1910.6	Amended	24:1 VA.R. 26	12/15/07
16 VAC 25-90-1910.6	Added	24:16 VA.R. 2262	6/1/08
16 VAC 25-90-1910.66 Appendix D	Amended	24:1 VA.R. 26	12/15/07
16 VAC 25-90-1910.68	Added	24:16 VA.R. 2262	6/1/08
16 VAC 25-90-1910.94	Added	24:16 VA.R. 2262	6/1/08
16 VAC 25-90-1910.103	Added	24:16 VA.R. 2262	6/1/08
16 VAC 25-90-1910.107	Added	24:16 VA.R. 2262	6/1/08
16 VAC 25-90-1910.110	Added	24:16 VA.R. 2262	6/1/08
16 VAC 25-90-1910.111	Added	24:16 VA.R. 2262	6/1/08
16 VAC 25-90-1910.132	Added	24:16 VA.R. 2263	6/1/08
16 VAC 25-90-1910.144	Added	24:16 VA.R. 2262	6/1/08
16 VAC 25-90-1910.243	Added	24:16 VA.R. 2262	6/1/08
16 VAC 25-90-1910.251	Added	24:16 VA.R. 2262	6/1/08
16 VAC 25-90-1910.253	Added	24:16 VA.R. 2262	6/1/08
16 VAC 25-90-1910.261	Added	24:16 VA.R. 2262	6/1/08
16 VAC 25-90-1910.302 through 16 VAC 25-90-1910.308	Amended	24:1 VA.R. 26	12/15/07
16 VAC 25-90-1910.399 Subpart S Appendix A	Amended	24:1 VA.R. 26	12/15/07
16 VAC 25-100-1915.152	Added	24:16 VA.R. 2263	6/1/08
16 VAC 25-120-1917.96	Added	24:16 VA.R. 2263	6/1/08
16 VAC 25-130-1918.106	Added	24:16 VA.R. 2263	6/1/08
16 VAC 25-175-1926.95	Added	24:16 VA.R. 2263	6/1/08
Title 18. Professional and Occupational Licensing			
18 VAC 15-20-451	Amended	24:17 VA.R. 2455	8/1/08
18 VAC 30-20-80	Amended	24:10 VA.R. 1284	2/20/08
18 VAC 30-20-170	Amended	24:10 VA.R. 1284	2/20/08
18 VAC 30-20-171	Amended	24:10 VA.R. 1285	2/20/08
18 VAC 41-70-10 through 18 VAC 41-70-280	Added	23:25 VA.R. 4349-4359	9/20/07
18 VAC 50-30-10	Amended	24:3 VA.R. 416	11/15/07
18 VAC 50-30-40	Amended	24:3 VA.R. 418	11/15/07
18 VAC 50-30-90	Amended	24:3 VA.R. 419	11/15/07
18 VAC 50-30-100	Amended	24:3 VA.R. 419	11/15/07
18 VAC 50-30-120	Amended	24:3 VA.R. 419	11/15/07
18 VAC 50-30-130	Amended	24:3 VA.R. 420	11/15/07
18 VAC 50-30-190	Amended	24:3 VA.R. 421	11/15/07
18 VAC 50-30-200	Amended	24:3 VA.R. 422	11/15/07
18 VAC 50-30-220	Amended	24:3 VA.R. 422	11/15/07
18 VAC 60-20-17	Amended	24:3 VA.R. 424	11/29/07
18 VAC 60-20-71	Amended	23:23 VA.R. 3934	8/22/07
18 VAC 60-20-81	Added	24:14 VA.R. 1949	4/16/08
18 VAC 60-20-108	Amended	24:14 VA.R. 1950	4/16/08
18 VAC 60-20-190	Amended	24:14 VA.R. 1951	4/16/08
18 VAC 60-20-220	Amended	24:10 VA.R. 1287	3/10/08

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18 VAC 60-20-220	Amended	24:14 VA.R. 1951	4/16/08
18 VAC 65-10-10 through 18 VAC 65-10-80	Amended	24:2 VA.R. 226-228	11/15/07
18 VAC 65-10-100	Amended	24:2 VA.R. 228	11/15/07
18 VAC 65-10-110	Amended	24:2 VA.R. 228	11/15/07
18 VAC 65-10-120	Amended	24:2 VA.R. 228	11/15/07
18 VAC 85-20-22	Amended	24:11 VA.R. 1404	3/5/08
18 VAC 85-20-22	Amended	24:14 VA.R. 1952	4/16/08
18 VAC 85-20-140	Amended	24:1 VA.R. 27	10/17/07
18 VAC 85-20-226	Added	24:11 VA.R. 1404	3/5/08
18 VAC 85-20-235	Amended	23:25 VA.R. 4360	9/20/07
18 VAC 85-20-235	Amended	23:25 VA.R. 4361	9/20/07
18 VAC 85-20-290	Amended	23:23 VA.R. 3934	8/22/07
18 VAC 85-20-400 through 18 VAC 85-20-420	Adding	23:25 VA.R. 4362-4363	9/20/07
18 VAC 115-30-150	Amended	24:14 VA.R. 1953	4/16/08
18 VAC 115-30-160	Amended	24:14 VA.R. 1953	4/16/08
18 VAC 85-40-35	Amended	24:11 VA.R. 1404	3/5/08
18 VAC 85-40-61	Amended	24:1 VA.R. 28	10/17/07
18 VAC 85-40-61	Amended	24:1 VA.R. 29	10/18/07
18 VAC 85-40-65	Amended	24:1 VA.R. 28	10/17/07
18 VAC 85-40-67	Added	24:11 VA.R. 1405	3/5/08
18 VAC 85-50-35	Amended	24:11 VA.R. 1405	3/5/08
18 VAC 85-50-58	Amended	24:1 VA.R. 29	10/18/07
18 VAC 85-50-61	Added	24:11 VA.R. 1405	3/5/08
18 VAC 85-80-26	Amended	24:11 VA.R. 1406	3/5/08
18 VAC 85-80-72	Amended	24:1 VA.R. 29	10/18/07
18 VAC 85-80-73	Added	24:11 VA.R. 1406	3/5/08
18 VAC 85-101-25	Amended	24:11 VA.R. 1406	3/5/08
18 VAC 85-101-152	Amended	24:1 VA.R. 30	10/18/07
18 VAC 85-101-153	Added	24:11 VA.R. 1407	3/5/08
18 VAC 85-110-35	Amended	24:11 VA.R. 1407	3/5/08
18 VAC 85-110-155	Amended	24:1 VA.R. 30	10/18/07
18 VAC 85-110-161	Added	24:11 VA.R. 1407	3/5/08
18 VAC 85-120-130	Amended	24:2 VA.R. 229	10/31/07
18 VAC 85-130-30	Amended	24:14 VA.R. 1952	4/16/08
18 VAC 90-20-10	Amended	24:13 VA.R. 1842	4/2/08
18 VAC 90-20-30	Amended	23:25 VA.R. 4363	10/1/07
18 VAC 90-20-35	Amended	24:13 VA.R. 1843	4/2/08
18 VAC 90-20-40 through 18 VAC 90-20-60	Amended	24:13 VA.R. 1843-1845	4/2/08
18 VAC 90-20-65	Repealed	24:13 VA.R. 1844	4/2/08
18 VAC 90-20-70	Amended	24:13 VA.R. 1844	4/2/08
18 VAC 90-20-90	Amended	24:13 VA.R. 1845	4/2/08
18 VAC 90-20-95	Amended	24:13 VA.R. 1846	4/2/08
18 VAC 90-20-96	Added	24:13 VA.R. 1846	4/2/08
18 VAC 90-20-110 through 18 VAC 90-20-140	Amended	24:13 VA.R. 1846-1848	4/2/08
18 VAC 90-20-151	Added	24:13 VA.R. 1848	4/2/08
18 VAC 90-20-160	Amended	24:13 VA.R. 1849	4/2/08
18 VAC 90-20-190	Amended	24:13 VA.R. 1849	4/2/08
18 VAC 90-20-200	Amended	24:13 VA.R. 1850	4/2/08
18 VAC 90-20-220	Amended	24:13 VA.R. 1850	4/2/08
18 VAC 90-20-225	Added	23:25 VA.R. 4364	10/1/07
18 VAC 90-20-230	Amended	24:13 VA.R. 1851	4/2/08

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18 VAC 90-20-275	Amended	24:13 VA.R. 1851	4/2/08
18 VAC 90-20-280	Amended	24:13 VA.R. 1851	4/2/08
18 VAC 90-20-300	Amended	24:13 VA.R. 1851	4/2/08
18 VAC 90-20-370	Amended	24:13 VA.R. 1852	4/2/08
18 VAC 90-20-390	Amended	24:13 VA.R. 1852	4/2/08
18 VAC 90-20-410	Amended	24:13 VA.R. 1853	4/2/08
18 VAC 90-30-10	Amended	24:10 VA.R. 1288	2/20/08
18 VAC 90-30-120	Amended	24:10 VA.R. 1288	2/20/08
18 VAC 90-30-121	Added	24:10 VA.R. 1289	2/20/08
18 VAC 90-30-240	Added	24:3 VA.R. 427	11/29/07
18 VAC 90-40-100	Amended	24:6 VA.R. 831	1/11/08
18 VAC 90-60-100	Amended	24:3 VA.R. 429	11/29/07
18 VAC 95-10-10 through 18 VAC 95-10-80	Amended	24:2 VA.R. 231-232	11/15/07
18 VAC 95-10-100	Amended	24:2 VA.R. 232	11/15/07
18 VAC 95-10-110	Amended	24:2 VA.R. 232	11/15/07
18 VAC 95-10-120	Amended	24:2 VA.R. 232	11/15/07
18 VAC 95-20-80	Amended	24:16 VA.R. 2264	5/14/08
18 VAC 95-30-10 through 18 VAC 95-30-210	Added	24:6 VA.R. 832-837	1/2/08
18 VAC 95-30-40	Amended	24:16 VA.R. 2264	5/14/08
18 VAC 105-20-10	Amended	23:22 VA.R. 3791	9/24/07
18 VAC 110-20-10	Amended	24:8 VA.R. 983	1/23/08
18 VAC 110-20-180	Erratum	24:3 VA.R. 444	--
18 VAC 110-20-321	Added	24:8 VA.R. 986	1/23/08
18 VAC 110-20-411 through 18 VAC 110-20-416	Repealed	24:8 VA.R. 986-987	1/23/08
18 VAC 110-20-530	Amended	24:16 VA.R. 2265	5/14/08
18 VAC 110-30-15	Amended	24:10 VA.R. 1290	2/20/08
18 VAC 110-40-10 through 18 VAC 110-40-50	Amended	24:3 VA.R. 430-431	11/14/07
18 VAC 110-50-10	Amended	24:10 VA.R. 1290	2/20/08
18 VAC 110-50-160	Added	24:10 VA.R. 1291	2/20/08
18 VAC 110-50-170	Added	24:10 VA.R. 1291	2/20/08
18 VAC 110-50-180	Added	24:10 VA.R. 1292	2/20/08
18 VAC 110-50-190	Added	24:10 VA.R. 1292	2/20/08
18 VAC 112-20-81 emer	Added	24:4 VA.R. 497	11/1/07-10/31/08
18 VAC 112-20-90 emer	Amended	24:4 VA.R. 497	11/1/07-10/31/08
18 VAC 112-20-130 emer	Amended	24:4 VA.R. 498	11/1/07-10/31/08
18 VAC 112-20-131 emer	Amended	24:4 VA.R. 498	11/1/07-10/31/08
18 VAC 112-20-150 emer	Amended	24:4 VA.R. 499	11/1/07-10/31/08
18 VAC 115-30-150	Amended	24:14 VA.R. 1953	4/16/08
18 VAC 115-30-160	Amended	24:14 VA.R. 1953	4/16/08
18 VAC 120-40-10	Amended	23:24 VA.R. 4038	9/5/07
18 VAC 120-40-15	Added	23:24 VA.R. 4039	9/5/07
18 VAC 120-40-20	Amended	23:24 VA.R. 4039	9/5/07
18 VAC 120-40-60	Repealed	24:3 VA.R. 433	12/29/07
18 VAC 120-40-80 through 18 VAC 120-40-360	Amended	23:24 VA.R. 4040-4052	9/5/07
18 VAC 120-40-221	Added	23:24 VA.R. 4043	9/5/07
18 VAC 120-40-222	Added	23:24 VA.R. 4043	9/5/07
18 VAC 120-40-295	Added	23:24 VA.R. 4048	9/5/07
18 VAC 120-40-342	Added	23:24 VA.R. 4050	9/5/07
18 VAC 120-40-370	Repealed	23:24 VA.R. 4052	9/5/07
18 VAC 120-40-380	Repealed	23:24 VA.R. 4052	9/5/07

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18 VAC 120-40-385	Added	23:24 VA.R. 4052	9/5/07
18 VAC 120-40-390	Amended	23:24 VA.R. 4053	9/5/07
18 VAC 120-40-400	Repealed	23:24 VA.R. 4053	9/5/07
18 VAC 120-40-410	Amended	23:24 VA.R. 4053	9/5/07
18 VAC 120-40-411	Added	23:24 VA.R. 4053	9/5/07
18 VAC 120-40-411.1 through 18 VAC 120-40-411.21	Added	23:24 VA.R. 4054-4064	9/5/07
18 VAC 120-40-415	Added	23:24 VA.R. 4064	9/5/07
18 VAC 120-40-415.1	Added	23:24 VA.R. 4065	9/5/07
18 VAC 120-40-415.2	Added	23:24 VA.R. 4065	9/5/07
18 VAC 120-40-415.3	Added	23:24 VA.R. 4065	9/5/07
18 VAC 120-40-420	Amended	23:24 VA.R. 4066	9/5/07
18 VAC 120-40-430	Amended	23:24 VA.R. 4066	9/5/07
18 VAC 125-20-170	Amended	24:12 VA.R. 1471	3/19/08
18 VAC 125-30-120	Amended	24:12 VA.R. 1471	3/19/08
18 VAC 130-20-10	Amended	24:6 VA.R. 838	1/1/08
18 VAC 130-20-30	Amended	24:6 VA.R. 842	1/1/08
18 VAC 130-20-60	Amended	24:6 VA.R. 843	1/1/08
18 VAC 130-20-110	Amended	24:6 VA.R. 844	1/1/08
18 VAC 130-20-170	Amended	24:6 VA.R. 844	1/1/08
18 VAC 130-20-180	Amended	24:6 VA.R. 844	1/1/08
18 VAC 130-20-210	Amended	24:6 VA.R. 846	1/1/08
18 VAC 130-20-220	Amended	24:6 VA.R. 847	1/1/08
18 VAC 130-20-230	Amended	24:6 VA.R. 847	1/1/08
18 VAC 135-20-10	Amended	24:11 VA.R. 1408	4/1/08
18 VAC 135-20-30	Amended	24:11 VA.R. 1409	4/1/08
18 VAC 135-20-60	Amended	24:11 VA.R. 1410	4/1/08
18 VAC 135-20-100	Amended	24:11 VA.R. 1410	4/1/08
18 VAC 135-20-101	Added	24:11 VA.R. 1412	4/1/08
18 VAC 135-20-105	Amended	24:11 VA.R. 1413	4/1/08
18 VAC 135-20-160	Amended	24:11 VA.R. 1413	4/1/08
18 VAC 135-20-170	Amended	24:11 VA.R. 1414	4/1/08
18 VAC 135-20-180	Amended	24:11 VA.R. 1414	4/1/08
18 VAC 135-20-190	Amended	24:11 VA.R. 1416	4/1/08
18 VAC 135-20-210	Amended	24:11 VA.R. 1417	4/1/08
18 VAC 135-20-220	Amended	24:11 VA.R. 1417	4/1/08
18 VAC 135-20-280	Amended	24:11 VA.R. 1417	4/1/08
18 VAC 135-20-300	Amended	24:11 VA.R. 1418	4/1/08
18 VAC 135-20-345	Added	24:11 VA.R. 1418	4/1/08
18 VAC 135-20-360	Amended	24:11 VA.R. 1419	4/1/08
18 VAC 135-20-370	Amended	24:11 VA.R. 1419	4/1/08
18 VAC 135-20-390	Amended	24:11 VA.R. 1420	4/1/08
18 VAC 135-30 (Forms)	Amended	24:1 VA.R. 41	--
18 VAC 135-40 (Forms)	Amended	24:1 VA.R. 43	--
18 VAC 135-50-10	Amended	23:22 VA.R. 3794	9/22/07
18 VAC 135-50-20	Amended	23:22 VA.R. 3795	9/22/07
18 VAC 135-50-220	Amended	23:22 VA.R. 3795	9/22/07
18 VAC 135-50-400	Amended	23:22 VA.R. 3795	9/22/07
18 VAC 135-60-60	Amended	24:9 VA.R. 1230	3/1/08
18 VAC 150-10-10	Amended	23:23 VA.R. 3937	10/7/07
18 VAC 150-10-20	Amended	23:23 VA.R. 3937	10/7/07
18 VAC 150-10-30	Amended	23:23 VA.R. 3937	10/7/07

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18 VAC 150-10-40	Amended	23:23 VA.R. 3938	10/7/07
18 VAC 150-10-50	Amended	23:23 VA.R. 3938	10/7/07
18 VAC 150-10-60	Amended	23:23 VA.R. 3938	10/7/07
18 VAC 150-10-70	Amended	23:23 VA.R. 3938	10/7/07
18 VAC 150-10-80	Amended	23:23 VA.R. 3938	10/7/07
18 VAC 150-10-100	Amended	23:23 VA.R. 3939	10/7/07
18 VAC 150-10-110	Amended	23:23 VA.R. 3939	10/7/07
18 VAC 150-10-120	Amended	23:23 VA.R. 3939	10/7/07
18 VAC 150-20-30	Amended	24:3 VA.R. 436	11/29/07
18 VAC 150-20-100	Amended	24:3 VA.R. 436	11/29/07
18 VAC 150-20-140	Amended	24:3 VA.R. 437	11/29/07
18 VAC 150-20-220	Added	24:3 VA.R. 438	11/29/07
18 VAC 150-20-230	Added	24:3 VA.R. 438	11/29/07
18 VAC 150-20-240	Added	24:3 VA.R. 438	11/29/07
Title 19. Public Safety			
19 VAC 30-20-115	Added	24:11 VA.R. 1421	3/6/08
19 VAC 30-70-6	Amended	24:8 VA.R. 988	3/1/08
19 VAC 30-70-7	Amended	24:8 VA.R. 988	3/1/08
19 VAC 30-70-9	Amended	24:8 VA.R. 989	3/1/08
19 VAC 30-70-10	Amended	24:8 VA.R. 991	3/1/08
19 VAC 30-70-40	Amended	24:8 VA.R. 994	3/1/08
19 VAC 30-70-50	Amended	24:8 VA.R. 995	3/1/08
19 VAC 30-70-60	Amended	24:8 VA.R. 997	3/1/08
19 VAC 30-70-80	Amended	24:8 VA.R. 998	3/1/08
19 VAC 30-70-90	Amended	24:8 VA.R. 1001	3/1/08
19 VAC 30-70-110 through 19 VAC 30-70-660	Amended	24:8 VA.R. 1001-1070	3/1/08
19 VAC 30-170-15	Amended	24:2 VA.R. 233	10/1/07
19 VAC 30-170-50	Amended	24:2 VA.R. 233	10/1/07
19 VAC 30-190-10 through 19 VAC 30-190-140	Added	24:11 VA.R. 1421-1423	3/6/08
Title 20. Public Utilities and Telecommunications			
20 VAC 5-417-10	Amended	24:4 VA.R. 513	10/9/07
20 VAC 5-417-50	Amended	24:4 VA.R. 513	10/9/07
Title 21. Securities and Retail Franchising			
21 VAC 5-10-40	Amended	23:23 VA.R. 3940	7/1/07
21 VAC 5-20-65	Added	23:23 VA.R. 3942	7/1/07
21 VAC 5-20-95	Added	23:23 VA.R. 3942	7/1/07
21 VAC 5-20-280	Amended	23:23 VA.R. 3943	7/1/07
21 VAC 5-20-330	Amended	23:23 VA.R. 3947	7/1/07
21 VAC 5-80-65	Added	23:23 VA.R. 3949	7/1/07
21 VAC 5-80-160	Amended	23:23 VA.R. 3950	7/1/07
21 VAC 5-80-200	Amended	23:23 VA.R. 3954	7/1/07
21 VAC 5-110	Erratum	23:24 VA.R. 4079	--
21 VAC 5-110-65	Added	23:23 VA.R. 3959	7/1/07
21 VAC 5-110-75	Added	23:23 VA.R. 3960	7/1/07
Title 22. Social Services			
22 VAC 15-30-310	Amended	24:10 VA.R. 1295	3/6/08
22 VAC 40-35-10	Amended	23:23 VA.R. 3962	9/1/07
22 VAC 40-35-80	Amended	23:23 VA.R. 3965	9/1/07
22 VAC 40-35-90	Amended	23:23 VA.R. 3965	9/1/07
22 VAC 40-35-100	Amended	23:23 VA.R. 3966	9/1/07

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22 VAC 40-41-10 through 22 VAC 40-41-50	Amended	23:22 VA.R. 3796-3799	9/1/07
22 VAC 40-41-55	Amended	23:22 VA.R. 3799	9/1/07
22 VAC 40-41-60	Amended	23:22 VA.R. 3799	9/1/07
22 VAC 40-72-55	Added	24:5 VA.R. 616	12/12/07
22 VAC 40-72-367	Added	24:5 VA.R. 616	12/12/07
22 VAC 40-72-930	Amended	24:1 VA.R. 38	11/1/07
22 VAC 40-72-960	Amended	24:1 VA.R. 39	11/1/07
22 VAC 40-375-10 through 22 VAC 40-375-60	Repealed	24:5 VA.R. 616	12/12/07
22 VAC 40-470-10	Amended	24:9 VA.R. 1231	2/6/08
22 VAC 40-685-30	Amended	24:9 VA.R. 1231	2/6/08
22 VAC 40-705-10 emer	Amended	24:14 VA.R. 1987	3/1/08-2/28/09
22 VAC 40-705-30 emer	Amended	24:14 VA.R. 1990	3/1/08-2/28/09
22 VAC 40-770-10 through 22 VAC 40-770-160	Repealed	24:2 VA.R. 234	11/1/07
22 VAC 40-771-10 through 22 VAC 40-771-160	Added	24:2 VA.R. 234-242	11/1/07
22 VAC 42-10-10 through 22 VAC 42-10-1000	Repealed	24:6 VA.R. 849	12/28/07
22 VAC 42-11-10 through 22 VAC 42-11-1090	Added	24:6 VA.R. 850-885	12/28/07
Title 23. Taxation			
23 VAC 10-10-10 through 23 VAC 10-10-80	Amended	24:12 VA.R. 1520-1521	4/19/08
23 VAC 10-10-80	Amended	24:12 VA.R. 1521	4/19/08
23 VAC 10-10-90	Repealed	24:12 VA.R. 1522	4/19/08
23 VAC 10-210-485	Amended	23:24 VA.R. 4069	9/6/07
23 VAC 10-210-693 emer	Amended	23:25 VA.R. 4364	7/26/07-07/25/08
23 VAC 10-210-6041	Amended	23:24 VA.R. 4068	9/6/07
23 VAC 10-210-6042	Amended	23:24 VA.R. 4069	9/6/07
23 VAC 10-210-6043	Amended	23:24 VA.R. 4069	9/6/07
23 VAC 10-240-20 through 23 VAC 10-240-60	Repealed	23:25 VA.R. 4372-4373	10/04/07
23 VAC 10-240-100	Repealed	23:25 VA.R. 4373	10/04/07
23 VAC 10-240-130	Repealed	23:25 VA.R. 4373	10/04/07
23 VAC 10-240-140	Repealed	23:25 VA.R. 4373	10/04/07
23 VAC 10-240-150	Repealed	23:25 VA.R. 4373	10/04/07
23 VAC 10-240-200	Repealed	23:25 VA.R. 4373	10/04/07
23 VAC 10-240-210	Repealed	23:25 VA.R. 4373	10/04/07
23 VAC 10-240-240	Repealed	23:25 VA.R. 4373	10/04/07
23 VAC 10-240-270	Repealed	23:25 VA.R. 4373	10/04/07
23 VAC 10-240-280	Repealed	23:25 VA.R. 4373	10/04/07
23 VAC 10-240-300	Repealed	23:25 VA.R. 4374	10/04/07
23 VAC 10-240-310	Repealed	23:25 VA.R. 4374	10/04/07
23 VAC 10-240-330	Repealed	23:25 VA.R. 4374	10/04/07
23 VAC 10-240-340	Repealed	23:25 VA.R. 4374	10/04/07
23 VAC 10-240-360	Repealed	23:25 VA.R. 4374	10/04/07
23 VAC 10-240-380	Repealed	23:25 VA.R. 4374	10/04/07
23 VAC 10-240-400	Repealed	23:25 VA.R. 4375	10/04/07
23 VAC 10-240-420	Repealed	23:25 VA.R. 4375	10/04/07
23 VAC 10-240-430	Repealed	23:25 VA.R. 4375	10/04/07
23 VAC 10-240-450	Repealed	23:25 VA.R. 4375	10/04/07
23 VAC 10-240-460	Repealed	23:25 VA.R. 4375	10/04/07
Title 24. Transportation and Motor Vehicles			
24 VAC 20-120-10 through 24 VAC 20-120-180	Repealed	24:4 VA.R. 516	1/1/08
24 VAC 20-121-10 through 24 VAC 20-121-220	Adding	24:4 VA.R. 516-529	1/1/08
24 VAC 22-20-10	Amended	24:3 VA.R. 439	12/1/07
24 VAC 22-20-20	Amended	24:3 VA.R. 440	12/1/07

Cumulative Table of VAC Sections Adopted, Amended, or Repealed

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24 VAC 27-10-10 through 24 VAC 27-10-120	Added	23:24 VA.R. 4071-4075	9/20/07
24 VAC 30-45-10	Added	24:2 VA.R. 243	10/1/07
24 VAC 30-45-20	Added	24:2 VA.R. 243	10/1/07
24 VAC 30-45-30	Added	24:2 VA.R. 244	10/1/07
24 VAC 30-72-10 through 24 VAC 30-72-170	Added	24:17 VA.R. 2458-2466	7/1/08
24 VAC 30-200-10	Amended	24:4 VA.R. 529	11/28/07
24 VAC 30-200-20	Amended	24:4 VA.R. 530	11/28/07
24 VAC 30-200-30	Amended	24:4 VA.R. 531	11/28/07
24 VAC 30-200-35	Added	24:4 VA.R. 532	11/28/07
24 VAC 30-200-40	Amended	24:4 VA.R. 533	11/28/07

TITLE 18. PROFESSIONAL AND OCCUPATIONAL LICENSING

BOARD OF PSYCHOLOGY

Agency Decision

Title of Regulation: **18VAC125-20. Regulations Governing the Practice of Psychology.**

Statutory Authority: §54.1-2400 of the Code of Virginia.

Name of Petitioner: Michael Krohn.

Nature of Petitioner's Request: To amend regulations to require the doctoral psychology program to involve at least 12 months of continuous physical residency at the degree-granting institution.

Agency Decision: Request Denied.

Statement of Reasons for Decision: Although the board declined to initiate rulemaking in response to the petition, it has a continuing interest in the issue and has referred it to the Regulatory Committee to be considered as part of its current review of predoctoral and postdoctoral requirements. Board regulations require that an applicant for licensure in clinical psychology hold a doctoral degree from an educational program accredited by the American Psychological Association. It is the board's understanding that there are currently a few programs accredited by APA that do not have a 12-month continuous residency for their students, so such a requirement would be more stringent than APA accreditation standards.

Agency Contact: Evelyn B. Brown, Executive Director, Board of Psychology, 9960 Mayland Drive, Suite 300, Richmond, VA 23233, telephone (804) 367-4697, FAX (804) 527-4435, or email evelyn.brown@dhp.virginia.gov.

VA.R. Doc. No. R08-06; Filed April 15, 2008, 3:55 p.m.

TITLE 9. ENVIRONMENT

VIRGINIA WASTE MANAGEMENT BOARD

Notice of Intended Regulatory Action

Notice is hereby given in accordance with §2.2-4007.01 of the Code of Virginia that the Virginia Waste Management Board intends to consider amending the following regulations: **9VAC20-160, Voluntary Remediation Regulations.** The purpose of the proposed action is to revise program procedures so that sites can be processed more efficiently.

The agency intends to hold a public hearing on the proposed action after publication in the Virginia Register.

Statutory Authority: §10.1-1232 of the Code of Virginia.

Public Comments: Public comments may be submitted until 5 p.m. on July 11, 2008.

Agency Contact: Virginia A. Butler, Department of Environmental Quality, 629 East Main Street, P.O. Box 1105, Richmond, VA 23218, telephone 804-698-4053, FAX 804-698-4327, or email vabutler@deq.virginia.gov.

VA.R. Doc. No. R08-1271; Filed April 11, 2008, 9:44 a.m.

TITLE 4. CONSERVATION AND NATURAL RESOURCES

BOARD OF GAME AND INLAND FISHERIES

REGISTRAR'S NOTICE: The Board of Game and Inland Fisheries is exempt from the Administrative Process Act pursuant to §2.2-4002 A 3 of the Code of Virginia when promulgating regulations regarding the management of wildlife.

Proposed Regulation

Title of Regulation: **4VAC15-50. Game: Bear (amending 4VAC15-50-71).**

Statutory Authority: §§29.1-501 and 29.1-502 of the Code of Virginia.

Public Hearing Information:

June 3, 2008 - 9 a.m. - 4000 West Broad Street, Richmond, VA

Public Comments: Public comments may be submitted until 5 p.m. on May 14, 2008.

Agency Contact: Phil Smith, Regulatory Coordinator, Department of Game and Inland Fisheries, 4016 W. Broad Street, Richmond, VA 23230, telephone (804) 367-8341 or email phil.smith@dgif.virginia.gov.

Summary:

The proposed amendment removes the requirement that the ignition system of muzzleloading guns used for hunting bear be only of the flintlock or percussion type, thereby allowing all types of ignition systems to be used on muzzleloading guns, including but not limited to flintlock, percussion, and electronic ignition systems.

4VAC15-50-71. Muzzleloading gun hunting.

A. It shall be lawful to hunt bear during the special muzzleloading season with muzzleloading guns from the Tuesday prior to the third Monday in November and for three consecutive hunting days following, both dates inclusive, except in Alleghany, Amherst, Augusta (west of Interstate 81 and that part east of Interstate 81 that is south of Interstate 64), Bath, Bedford, Bland, Botetourt, Buchanan, Campbell (west of Norfolk Southern Railroad), Carroll, Craig, Dickenson, Floyd, Franklin, Giles, Grayson, Henry, Highland, Lee, Montgomery, Nelson, Patrick, Pittsylvania (west of Norfolk Southern Railroad), Pulaski, Roanoke, Rockbridge, Rockingham (west of Interstate 81), Russell, Scott, Shenandoah (west of Interstate 81), Smyth, Tazewell, Washington, Wise and Wythe counties and in the cities of Chesapeake, Suffolk and Virginia Beach.

B. It shall be unlawful to hunt bear with dogs during any special season for hunting with muzzleloading guns.

C. A muzzleloading gun, for the purpose of this section, means a single shot ~~flintlock or percussion~~ weapon, excluding muzzleloading pistols, .45 caliber or larger, firing a single projectile or sabot (with a.38 caliber or larger projectile) of the same caliber loaded from the muzzle of the weapon and propelled by at least 50 grains of black powder (or black powder equivalent or smokeless powder).

D. It shall be unlawful to have in immediate possession any firearm other than a muzzleloading gun while hunting with a muzzleloading gun in a special muzzleloading season.

VA.R. Doc. No. R08-1295; Filed April 23, 2008, 9:53 a.m.

Proposed Regulation

Title of Regulation: **4VAC15-90. Game: Deer (amending 4VAC15-90-80).**

Statutory Authority: §§29.1-501 and 29.1-502 of the Code of Virginia.

Public Hearing Information:

June 3, 2008 – 9 a.m. - 4000 West Broad Street, Richmond, VA

Public Comments: Public comments may be submitted until 5 p.m. on May 14, 2008.

Agency Contact: Phil Smith, Regulatory Coordinator, Department of Game and Inland Fisheries, 4016 W. Broad Street, Richmond, VA 23230, telephone (804) 367-8341 or email phil.smith@dgif.virginia.gov.

Summary:

The proposed amendment removes the requirement that the ignition system of muzzleloading guns used for hunting deer be only of the flintlock or percussion type, thereby allowing all types of ignition systems to be used on muzzleloading guns, including but not limited to flintlock, percussion, and electronic ignition systems.

4VAC15-90-80. Muzzleloading gun hunting.

A. It shall be lawful to hunt deer during the early special muzzleloading season with muzzleloading guns from the Saturday prior to the first Monday in November through the Friday prior to the third Monday in November, both dates inclusive, in all cities, towns, and counties where deer hunting with a rifle or muzzleloading gun is permitted east of the Blue Ridge Mountains, except on national forest lands in Amherst, Bedford and Nelson counties and in the cities of Chesapeake, Suffolk (east of the Dismal Swamp Line) and Virginia Beach. It shall be lawful to hunt deer during the early special muzzleloading season with muzzleloading guns from the Saturday prior to the second Monday in November through the Friday prior to the third Monday in November, both dates inclusive, in all cities, towns, and counties where deer hunting with a rifle or muzzleloading gun is permitted west of the Blue Ridge Mountains and on national forest lands in Amherst, Bedford, and Nelson counties.

B. It shall be lawful to hunt deer during the late special muzzleloading season with muzzleloading guns from the Saturday prior to the third Monday in December through the first Saturday in January, both dates inclusive, in all cities, towns, and counties west of the Blue Ridge Mountains (except Clarke County and on non-national forest lands in Frederick County), and east of the Blue Ridge Mountains in the counties (including the cities and towns within) of Amherst (west of U.S. Route 29), Bedford, Campbell (west of Norfolk Southern Railroad), Franklin, Henry, Nelson (west of Route 151), Patrick and Pittsylvania (west of Norfolk Southern Railroad) and on national forest lands in Frederick County and in the cities of Chesapeake and Virginia Beach.

C. Deer of either sex may be taken during the entire early special muzzleloading season in all cities, towns, and counties east of the Blue Ridge Mountains (except on national forest lands, state forest lands, state park lands except Occoneechee State Park, department-owned lands and Philpott Reservoir) and on the second Saturday only east of the Blue Ridge Mountains on state forest lands, state park lands except Occoneechee State Park, department-owned lands and on Philpott Reservoir. Deer of either sex may be taken during the entire early special muzzleloading season on Occoneechee State Park. Deer of either sex may be taken during the early special muzzleloading season only on the second Monday in November in all counties west of the Blue Ridge Mountains (except Clarke, Buchanan, Dickenson, Floyd, Lee, Russell, Scott, Smyth, Tazewell, Washington, Wise, and in Grayson Highlands State Park and national forest lands in Grayson County, and on private lands in Frederick, Roanoke, and Warren counties) and on national forest and department-owned lands in Roanoke County and on national forest lands in Frederick and Warren counties and on national forest lands in Amherst, Bedford, and Nelson counties. Additionally, deer of either sex may be taken during the entire early special muzzleloading season in Clarke and Floyd counties and on private lands in Frederick, Roanoke and Warren counties.

D. Deer of either sex may be taken during the entire late special muzzleloading season in the counties (including the cities and towns within) of Amherst (west of U.S. Route 29 except on national forest lands), Bedford (except on national forest lands), Campbell (west of Norfolk Southern Railroad), Franklin, Henry, Nelson (west of Route 151 except on national forest lands), Patrick, and Pittsylvania (west of Norfolk Southern Railroad). It shall be lawful to hunt deer of either sex during the last six days of the late special muzzleloading season in all counties west of the Blue Ridge Mountains (except Buchanan, Dickenson, Floyd, Grayson, Lee, Russell, Scott, Smyth, Tazewell, Washington, Wise, and on private lands in Roanoke County) and on national forest and department-owned lands in Roanoke County and on national forest lands in Amherst, Bedford, Frederick, and Nelson counties and in the cities of Chesapeake and Virginia Beach. Provided further it shall be lawful to hunt deer of either sex during the last day only of the late special muzzleloading season in the counties of Grayson, Lee, Russell, Scott, Smyth, Tazewell, and Washington. Additionally, deer of either-sex may be taken during the entire late special muzzleloading season in Floyd County and on private lands in Roanoke County.

E. Deer of either sex may be taken full season during the special muzzleloading seasons within the incorporated limits of any city or town in the Commonwealth that allows deer hunting except in the counties of Buchanan, Dickenson, and Wise and in the cities of Chesapeake, Suffolk, and Virginia Beach.

F. It shall be unlawful to hunt deer with dogs during any special season for hunting with muzzleloading guns.

G. A muzzleloading gun, for the purpose of this section, means a single shot ~~flintlock or percussion~~ weapon, excluding muzzleloading pistols, .45 caliber or larger, firing a single projectile or sabot (with a .38 caliber or larger projectile) of the same caliber loaded from the muzzle of the weapon and propelled by at least 50 grains of black powder (or black powder equivalent).

H. It shall be unlawful to have in immediate possession any firearm other than a muzzleloading gun while hunting with a muzzleloading gun in a special muzzleloading season.

VA.R. Doc. No. R08-1188; Filed April 23, 2008, 9:52 a.m.

TITLE 9. ENVIRONMENT

STATE WATER CONTROL BOARD

Final Regulation

REGISTRAR'S NOTICE: The State Water Control Board is claiming an exemption from the Administrative Process Act in accordance with §2.2-4006 A 3 of the Code of Virginia, which excludes regulations that consist only of changes in style or form or corrections of technical errors. The State Water Control Board will receive, consider and respond to petitions by any interested person at any time with respect to reconsideration or revision.

Title of Regulation: **9VAC25-120. General Virginia Pollutant Discharge Elimination System (VPDES) Permit Regulation for Discharges From Petroleum Contaminated Sites, Groundwater Remediation and Hydrostatic Tests (amending 9VAC25-120-80).**

Statutory Authority: §62.1-44.15 of the Code of Virginia; §402 of the Clean Water Act; 40 CFR Parts 122, 123 and 124.

Effective Date: June 11, 2008.

Agency Contact: Burt Tuxford, Department of Environmental Quality, 629 East Main Street, P.O. Box 1105, Richmond, VA 23218, telephone 804-698-4086, FAX 804-698-4032, or email brtuxford@deq.virginia.gov.

Background: This regulation was adopted by the Water Control Board on December 4, 2007. Subsequent to the adoption, errors were found in 9VAC25-120-80 (General Permit) in the eighth Part I A (Effluent Limitations and Monitoring Requirements) tables, and in the Part II K 1(ii) (Signatory Requirements) section. This regulatory action corrects the errors, which are as follows:

1. Part I A, Tables 1-8 - Method Corrections: EPA updated the 40 CFR Part 136 Test Procedures rule on March 12, 2007. They also published the "Final Update IV" to the Third Edition of the manual, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA publication SW-846, on January 3, 2008. These updates contain new and revised analytical methods for some of the methods specified in this regulation. To conform to the federal methods changes, all references in these tables to "40 CFR Part 136 (1996)" are changed to "40 CFR Part 136 (2007)". All references in these tables to "EPA SW 846 (1998)" are changed to "EPA SW 846 (2008)"

2. Part I A, Tables 1-8 - Specific Method Corrections: In the Part I A Tables 1-8, wherever the following methods appear, they are changed as follows:

EPA SW 846 method *9040B* changed to *9040C*

EPA SW 846 method *8015B* changed to *8015C*

EPA SW 846 method *8270C* changed to *8270D*

EPA SW 846 method *7421* changed to *7010*

EPA Part 136 method *239.2* changed to *"200.8 or 200.9"*

3. Part II K 1 (ii) - Correction: An old version of this language was in the permit. The language for this subsection was changed in the VPDES Permit Regulation (9VAC25-31-110 A 1) several years ago based upon EPA's changes to the 40 CFR Part 122.22 language that were published by EPA on May 15, 2000. The correct language for this subsection is: "(ii) the manager of one or more manufacturing, production, or operating facilities, provided the manager is authorized to make management decisions that govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long-term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;".

Summary:

The amendments correct errors found in the regulation. This includes updating references to reflect newer versions of the Code of Federal Regulations with regard to test methods for evaluating solid waste, and old language that had not been updated in the permit.

9VAC25-120-80. General permit.

Any owner whose request for coverage under this general permit is accepted by the board shall comply with the requirements of the general permit and be subject to all requirements of 9VAC25-31-170 B of the VPDES permit regulation. Not all pages of Part I A of the general permit will apply to every permittee. The determination of which pages apply will be based on the type of contamination at the individual site and the nature of the waters receiving the discharge. Part I B and all pages of Part II apply to all permittees.

General Permit No.: VAG83
Effective Date: February 26, 2008
Expiration Date: February 25, 2013

GENERAL VPDES PERMIT FOR DISCHARGES FROM PETROLEUM CONTAMINATED SITES, GROUNDWATER REMEDIATION, AND HYDROSTATIC TESTS

AUTHORIZATION TO DISCHARGE UNDER THE VIRGINIA POLLUTANT DISCHARGE ELIMINATION

SYSTEM PERMIT PROGRAM AND THE VIRGINIA STATE WATER CONTROL LAW

In compliance with the provisions of the Clean Water Act, as amended, the State Water Control Law and regulations adopted pursuant thereto, the owner is authorized to discharge to surface waters at the locations identified in the accepted registration statement within the boundaries of the Commonwealth of Virginia, except to designated public water supplies or waters specifically named in other board regulations or policies which prohibit such discharges.

The authorized discharge shall be in accordance with this cover page, Part I - Effluent Limitations and Monitoring Requirements and Part II - Conditions Applicable to All VPDES Permits, as set forth herein.

If there is any conflict between the requirements of a Department of Environmental Quality approved cleanup plan and this permit, the requirements of this permit shall govern.

Part I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS.

1. GASOLINE CONTAMINATION -- FRESHWATER RECEIVING WATERS NOT LISTED AS PUBLIC WATER SUPPLIES.

During the period beginning with the permittee's coverage under this general permit and lasting until the permit's expiration date, the permittee is authorized to discharge to freshwater receiving waterbodies from outfall serial number XXXX. Samples taken in compliance with the monitoring requirements specified below shall be taken at the following location: outfall from the final treatment unit prior to mixing with any other waters.

Such discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS	
	Instantaneous Minimum	Instantaneous Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	1/Month	Estimate
Benzene (µg/l)[1]	NA	50.0	1/Month	Grab*
Toluene (µg/l)[1]	NA	175.0	1/Month	Grab
Ethylbenzene (µg/l)[1]	NA	320.0	1/Month	Grab
Total Xylenes (µg/l)[1]	NA	33.0	1/Month	Grab
MTBE (methyl tert-butyl ether) (µg/l)[1]	NA	1,840.0	1/Month	Grab
pH (standard units)	6.0	9.0	1/Month	Grab
Total Recoverable Lead (µg/l)[2]	NA	$e^{(1.273(\ln \text{hardness})) - 3.259}$	1/Month	Grab
Hardness (mg/l $CaCO_3$)[2]	NL	NA	1/Month	Grab
Ethylene Dibromide (µg/l)[2]	NA	5.3	1/Month	Grab
1,2 Dichloroethane (µg/l)[2]	NA	990.0	1/Month	Grab
Ethanol (µg/l)[3]	NA	4100.0	1/Month	Grab

NL = No limitation, monitoring required

NA = Not applicable

[1]Benzene, Toluene, Ethylbenzene, Total Xylenes and MTBE shall be analyzed according to a current and appropriate EPA Wastewater Method ~~(40 CFR Part 136, 1996)~~ (40 CFR Part 136, 2007) or EPA SW 846 Method 8021B ~~(1998)~~ (1996).

[2]Monitoring for this parameter is required only when contamination results from leaded fuel. Lead shall be analyzed according to a current and appropriate EPA Wastewater Method ~~(40 CFR Part 136, 1996)~~ (40 CFR Part 136, 2007) or EPA SW 846 ~~method 9040B~~ Method 9040C (2004). The minimum hardness concentration that will be used to determine the lead effluent limit is 25 mg/l. 1,2 dichloroethane and EDB shall be analyzed by a current and appropriate EPA SW 846 Method or EPA Wastewater Method from 40 CFR Part 136 ~~(1996)~~ (2007).

[3]Monitoring for ethanol is only required for discharges of water contaminated by gasoline containing greater than 10% ethanol. Ethanol shall be analyzed according to EPA SW 846 Method ~~8015B~~ 8015C (2007) or EPA SW 846 Method 8260B (1996). Monitoring frequency shall be 1/month in the first year of permit coverage. If the first year results demonstrate full compliance with the effluent limitations, the permittee may request that the monitoring frequency for ethanol be reduced from monthly to 1/quarter. The written request shall be sent to the appropriate regional office for review. Upon written notification from the DEQ regional office, monitoring frequency shall be reduced to 1/quarter. Should the permittee be issued a warning letter related to violation of effluent limitations, a notice of violation, or be the subject of an active enforcement action, monitoring frequency for ethanol shall revert to 1/month, upon issuance of the letter or notice or initiation of the enforcement action and remain in effect until the permit's expiration date. Reports of quarterly monitoring shall be submitted to the DEQ regional office no later than the 10th day of April, July, October and January.

Part I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS.

2. GASOLINE CONTAMINATION -- FRESHWATER RECEIVING WATERS LISTED AS PUBLIC WATER SUPPLIES.

During the period beginning with the permittee's coverage under this general permit and lasting until the permit's expiration date, the permittee is authorized to discharge to freshwater receiving waterbodies from outfall serial number xxxx. Samples taken in compliance with the monitoring requirements specified below shall be taken at the following location: outfall from the final treatment unit prior to mixing with any other waters.

Such discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS	
	Instantaneous Minimum	Instantaneous Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	2/Month[4]	Estimate
Benzene (µg/l)[1]	NA	12.0	2/Month[4]	Grab
Toluene (µg/l)[1]	NA	175.0	2/Month[4]	Grab
Ethylbenzene (µg/l)[1]	NA	320.0	2/Month[4]	Grab
Total Xylenes (µg/l)[1]	NA	33.0	2/Month[4]	Grab
MTBE (methyl tert-butyl ether) (µg/l)[1]	NA	15.0	2/Month[4]	Grab
pH (standard units)	6.0	9.0	2/Month[4]	Grab
Total Recoverable Lead (µg/l)[2]	NA	Lower of $e^{(1.273(\ln \text{hardness})) - 3.259}$ or 15	2/Month[4]	Grab
Hardness (mg/l $CaCO_3$)[2]	NL	NL	2/Month[4]	Grab
Ethylene Dibromide (µg/l)[2]	NA	.169	2/Month[4]	Grab
1,2 Dichloroethane (µg/l)[2]	NA	3.8	2/Month[4]	Grab
Ethanol (µg/l)[3]	NA	4100.0	2/Month[5]	Grab

NL = No limitation, monitoring required

NA = Not applicable

[1]Benzene, Toluene, Ethylbenzene, Total Xylenes and MTBE shall be analyzed according to a current and appropriate EPA Method ~~(40 CFR Part 136, 1996)~~ (40 CFR Part 136, 2007) or EPA SW 846 Method 8021B ~~(1998)~~ (1996).

[2]Monitoring for this parameter is required only when contamination results from leaded fuel. Lead shall be analyzed according to a current and appropriate EPA Wastewater Method ~~(40 CFR Part 136, 1996)~~ (40 CFR Part 136, 2007). The minimum hardness concentration that will be used to determine the lead effluent limit is 25 mg/l. EPA SW 846 Method 8011 (1992) or EPA Drinking Water Method 504.1 (1995) shall be used to analyze ethylene dibromide (EDB) in wastewaters discharged to public water supplies. 1,2 dichloroethane shall be analyzed by a current and appropriate EPA SW 846 Method or EPA Wastewater Method from 40 CFR Part 136 ~~(1996)~~ (2007).

[3]Monitoring for ethanol is only required for discharges of water contaminated by gasoline containing greater than 10% ethanol. Ethanol shall be analyzed according to EPA SW 846 Method ~~8015B~~ 8015C (2007) or EPA SW 846 Method 8260B (1996).

[4]Monitoring frequency shall be 2/month for the first year of permit coverage. If the first year results demonstrate full compliance with the effluent limitations, the permittee may request that the monitoring frequency be reduced from 2/month to 1/month. The written request shall be sent to the appropriate regional office for review. Upon written notification from the DEQ regional office, monitoring frequency shall be reduced to 1/month. Should the permittee be issued a warning letter related to violation of effluent limitations, a notice of violation, or be the subject of an active enforcement action, monitoring frequency shall revert to 2/month, upon issuance of the letter or notice or initiation of the enforcement action and remain in effect until the permit's expiration date.

[5]If the first year results demonstrate full compliance with the effluent limitations, the permittee may request that the monitoring frequency for ethanol be reduced from 2/month to 1/quarter. The written request shall be sent to the appropriate regional office for review. Upon written notification from the DEQ regional office, monitoring frequency shall be reduced to 1/quarter. Should the permittee be issued a warning letter related to violation of effluent limitations, a notice of violation, or be the subject of an active enforcement action, monitoring frequency shall revert to 2/month, upon issuance of the letter or notice or initiation of the enforcement action and remain in effect until the permit's expiration date. Reports of quarterly monitoring shall be submitted to the DEQ regional office no later than the 10th day of April, July, October, and January.

Part I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS.

3. CONTAMINATION BY PETROLEUM PRODUCTS OTHER THAN GASOLINE -- FRESHWATER RECEIVING WATERS NOT LISTED AS PUBLIC WATER SUPPLIES.

During the period beginning with the permittee's coverage under this general permit and lasting until the permit's expiration date, the permittee is authorized to discharge to freshwater receiving waterbodies from outfall serial number xxxx. Samples taken in compliance with the monitoring requirements specified below shall be taken at the following location: outfall from the final treatment unit prior to mixing with any other waters.

Such discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS	
	Instantaneous Minimum	Instantaneous Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	1/Month	Estimate
Naphthalene (µg/l)[1]	NA	10.0	1/Month	Grab
Total Petroleum Hydrocarbons (mg/l)[2]	NA	15.0	1/Month	Grab
pH (standard units)	6.0	9.0	1/Month	Grab

NL = No limitation, monitoring required

NA = Not applicable

[1]Naphthalene shall be analyzed by a current and appropriate EPA Wastewater Method from 40 CFR Part 136 ~~(1996)~~ (2007) or a current and appropriate EPA SW 846 Method.

[2]TPH shall be analyzed using EPA SW 846 Method ~~8015B~~ 8015C (2007) for diesel range organics, or by EPA SW 846 Method ~~8270C~~ 8270D (2007). If ~~method 8270C~~ Method 8270D (2007) is used, the lab must report the total of diesel range organics and polynuclear aromatic hydrocarbons.

Part I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS.

4. CONTAMINATION BY PETROLEUM PRODUCTS OTHER THAN GASOLINE -- FRESHWATER RECEIVING WATERS LISTED AS PUBLIC WATER SUPPLIES.

During the period beginning with the permittee's coverage under this general permit and lasting until the permit's expiration date, the permittee is authorized to discharge to freshwater receiving waterbodies from outfall serial number xxxx. Samples taken in compliance with the monitoring requirements specified below shall be taken at the following location: outfall from the final treatment unit prior to mixing with any other waters.

Such discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS	
	Instantaneous Minimum	Instantaneous Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	2/Month[4]	Estimate
Naphthalene (µg/l)[1]	NA	10.0	2/Month[4]	Grab
Benzene (µg/l)[2]	NA	12.0	2/Month[4]	Grab
MTBE (methyl tert-butyl ether)(µg/l)[2]	NA	15.0	2/Month[4]	Grab
Total Petroleum Hydrocarbons (mg/l)[3]	NA	15.0	2/Month[4]	Grab
pH (standard units)	6.0	9.0	2/Month[4]	Grab

NL = No limitation, monitoring required

NA = Not applicable

[1]Naphthalene shall be analyzed by a current and appropriate EPA Wastewater Method from 40 CFR Part 136 ~~(1996)~~ (2007) or a current and appropriate EPA SW 846 Method.

[2]Benzene and MTBE shall be analyzed according to a current and appropriate EPA Wastewater Method ~~(40 CFR Part 136,1996)~~ (40 CFR Part 136, 2007) or EPA SW 846 Method.

[3]TPH shall be analyzed using EPA SW 846 Method ~~8015B~~ 8015C (2007) for diesel range organics, or by EPA SW 846 Method ~~8270C~~ 8270D (2007). If Method ~~8270C~~ 8270D is used, the lab must report the total of diesel range organics and polynuclear aromatic hydrocarbons.

[4]Monitoring frequency shall be 2/month for the first year of permit coverage. If the first year results demonstrate full compliance with the effluent limitations, the permittee may request that the monitoring frequency be reduced from 2/month to 1/month. The written request shall be sent to the appropriate regional office for review. Upon written notification from the DEQ regional office, monitoring frequency shall be reduced to 1/month. Should the permittee be issued a warning letter related to violation of effluent limitations, a notice of violation, or be the subject of an active enforcement action, monitoring frequency shall revert to 2/month, upon issuance of the letter or notice or initiation of the enforcement action and remain in effect until the permit's expiration date.

Part I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

5. DISCHARGES OF HYDROSTATIC TEST WATERS -- ALL RECEIVING WATERS

During the period beginning with the permittee's coverage under this general permit and lasting until the permit's expiration date, the permittee is authorized to discharge to receiving waterbodies from outfall serial number xxxx. Samples taken in compliance with the monitoring requirements specified below shall be taken at the following location: Outfall from the final treatment unit prior to mixing with any other waters.

Such discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS	
	Instantaneous Minimum	Instantaneous Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	1/discharge	Estimate
pH (standard units)	6.0	9.0	1/discharge	Grab
Total Petroleum Hydrocarbons (TPH, mg/l) [1]	NA	15.0	1/discharge	Grab
Total Organic Carbon (TOC, mg/l)	NA	NL	1/discharge	Grab
Total Residual Chlorine (TRC, mg/l)	NA	0.011	1/discharge	Grab
Total Suspended Solids (TSS)	NA	NL	1/discharge	Grab

NL = No limitation, monitoring required

NA = Not applicable

[1]TPH is the sum of individual gasoline range organics and diesel range organics or TPH-GRO and TPH-DRO to be measured by EPA SW 846 Method ~~8015B (1996)~~ 8015C (2007) for gasoline and diesel range organics, or by EPA SW 846 Methods 8260B (1996) and ~~8270C (1998)~~ 8270D (2007). If the combination of Methods 8260B and ~~8270C~~ 8270D is used, the lab must report the total of gasoline range organics, diesel range organics and polynuclear aromatic hydrocarbons.

Part I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS.

6. GASOLINE CONTAMINATION -- SALTWATER RECEIVING WATERS.

During the period beginning with the permittee's coverage under this general permit and lasting until the permit's expiration date, the permittee is authorized to discharge to saltwater receiving waterbodies from outfall serial number xxxx. Samples taken in compliance with the monitoring requirements specified below shall be taken at the following location: outfall from the final treatment unit prior to mixing with any other waters.

Such discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS	
	Instantaneous Minimum	Instantaneous Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	1/Month	Estimate
Benzene (µg/l)[1]	NA	50.0	1/Month	Grab
Toluene (µg/l)[1]	NA	500.0	1/Month	Grab
Ethylbenzene (µg/l)[1]	NA	4.3	1/Month	Grab
Total Xylenes (µg/l)[1]	NA	74.0	1/Month	Grab
MTBE (methyl tert-butyl ether) (µg/l)[1]	NA	440.0	1/Month	Grab
pH (standard units)	6.0	9.0	1/Month	Grab
Total Recoverable Lead (µg/l)[2]	NA	8.5	1/Month	Grab
Ethylene Dibromide (µg/l)[2]	NA	5.3	1/Month	Grab
1,2 Dichloroethane (µg/l)[2]	NA	990.0	1/Month	Grab
Ethanol (µg/l)[3]	NA	4100.0	1/Month[3]	Grab

NL = No limitation, monitoring required

NA = Not applicable

[1]Benzene, Toluene, Ethylbenzene, Total Xylenes and MTBE shall be analyzed according to a current and appropriate EPA Wastewater Method 602 ~~(40 CFR Part 136, 1996)~~ (40 CFR Part 136, 2007) or EPA SW 846 Method 8021B ~~(1998)~~ (1996).

[2]Monitoring for this parameter is required only when contamination results from leaded fuel. Lead shall be analyzed according to a current and appropriate EPA Wastewater Method ~~239.2~~ 200.8 or 200.9 ~~(40 CFR Part 136, 1996)~~ (40 CFR Part 136, 2007) or EPA SW 846 Method ~~7421 (1998)~~ 7010 (2007). 1,2 dichloroethane and EDB (surface waters that are not public water supplies) should be analyzed by a current and appropriate EPA SW 846 Method or EPA Wastewater Method from 40 CFR Part 136 ~~(1996)~~ (2007).

[3]Monitoring for ethanol is only required for discharges of water contaminated by gasoline containing greater than 10% ethanol. Ethanol shall be analyzed according to EPA SW 846 Method ~~8015B~~ 8015C (2007) or EPA SW 846 Method 8260B (1996). Monitoring frequency shall be 1/month in the first year of permit coverage. If the first year results demonstrate full compliance with the effluent limitations, the permittee may request that the monitoring frequency be reduced from monthly to 1/quarter. The written request shall be sent to the appropriate regional office for review. Upon written notification from the DEQ regional office, monitoring frequency shall be reduced to 1/quarter. Should the permittee be issued a warning letter related to violation of effluent limitations, a notice of violation, or be the subject of an active enforcement action, monitoring frequency shall revert to 1/month, upon issuance of the letter or notice or initiation of the enforcement action and remain in effect until the permit's expiration date. Reports of quarterly monitoring shall be submitted to the DEQ regional office no later than the 10th day of April, July, October and January.

Part I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS.

7. CONTAMINATION BY PETROLEUM PRODUCTS OTHER THAN GASOLINE -- SALTWATER RECEIVING WATERS.

During the period beginning with the permittee's coverage under this general permit and lasting until the permit's expiration date, the permittee is authorized to discharge to saltwater receiving waterbodies from outfall serial number xxxx. Samples taken in compliance with the monitoring requirements specified below shall be taken at the following location: outfall from the final treatment unit prior to mixing with any other waters.

Such discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS	
	Instantaneous Minimum	Instantaneous Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	1/Month	Estimate
Naphthalene (µg/l)[1]	NA	8.9	1/Month	Grab
Total Petroleum Hydrocarbons (mg/l)[2]	NA	15.0	1/Month	Grab
pH (standard units)	6.0	9.0	1/Month	Grab

NL = No limitation, monitoring required

NA = Not applicable

[1]Naphthalene shall be analyzed by a current and appropriate EPA Wastewater Method from 40 CFR Part 136 ~~(1996)~~ (2007) or a current and appropriate EPA SW 846 Method.

[2]TPH shall be analyzed using EPA SW 846 Method ~~8015B~~ 8015C (2007) for diesel range organics or EPA SW 846 Method ~~8270C~~ 8270D. If Method ~~8270C~~ 8270D (2007) is used, the lab must report the total of diesel range organics and polynuclear aromatic hydrocarbons.

Part I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS.

8. CONTAMINATION BY CHLORINATED HYDROCARBON SOLVENTS -- ALL RECEIVING WATERS.

During the period beginning with the permittee's coverage under this general permit and lasting until the permit's expiration date, the permittee is authorized to discharge to receiving waterbodies from outfall serial number xxxx. Samples taken in compliance with the monitoring requirements specified below shall be taken at the following location: outfall from the final treatment unit prior to mixing with any other waters.

Such discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS	
	Instantaneous Minimum	Instantaneous Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	1/Month	Estimate
Chloroform (CAS # 67663), (µg/l)[1]	NA	100.0	1/Month 2/Month if public water supply[2]	Grab Grab

1,1 Dichloroethane (CAS # 75343) (µg/l)[1]	NA	4.0	1/Month 2/Month if public water supply[2]	Grab Grab
1,2 Dichloroethane (CAS # 107062) (µg/l)[1]	NA	3.8	1/Month 2/Month if public water supply[2]	Grab Grab
1,1 Dichloroethylene (CAS # 75354) (µg/l)[1]	NA	7.0	1/Month 2/Month if public water supply[2]	Grab Grab
cis-1,2 Dichloroethylene (CAS # 159592) (µg/l)[1]	NA	70.0	1/Month 2/Month if public water supply[2]	Grab Grab
trans 1,2 Dichloroethylene (CAS # 156605) (µg/l)[1]	NA	100.0	1/Month 2/Month if public water supply[2]	Grab Grab
Methylene Chloride (CAS # 75092) (µg/l)[1]	NA	5.0	1/Month 2/Month if public water supply[2]	Grab Grab
Tetrachloroethylene (CAS # 127184) (µg/l)[1]	NA	5.0	1/Month 2/Month if public water supply[2]	Grab Grab
1,1,1 Trichloroethane (CAS # 71556) (µg/l)[1]	NA	112.0	1/Month 2/Month if public water supply[2]	Grab Grab
1,1,2 Trichloroethane (CAS # 79005) (µg/l)[1]	NA	5.0	1/Month 2/Month if public water supply[2]	Grab Grab
Trichloroethylene (CAS # 79016) (µg/l)[1]	NA	5.0	1/Month 2/Month if public water supply[2]	Grab Grab
Vinyl Chloride (CAS # 75014) (µg/l)[1]	NA	2.0	1/Month 2/Month if public water supply[2]	Grab Grab
Carbon Tetrachloride (CAS # 56235) (µg/l)[1]	NA	2.5	1/Month 2/Month if public water supply[2]	Grab Grab
1,2 Dichlorobenzene (CAS # 95501) (µg/l)[1]	NA	15.8	1/Month 2/Month if public water supply[2]	Grab Grab

Chlorobenzene (CAS # 108907) (µg/l)[1]	NA	3.0	1/Month 2/Month if public water supply[2]	Grab Grab
Trichlorofluoromethane (CAS # 75694) (µg/l)[1]	NA	5.0	1/Month 2/Month if public water supply[2]	Grab Grab
Chloroethane (CAS # 75003) (µg/l)[1]	NA	3.6	1/Month 2/Month if public water supply[2]	Grab Grab
pH (standard units)	6.0	9.0	1/Month 2/Month if public water supply[2]	Grab Grab

NL = No limitation, monitoring required

NA = Not applicable

[1]This constituent shall be analyzed by a current and appropriate gas chromatograph/mass spectroscopy method from EPA SW 846 or the EPA Wastewater Method series from 40 CFR Part 136 ~~(1996)~~ (2007).

[2]Monitoring frequency shall be 2/month for the first year of permit coverage. If the first year results demonstrate full compliance with the effluent limitations, the permittee may request that the monitoring frequency be reduced from 2/month to 1/month. The written request shall be sent to the appropriate regional office for review. Upon written notification from the DEQ regional office, monitoring frequency shall be reduced to 1/month. Should the permittee be issued a warning letter related to violation of effluent limitations, a notice of violation, or be the subject of an active enforcement action, monitoring frequency shall revert to 2/month, upon issuance of the letter or notice or initiation of the enforcement action and remain in effect until the permit's expiration date.

Part I

B. Special conditions.

1. There shall be no discharge of floating solids or visible foam in other than trace amounts.

2. The permittee shall sample each permitted outfall each calendar month in which a discharge occurs. When no discharge occurs from an outfall during a calendar month, the discharge monitoring report for that outfall shall be submitted indicating "No Discharge."

3. O & M Manual. If the permitted discharge is through a treatment works, within 30 days of coverage under this general permit, the permittee shall develop and maintain on site, an Operations and Maintenance (O & M) Manual for the treatment works permitted herein. This manual shall detail practices and procedures which will be followed to ensure compliance with the requirements of this permit. The permittee shall operate the treatment works in accordance with the O & M Manual. The manual shall be made available to the department upon request.

4. Operation schedule. The permittee shall construct, install and begin operating the treatment works described in the registration statement prior to discharging to surface waters. The permittee shall notify the department's regional office within five days after the completion of installation and commencement of operation.

5. Materials storage. Except as expressly authorized by this permit or another permit issued by the board, no product, materials, industrial wastes, or other wastes resulting from the purchase, sale, mining, extraction, transport, preparation, or storage of raw or intermediate materials, final product, by-product or wastes, shall be handled, disposed of, or stored so as to permit a discharge of such product, materials, industrial wastes, or other wastes to state waters.

6. If the permittee discharges to surface waters through a municipal separate storm sewer system, the permittee shall, within 30 days of coverage under this general permit, notify the owner of the municipal separate storm sewer system of the existence of the discharge and provide the following information: the name and location of the facility, a contact person and telephone number; the nature of the discharge; and the number of outfalls.

7. Termination of coverage. Provided that the department agrees that the discharge covered under this general permit is no longer needed, the permittee may request termination of coverage under the general permit, for the entire facility or for specific outfalls, by submitting a request for termination of coverage. This request for termination of coverage shall be sent to the department's regional office with appropriate documentation or references to documentation already in the department's possession. Upon the permittee's receipt of the regional director's

approval, coverage under this general permit will be terminated. Termination of coverage under this general permit does not relieve the permittee of responsibilities under other board regulations or directives.

Part II
Conditions Applicable To All VPDES Permits

A. Monitoring.

1. Samples and measurements taken as required by this permit shall be representative of the monitored activity.

2. Monitoring shall be conducted according to procedures approved under 40 CFR Part 136 or alternative methods approved by the U.S. Environmental Protection Agency, unless other procedures have been specified in this permit.

3. The permittee shall periodically calibrate and perform maintenance procedures on all monitoring and analytical instrumentation at intervals that will ensure accuracy of measurements.

B. Records.

1. Records of monitoring information shall include:

a. The date, exact place, and time of sampling or measurements;

b. The individuals who performed the sampling or measurements;

c. The dates and times analyses were performed;

d. The individual or individuals who performed the analyses;

e. The analytical techniques or methods used; and

f. The results of such analyses.

2. Except for records of monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years, the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation; copies of all reports required by this permit; and records of all data used to complete the registration statement for this permit for a period of at least three years from the date of the sample, measurement, report or request for coverage. This period of retention shall be extended automatically during the course of any unresolved litigation regarding the regulated activity or regarding control standards applicable to the permittee, or as requested by the board.

C. Reporting monitoring results.

1. The permittee shall submit the results of the monitoring required by this permit not later than the 10th day of the month after monitoring takes place unless another reporting schedule is specified elsewhere in this permit. Monitoring results shall be submitted to the department's regional office.

2. Monitoring results shall be reported on a Discharge Monitoring Report (DMR) or on forms provided, approved or specified by the department.

3. If the permittee monitors any pollutant specifically addressed by this permit more frequently than required by this permit using test procedures approved under 40 CFR Part 136 or using other test procedures approved by the U.S. Environmental Protection Agency or using procedures specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or reporting form specified by the department.

4. Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in this permit.

D. Duty to provide information. The permittee shall furnish to the department, within a reasonable time, any information which the board may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The board may require the permittee to furnish, upon request, such plans, specifications, and other pertinent information as may be necessary to determine the effect of the wastes from his discharge on the quality of state waters or such other information as may be necessary to accomplish the purposes of the State Water Control Law. The permittee shall also furnish to the department upon request copies of records required to be kept by this permit.

E. Compliance schedule reports. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.

F. Unauthorized discharges. Except in compliance with this permit or another permit issued by the board, it shall be unlawful for any person to:

1. Discharge into state waters sewage, industrial wastes, other wastes, or any noxious or deleterious substances; or

2. Otherwise alter the physical, chemical or biological properties of such state waters and make them detrimental to the public health, to animal or aquatic life, to the use of such waters for domestic or industrial consumption, for recreation, or for other uses.

G. Reports of unauthorized discharges. Any permittee who discharges or causes or allows a discharge of sewage, industrial waste, other wastes or any noxious or deleterious substance into or upon state waters in violation of Part II F or

who discharges or causes or allows a discharge that may reasonably be expected to enter state waters in violation of Part II F shall notify the department of the discharge immediately upon discovery of the discharge, but in no case later than 24 hours after the discovery. A written report of the unauthorized discharge shall be submitted to the department within five days of discovery of the discharge. The written report shall contain:

1. A description of the nature and location of the discharge;

2. The cause of the discharge;

3. The date on which the discharge occurred;

4. The length of time that the discharge continued;

5. The volume of the discharge;

6. If the discharge is continuing, how long it is expected to continue;

7. If the discharge is continuing, what the expected total volume of the discharge will be; and

8. Any steps planned or taken to reduce, eliminate and prevent a recurrence of the present discharge or any future discharges not authorized by this permit.

Discharges reportable to the department under the immediate reporting requirements of other regulations are exempted from this requirement.

H. Reports of unusual or extraordinary discharges. If any unusual or extraordinary discharge including a bypass or upset should occur from a treatment works and the discharge enters or could be expected to enter state waters, the permittee shall promptly notify, in no case later than 24 hours, the department by telephone after the discovery of the discharge. This notification shall provide all available details of the incident, including any adverse affects on aquatic life and the known number of fish killed. The permittee shall reduce the report to writing and shall submit the report to the department within five days of discovery of the discharge in accordance with Part II I 2. Unusual and extraordinary discharges include but are not limited to any discharge resulting from:

1. Unusual spillage of materials resulting directly or indirectly from processing operations;

2. Breakdown of processing or accessory equipment;

3. Failure or taking out of service some or all of the treatment works; and

4. Flooding or other acts of nature.

I. Reports of noncompliance. The permittee shall report any noncompliance which may adversely affect state waters or may endanger public health as follows:

1. An oral report shall be provided within 24 hours from the time the permittee becomes aware of the circumstances. The following shall be included as information which shall be reported within 24 hours under this subsection:

a. Any unanticipated bypass; and

b. Any upset which causes a discharge to surface waters.

2. A written report shall be submitted within five days and shall contain:

a. A description of the noncompliance and its cause;

b. The period of noncompliance including exact dates and times and, if the noncompliance has not been corrected, the anticipated time it is expected to continue; and

c. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

The board may waive the written report on a case-by-case basis for reports of noncompliance under Part II I if the oral report has been received within 24 hours and no adverse impact on state waters has been reported.

3. The permittee shall report all instances of noncompliance not reported under Part II I 1 or 2, in writing, at the time the next monitoring reports are submitted. The reports shall contain the information listed in Part II I 2.

NOTE: The immediate (within 24 hours) reports required in Part II G, H and I may be made to the department's regional office. Reports may be made by telephone or by FAX. For reports outside normal working hours, leave a message and this shall fulfill the immediate reporting requirement. For emergencies, the Virginia Department of Emergency Services maintains a 24-hour telephone service at 1-800-468-8892.

J. Notice of planned changes.

1. The permittee shall give notice to the department as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:

a. The permittee plans an alteration or addition to any building, structure, facility, or installation from which there is or may be a discharge of pollutants, the construction of which commenced:

(1) After promulgation of standards of performance under §306 of the Clean Water Act which are applicable to such source; or

(2) After proposal of standards of performance in accordance with §306 of the Clean Water Act which are applicable to such source, but only if the standards are promulgated in accordance with §306 of the Act within 120 days of their proposal;

b. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations nor to notification requirements specified elsewhere in this permit; or

c. The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.

2. The permittee shall give advance notice to the department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

K. Signatory requirements.

1. Registration statement. All registration statements shall be signed as follows:

a. For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy-making or decision-making functions for the corporation or (ii) ~~the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures~~ the manager of one or more manufacturing, production, or operating facilities, provided the manager is authorized to make management decisions that govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long-term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

c. For a municipality, state, federal, or other public agency: by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a public agency includes (i) the chief executive officer of the agency or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency.

2. Reports. All reports required by permits, and other information requested by the board shall be signed by a person described in Part II K 1, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described in Part II K 1;

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. A duly authorized representative thus may be either a named individual or any individual occupying a named position; and

c. The written authorization is submitted to the department.

3. Changes to authorization. If an authorization under Part II K 2 is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Part II K 2 shall be submitted to the department prior to or together with any reports or information to be signed by an authorized representative.

4. Certification. Any person signing a document under Parts II K 1 or 2 shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

L. Duty to comply. The permittee shall comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the State Water Control Law and the Clean Water Act, except that noncompliance with certain

provisions of this permit may constitute a violation of the State Water Control Law but not the Clean Water Act. Permit noncompliance is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

The permittee shall comply with effluent standards or prohibitions established under §307(a) of the Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under §405(d) of the Clean Water Act within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if this permit has not yet been modified to incorporate the requirement.

M. Duty to reapply. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee shall submit a new registration statement at least 180 days before the expiration date of the existing permit, unless permission for a later date has been granted by the board. The board shall not grant permission for registration statements to be submitted later than the expiration date of the existing permit.

N. Effect of a permit. This permit does not convey any property rights in either real or personal property or any exclusive privileges, nor does it authorize any injury to private property or invasion of personal rights, or any infringement of federal, state or local law or regulations.

O. State law. Nothing in this permit shall be construed to preclude the institution of any legal action under, or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any other state law or regulation or under authority preserved by §510 of the Clean Water Act. Except as provided in permit conditions on "bypassing" (Part II U) and "upset" (Part II V), nothing in this permit shall be construed to relieve the permittee from civil and criminal penalties for noncompliance.

P. Oil and hazardous substance liability. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Article 11 (§62.1-44.34:14 et seq.) of the State Water Control Law.

Q. Proper operation and maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes effective plant performance, adequate funding, adequate staffing, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by the permittee only when the operation is necessary to achieve compliance with the conditions of this permit.

R. Disposal of solids or sludges. Solids, sludges or other pollutants removed in the course of treatment or management of pollutants shall be disposed of in a manner so as to prevent any pollutant from such materials from entering state waters.

S. Duty to mitigate. The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

T. Need to halt or reduce activity not a defense. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

U. Bypass.

1. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of Part II U 2 and 3.

2. Notice.

a. Anticipated bypass. If the permittee knows in advance of the need for a bypass, prior notice shall be submitted, if possible, at least 10 days before the date of the bypass.

b. Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in Part II I.

3. Prohibition of bypass.

a. Bypass is prohibited, and the board may take enforcement action against a permittee for bypass, unless:

(1) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

(2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

(3) The permittee submitted notices as required under Part II U 2.

b. The board may approve an anticipated bypass, after considering its adverse effects, if the board determines that it will meet the three conditions listed above in Part II U 3 a.

V. Upset.

1. An upset constitutes an affirmative defense to an action brought for noncompliance with technology-based permit effluent limitations if the requirements of Part II V 2 are met. A determination made during administrative review of claims that noncompliance was caused by upset and before an action for noncompliance is not a final administrative action subject to judicial review.

2. A permittee who wishes to establish the affirmative defense of upset shall demonstrate through properly signed, contemporaneous operating logs or other relevant evidence that:

a. An upset occurred and that the permittee can identify the cause or causes of the upset;

b. The permitted facility was at the time being properly operated;

c. The permittee submitted notice of the upset as required in Part II I; and

d. The permittee complied with any remedial measures required under Part II S.

3. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

W. Inspection and entry. The permittee shall allow the director or an authorized representative, upon presentation of credentials and other documents as may be required by law, to:

1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

4. Sample or monitor at reasonable times, for the purposes of ensuring permit compliance or as otherwise authorized by the Clean Water Act and the State Water Control Law any substances or parameters at any location.

For purposes of this section, the time for inspection shall be deemed reasonable during regular business hours, and whenever the facility is discharging. Nothing contained herein shall make an inspection unreasonable during an emergency.

X. Permit actions. Permits may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

Y. Transfer of permits.

1. Permits are not transferable to any person except after notice to the department. Except as provided in Part II Y 2, a permit may be transferred by the permittee to a new owner or operator only if the permit has been modified or revoked and reissued, or a minor modification made, to identify the new permittee and incorporate such other requirements as may be necessary under the State Water Control Law and the Clean Water Act.

2. As an alternative to transfers under Part II Y 1, this permit may be automatically transferred to a new permittee if:

a. The current permittee notifies the department at least 30 days in advance of the proposed transfer of the title to the facility or property;

b. The notice includes a written agreement between the existing and new permittees containing a specific date for transfer of permit responsibility, coverage, and liability between them; and

c. The board does not notify the existing permittee and the proposed new permittee of its intent to modify or revoke and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in Part II Y 2 b.

Z. Severability. The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

NOTICE: The form used in administering the above regulation is not being published; however, the name of the form is listed below. The form is available for public inspection by contacting the agency contact for this regulation, or at the office of the Registrar of Regulations, General Assembly Building, 2nd Floor, Richmond, Virginia.

FORMS

~~General~~ VPDES General Permit Registration Statement for Discharges from Petroleum Contaminated Sites, Groundwater Remediation and Hydrostatic Tests ~~(rev. 4/03)~~ (rev. 2/08).

DOCUMENTS INCORPORATED BY REFERENCE

Method	Cite
~~150.1~~	~~EPA 600/4-87-020~~
~~200.7~~	~~EPA 600/R-94-111; 40 CFR 136, App D, 1996~~
200.8	
200.9	40 CFR 136 (2007)
~~239.2~~	40 CFR 136 (2007)
504.1	~~EPA 600/4-79-020; 40 CFR 136, App D, 1996~~
~~602~~	
~~610~~	EPA 600/R-95-131 (1995)
~~625~~	~~40 CFR 136, 1996~~
~~1624~~	~~40 CFR 136, 1996~~
~~1625~~	~~40 CFR 136, 1996~~
~~6010B~~	~~40 CFR 136, 1996~~
7010	~~40 CFR 136, 1996~~
~~7421~~	~~EPA SW 846, Ch. 3.3, (1998)~~
8011	EPA SW 846 (2007)
~~8015B~~	~~EPA SW 846, Ch. 3.3, (1998)~~
8015C	EPA SW 846 (1992)
8021B	~~EPA SW 846, Ch. 4.3.1, (1998)~~
~~8100~~	EPA SW 846 (2007)
8260B	EPA SW 846~~, Ch. 4.3.1, (1998)~~ (1996)
~~8270C~~	~~EPA SW 846, Ch. 4.3.1, (1998)~~
8270D	EPA SW 846~~, Ch. 4.3.2, (1998)~~ (1996)
~~9040B~~	~~EPA SW 846, Ch. 4.3.2, (1998)~~
9040C	EPA SW 846 (2007)
	~~EPA SW 846, Ch. 8.2, (1998)~~
	EPA SW 846 (2004)

VA.R. Doc. No. R08-1210; Filed April 17, 2008, 10:41 a.m.

Final Regulation

REGISTRAR'S NOTICE: The following regulation filed by the State Water Control Board is exempt from the Administrative Process Act in accordance with §2.2-4006 A 9 of the Code of Virginia, which exempts general permits issued by the State Water Control Board pursuant to the State Water Control Law (§62.1-44.2 et seq.), Chapter 24 (§62.1-242 et seq.) of Title 62.1 and Chapter 25 (§ 62.1-254 et seq.) of Title 62.1, if the board (i) provides a Notice of Intended Regulatory Action in conformance with the provisions of §2.2-4007.01, (ii) following the passage of 30 days from the publication of the Notice of Intended Regulatory Action forms a technical advisory committee composed of relevant stakeholders, including potentially affected citizens groups, to assist in the development of the general permit, (iii) provides notice and receives oral and written comment as provided in §2.2-4007.03, and (iv) conducts at least one public hearing on the proposed general permit.

Title of Regulation: **9VAC25-193. General Virginia Pollutant Discharge Elimination System (VPDES) Permit for Concrete Products Facilities (amending 9VAC25-193-40, 9VAC25-193-70).**

Statutory Authority: §62.1-44.15 of the Code of Virginia; §402 of the Clean Water Act; 40 CFR Parts 122, 123 and 124.

Effective Date: June 11, 2008.

Agency Contact: Elleanore M. Daub, Department of Environmental Quality, 629 East Main Street, P.O. Box 1105, Richmond, VA 23218, telephone 804-698-4111, FAX 804-698-4032, or email emdaub@deq.virginia.gov.

Summary:

The amendments reissue the general permit that expires on September 30, 2008. The general permit establishes limitations and monitoring requirements for wastewater discharges from concrete products facilities. As with an individual VPDES permit, the effluent limits in the general permit are set to protect the quality of the waters receiving the discharges.

The general permit is amended to include new effective and expiration dates to correspond with the new dates of the reissued permit. The total petroleum hydrocarbon testing methods are updated in Part I A 1 and A 3. Also, the documents incorporated by reference are updated in the last section. These are routine updates.

In special condition 1 in Part I B, a requirement for no solids deposition in surface water as a result of the industrial activity in the vicinity of the outfall has been added. Also, that the visual quality of the receiving stream (including observations of solids deposition from the industrial activity) in the vicinity of the outfall (including ditches and conveyances) should be included in the quarterly visual examination reports of the storm water management section (Part II D). These were added in response to staff concerns about solids depositions (concrete product) entering the receiving stream.

Special condition 10 in Part I B is amended such that where basins are operated in a series mode of operation, the one foot freeboard requirement for the upper basins may be waived provided the final basin will maintain the freeboard requirements. This was added to reflect existing practice and design of these basins and to ensure the lower basin will not overflow in high flow rain events.

Special condition 13 in Part I B was modified to reflect liner requirements for settling basins (process water or process water commingled with storm water) built after February 1998 as set forth in §62.1-44.15:5.2 of the Code of Virginia.

Special condition 15 in Part I B was modified to ensure that the permittee reports discharge monitoring at two significant digits. The changes in this section conform to Guidance Memo 06-2016 (Significant Figures for Discharge Monitoring Reports) for consistency within the VPDES program.

9VAC25-193-40. Effective date of the permit.

This general VPDES permit became effective on October 1, ~~2003~~ 2008, and it will expire on September 30, ~~2008~~ 2013. ~~The general permit was amended on December 7, 2005, to add coverage for SIC Codes 3271 and 3272. The amendment became effective on February 8, 2006.~~ With respect to a particular facility, this general permit shall become effective upon the facility owner's compliance with the provisions of 9VAC25-193-50 and the receipt of a copy of the general VPDES permit.

9VAC25-193-70. General permit.

Any owner whose registration statement is accepted by the board will receive the following permit and shall comply with the requirements contained therein and be subject to all requirements of 9VAC25-31.

General Permit No: VAG11
Effective Date: October 1, ~~2003~~ 2008
Expiration Date: September 30, ~~2008~~ 2013
~~Modification Date: February 8, 2006~~

GENERAL PERMIT FOR CONCRETE PRODUCTS FACILITIES AUTHORIZATION TO DISCHARGE UNDER THE VIRGINIA POLLUTANT DISCHARGE ELIMINATION SYSTEM AND THE VIRGINIA STATE WATER CONTROL LAW

In compliance with the provisions of the Clean Water Act, as amended, and pursuant to the State Water Control Law and regulations adopted pursuant thereto, owners of concrete products facilities are authorized to discharge to surface waters within the boundaries of the Commonwealth of Virginia, except those specifically named in board regulations or policies which prohibit such discharges.

The authorized discharge shall be in accordance with this cover page, Part I-Effluent Limitations, Monitoring Requirements, and Special Conditions, Part II-Storm Water Management, and Part III-Conditions Applicable to All VPDES Permits, as set forth herein.

Part I

A. Effluent limitations and monitoring requirements.

1. Process wastewater.

During the period beginning on the permit's effective date and lasting until the permit's expiration date, the permittee is authorized to discharge process wastewater which may contain input from vehicle/equipment maintenance activities, and may be commingled with noncontact cooling water or storm water associated with industrial activity. Samples taken in compliance with the monitoring requirements specified below shall be taken at outfall(s).

Such discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS			MONITORING REQUIREMENTS	
	Average	Maximum	Minimum	Frequency	Sample Type
Flow (MGD)	NL	NL	NL	(6)	Estimate
Total Suspended Solids (mg/l)	30	60	NL	(6)	Grab
pH (standard units)	NA	9.0(1)	6.0(1)	(6)	Grab
Total Petroleum Hydrocarbons(2) (mg/l)	NA	15	NL	1/3 Months	Grab
Total Residual Chlorine(3) (mg/l)	0.016	0.016	NL	(6)	Grab
Ammonia-N(3) (mg/l)	NA	NL	NL	(6)	Grab
Temperature(4) (°C)	NA	(5)	NL	(6)	Immersion Stabilization

NL = No limitation, monitoring required

NA = Not applicable

(1)Where the Water Quality Standards (9VAC25-260) establish alternate standards for pH in the waters receiving the discharge, those standards shall be the maximum and minimum effluent limitations.

[2]Total Petroleum Hydrocarbons limitation and monitoring are only required where a discharge contains process wastewater generated from the vehicle/equipment maintenance activities. Total Petroleum Hydrocarbons shall be analyzed using the Wisconsin Department of Natural Resources Modified Diesel Range Organics Method as specified in Wisconsin publication SW-141 (1995), or by EPA SW-846 Method [~~8015B (1996)~~ 8015C (2007)] for diesel range organics, or by EPA SW-846 Method [~~8270C (1996)~~ 8270D (2007)] . If Method [~~8270C~~ 8270D] is used, the lab must report the combination of diesel range organics and polynuclear aromatic hydrocarbons.

[3]Chlorine limitation and monitoring are only required where the discharge contains cooling water that is chlorinated. Ammonia monitoring is only required where the discharge contains cooling water that is disinfected using chloramines.

[4]Temperature limitation and monitoring are only required where a discharge contains cooling water.

[5]The effluent temperature shall not exceed a maximum 32°C for discharges to nontidal coastal and piedmont waters, 31°C for mountain and upper piedmont waters, 21°C for put and take trout waters, or 20°C for natural trout waters. No maximum temperature limit applies to discharges to estuarine waters.

For estuarine waters, nontidal coastal and piedmont waters, mountain and upper piedmont waters, and put and take trout waters, the effluent shall not cause an increase in temperature of the receiving stream of more than 3°C above the natural water temperature. For natural trout waters, the temperature of the effluent shall not cause an increase of 1°C above natural water temperature. The effluent shall not cause the temperature in the receiving stream to change more than 2°C per hour, except in the case of natural trout waters where the hourly temperature change shall not exceed 0.5°C.

Natural temperature is defined as that temperature of a body of water (measured as the arithmetic average over one hour) due solely to natural conditions without the influence of any point-source discharge.

[6]For a facility that was covered by the previous general permit, and reduced monitoring was granted and compliance demonstrated, monitoring frequency shall be 1/quarter. In all other cases, monitoring frequency shall be 1/month in the first year of permit coverage. If the first year results demonstrate full compliance with the effluent limitations and the permittee receives authorization from the DEQ regional office, monitoring frequency shall be reduced to 1/quarter. Should the permittee be issued a warning letter related to violation of effluent limitations, a notice of violation, or be the subject of an active enforcement action, monitoring frequency shall revert to 1/month, upon issuance of the letter or notice or initiation of the enforcement action and remain in effect until the permit's expiration date. Reports of quarterly monitoring shall be submitted to the DEQ regional office no later than the 10th day of April, July, October, and January.

Part I. Effluent Limitations and Monitoring Requirements

A. Effluent limitations and monitoring requirements.

2. Noncontact cooling water.

During the period beginning on the permit's effective date and lasting until the permit's expiration date, the permittee is authorized to discharge noncontact cooling water. Samples taken in compliance with the monitoring requirements specified below shall be taken at outfall(s).

Such discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS			MONITORING REQUIREMENTS	
	Average	Maximum	Minimum	Frequency	Sample Type
Flow (MGD)	NL	NL	NA	[4]	Estimate
pH (standard units)	NA	9.0[1]	6.0[1]	[4]	Grab
Total Residual Chlorine[2] (mg/l)	0.016	0.016	NA	[4]	Grab
Ammonia-N[2] (mg/l)	NA	NL	NA	[4]	Grab
Temperature (°C)	NA	[3]	NA	[4]	Immersion Stabilization

NL = No limitation, monitoring required

NA = Not applicable

[1]Where the Water Quality Standards (9VAC25-260) establish alternate standards for pH in the waters receiving the discharge, those standards shall be the maximum and minimum effluent limitations.

[2]Chlorine limitation and monitoring are only required where the source of cooling water is chlorinated. Ammonia monitoring is only required where cooling water is disinfected using chloramines.

[3]The effluent temperature shall not exceed a maximum 32°C for discharges to nontidal coastal and piedmont waters, 31°C for mountain and upper piedmont waters, 21°C for put and take trout waters, or 20°C for natural trout waters. No maximum temperature limit applies to discharges to estuarine waters. For estuarine waters, nontidal coastal and piedmont waters, mountain and upper piedmont waters, and put and take trout waters, the effluent shall not cause an increase in temperature of the receiving stream of more than 3°C above the natural water temperature. For natural trout waters, the temperature of the effluent

shall not cause an increase of 1°C above natural water temperature. The effluent shall not cause the temperature in the receiving stream to change more than 2°C per hour, except in the case of natural trout waters where the hourly temperature change shall not exceed 0.5°C. Natural temperature is defined as that temperature of a body of water (measured as the arithmetic average over one hour) due solely to natural conditions without the influence of any point-source discharge.

(4)For a facility that was covered by the previous general permit, and reduced monitoring was granted and compliance demonstrated, monitoring frequency shall be 1/quarter. In all other cases, monitoring frequency shall be 1/month in the first year of permit coverage. If the first year results demonstrate full compliance with the effluent limitations and the permittee receives authorization from the DEQ regional office, monitoring frequency shall be reduced to 1/quarter. Should the permittee be issued a warning letter related to violation of effluent limitations, a notice of violation, or be the subject of an active enforcement action, monitoring frequency shall be reverted to 1/month, upon issuance of the letter or notice or initiation of the enforcement action and remain in effect until the permit's expiration date. Reports of quarterly monitoring shall be submitted to the DEQ regional office no later than the 10th day of April, July, October, and January.

Part I. Effluent Limitations and Monitoring Requirements

A. Effluent limitations and monitoring requirements.

3. Storm water associated with industrial activity—storm event monitoring.

During the period beginning on the permit's effective date and lasting until the permit's expiration date, the permittee is authorized to discharge storm water associated with industrial activity which does not combine with other process wastewaters or noncontact cooling water prior to discharge. Samples taken in compliance with the monitoring requirements specified below shall be taken at outfall(s).

Such discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS	
	Maximum	Minimum	Frequency	Sample Type
Flow (MGD)	NL	NA	1/Year	Estimate(1)
Total Petroleum Hydrocarbons(3) (mg/l)	NL	NA	1/Year	Grab(2)
Total Suspended Solids (mg/l)	NL	NA	1/Year	Grab(2)
Total Recoverable Iron (mg/l)	NL	NA	1/Year	Grab(2)
pH (standard units)	NL	NA	1/Year	Grab(2)

NL = No limitation, monitoring required

NA = Not applicable

(1)Estimate of the total volume of the discharge during the storm event in accordance with the Operation and Maintenance Manual.

(2)The grab sample shall be taken during the first 30 minutes of the discharge. If during the first 30 minutes it was impracticable, then a grab sample shall be taken during the first hour of discharge, and the permittee shall submit with the Discharge Monitoring Report a description of why a grab sample during the first 30 minutes was impracticable.

(3)Total Petroleum Hydrocarbons shall be analyzed using the Wisconsin Department of Natural Resources Modified Diesel Range Organics Method as specified in Wisconsin publication SW-141 (1995), or by EPA SW-846 Method [~~8015B (1996)~~ 8015C (2007)] for diesel range organics, or by EPA SW-846 Method [~~8270C (1996)~~ 8270D (2007)] . If Method [~~8270C~~ 8270D] is used, the lab must report the combination of diesel range organics and polynuclear aromatic hydrocarbons.

4. All storm water samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previously measurable (greater than 0.1 inch rainfall) storm event. Specific storm event data shall be reported with the Discharge Monitoring Report in accordance with Part II A.

5. Reports of annual monitoring shall be submitted to the DEQ regional office no later than the 10th day of January of each year.

6. A quarterly visual monitoring shall be performed and recorded in accordance with Part II D.

B. Special conditions.

1. There shall be no discharge of floating solids or visible foam in other than trace amounts. There shall be no solids deposition in surface water as a result of the industrial activity in the vicinity of the outfall.

2. Except as expressly authorized by this permit, no product, materials, industrial wastes, or other wastes resulting from the purchase, sale, mining, extraction, transport, preparation, or storage of raw or intermediate materials, final product, byproduct or wastes, shall be handled, disposed of, or stored so as to permit a discharge of such product, materials, industrial wastes, or other wastes to surface waters.

3. Vehicles and equipment utilized during the industrial activity on a site must be operated and maintained in such a manner as to minimize the potential or actual point source pollution of surface waters. Fuels, lubricants, coolants, and hydraulic fluids, or any other petroleum products, shall not be disposed of by discharging on the ground or into surface waters. Spent fluids shall be disposed of in a manner so as not to enter the surface or ground waters of the state and in accordance with the applicable state and federal disposal regulations. Any spilled fluids shall be cleaned up to the maximum extent practicable and disposed of in a manner so as not to allow their entry into the surface or ground waters of the state.

4. All washdown and washout of trucks, mixers, transport buckets, forms or other equipment shall be conducted within designated washdown and washout areas. All washout/washdown water shall be collected for recycle or treated prior to discharge.

5. Any waste concrete and dredged solids from the settling basins shall be managed within a designated area, and any wastewaters including storm water generated from these activities shall be collected for recycle or treated prior to discharge.

6. No domestic sewage discharges to surface waters are permitted under this general permit.

7. For geothermal or other system which discharges noncontact cooling water, the use of any chemical additives, except chlorine, without prior approval is prohibited under this general permit. Prior approval shall be obtained from the DEQ Regional Office before any changes are made to the chemical usage in the geothermal or other system. Requests for approval of chemical use shall be made in writing and shall include the following information:

a. The chemical additive to be employed and its purpose;

b. The proposed schedule and quantity of chemical usage, and the estimated concentration in the discharge;

c. The wastewater treatment or retention (if any) to be provided during the use of the additive; and

d. A Material Safety Data Sheet (MSDS) and available aquatic toxicity information for each additive proposed for use.

8. Within 180 days after the date of coverage under this general permit, the permittee shall develop an Operations and Maintenance (O&M) Manual for the permitted facility. The O&M Manual shall include procedures and practices for the mitigation of pollutant discharges and for the protection of state waters from the facility's operations. The manual shall address, at a minimum, operations and maintenance practices for the wastewater treatment process units and chemical and material storage areas, solids management and disposal procedures, temporary and long-term facility closure plans, testing requirements and procedures, recordkeeping and reporting requirements and the duties and roles of responsible officials.

The permittee shall implement the O&M Manual procedures and practices as soon as possible but no later than 12 months after the date of coverage under this general permit. The manual shall be kept on site at the permitted facility and shall be made available to the department upon request.

For a facility that was covered by the previous permit, an O&M Manual was required to be developed and implemented for that facility. Within 90 days after the date of coverage under this general permit, the existing O&M Manual shall be reviewed and modified, as appropriate, to conform to the requirements of this permit. The existing O&M Manual shall continue to be implemented until the manual, if required, is revised and implemented.

9. If the concrete products facility discharges through a municipal separate storm sewer system to surface waters, the permittee shall, within 30 days of coverage under this general permit, notify the owner of the municipal separate storm sewer system of the existence of the discharge and provide the following information: the name of the facility; a contact person and phone number; nature of the discharge; number of the outfalls; and the location of the discharge. A copy of such notification shall be provided to the department.

10. The permittee shall ensure that all basins and lagoons maintain a minimum freeboard of one foot at all times except during a 72-hour transition period after a measurable rainfall event. During the 72-hour transition period, no discharge from the basins and lagoons shall occur unless it is in accordance with this permit. Within 72 hours after a measurable rainfall event, the freeboard in all basins and lagoons shall return to the minimum freeboard of one foot. Where basins are operated in a series mode of operation, the one-foot freeboard requirement for the upper basins may be waived provided the final basin will maintain the freeboard requirements of this special condition. Should the one-foot freeboard not be maintained, the permittee shall immediately notify the DEQ Regional Office, describe the problem and corrective measures taken to correct the problem. Within five days of

notification, the permittee shall submit a written statement to the regional office of explanation and corrective measures taken. In order to demonstrate compliance, the permittee shall conduct daily inspections while the facility is in operation and maintain an inspection log. The inspection log shall include at least the date and time of inspection, the weather data including the occurrence of a measurable rainfall event, the printed name and the handwritten signature of the inspector, the freeboard measurement in inches, a notation of observation made, and any corrective measures, if appropriate, taken. The log shall be kept onsite and be made available to the department upon request.

11. For treatment systems which operate only in a "no discharge" mode, there shall be no discharge of pollutants to surface waters from these systems except in the case of a storm event which is greater than a 25 year-24 hour storm event. The operation of these systems shall not contravene the Water Quality Standards (9VAC25-260), as adopted and amended by the board, or any provision of the State Water Control Law.

12. The permittee shall notify the department as soon as he knows or has reason to believe:

a. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in this permit if that discharge will exceed the highest of the following notification levels:

(1) One hundred micrograms per liter (100 µg/l);

(2) Two hundred micrograms per liter (200 µg/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/l) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/l) for antimony;

(3) Five times the maximum concentration value reported for that pollutant in the permit application; or

(4) The level established by the board in accordance with 9VAC25-31-220 F.

b. That any activity has occurred or will occur which would result in any discharge, on a nonroutine or infrequent basis, of a toxic pollutant which is not limited in this permit if that discharge will exceed the highest of the following notification levels:

(1) Five hundred micrograms per liter (500 µg/l);

(2) One milligram per liter (1 mg/l) for antimony;

(3) Ten times the maximum concentration value reported for that pollutant in the permit application; or

(4) The level established by the board in accordance with 9VAC25-31-220 F.

13. All settling basins ~~used for treatment and control of process wastewater and commingled storm water that were~~ [used for treatment and control of process wastewater or process wastewater commingled with storm water that were] constructed on or after February 2, 1998, shall be lined with concrete or any other impermeable materials ~~prior to commencing operation~~.

14. Treated wastewater may be used on site for the purposes of dust suppression. Dust suppression shall be carried out as a best management practice but not a wastewater disposal method. No ponding or surface runoff shall occur as a result of such activity.

15. Compliance reporting under Part I A.

a. The quantification levels (QL) shall be as follows:

Effluent Characteristic	Quantification Level
Chlorine	~~0.1~~ 0.10 mg/l
Ammonia-N	~~0.2~~ 0.20 mg/l

b. Reporting.

(1) Monthly Average. Compliance with the monthly average limitations and/or reporting requirements for the parameters listed in Part I A shall be determined as follows: All concentration data below the QL listed in subsection 15 a of this subsection shall be treated as zero. All concentration data equal to or above the QL listed shall be treated as it is reported. An arithmetic average shall be calculated using all reported data, including the defined zeros, for the month. This arithmetic average shall be reported on the DMR as calculated. If all data are below the QL then the average shall be reported as ~~"<QL".~~ "<QL." If reporting for quantity is required on the DMR and the calculated concentration is <QL then report "<QL" for the quantity, otherwise use the calculated concentration.

(2) Daily Maximum. Compliance with the daily maximum limitations and/or reporting requirements for the parameters listed in Part I A shall be determined as follows: All concentration data below the QL listed in subdivision 15 a of this subsection shall be treated as zero. All concentration data equal to or above the QL shall be treated as reported. An arithmetic average of the values shall be calculated using all reported data, including the defined zeros, collected for each day during the reporting month. The maximum value of these daily averages thus determined shall be reported on the DMR as the Daily Maximum. If all data are below the QL then the average shall be reported as ~~"<QL".~~ "<QL." If reporting for quantity is required on the DMR and the calculated concentration is <QL then report "<QL" for the quantity, otherwise use the calculated concentration.

(3) Any single datum required shall be reported as "<QL" if it less than QL listed in subdivision 15 a of this subsection. Otherwise the numerical value shall be reported.

(4) The permittee shall report at least two significant digits for a given parameter. Regardless of the rounding convention used (i.e. five always rounding up or to the nearest even number) by the permittee, the permittee shall use the convention consistently and shall ensure that consulting laboratories employed by the permittee use the same convention.

Part II.
Storm Water Management.

A. Recording of results. For each discharge measurement or sample taken pursuant to the storm event monitoring requirements of this permit, the permittee shall record and report with the Discharge Monitoring Reports (DMRs) the following information:

1. The date and duration (in hours) of the storm event(s) sampled;

2. The rainfall measurements or estimates (in inches) of the storm event which generated the sampled discharge; and

3. The duration between the storm event sampled and the end of the previous measurable (greater than 0.1 inch rainfall) storm event.

B. Representative discharge. When a facility has two or more exclusively storm water outfalls that, based on a consideration of industrial activity, significant materials, and management practices and activities within the area drained by the outfall, the permittee reasonably believes discharge substantially identical effluent, the permittee may test the effluent of one of such outfalls and include with the DMRs an explanation that the quantitative data also applies to the substantially identical outfalls provided that the permittee includes a description of the location of the outfalls and explains in detail why the outfalls are expected to discharge substantially identical effluent. In addition, for each exclusively storm water outfall that the permittee believes is representative, an estimate of the size of the drainage area (in square feet) and an estimate of the runoff coefficient of the drainage area (e.g., low (under 40%), medium (40% to 65%) or high (above 65%)) shall be provided.

C. Sampling waiver. When a permittee is unable to collect storm water samples required in Part I A or other applicable sections of this permit within a specified sampling period due to adverse climatic conditions, the permittee shall collect a substitute sample from a separate qualifying event in the next period and submit these data along with the data for the routine sample in that period. Adverse weather conditions which may prohibit the collection of samples include weather conditions that create dangerous conditions for personnel (such as local flooding, high winds, hurricane, tornadoes, electrical storms, etc.) or otherwise make the collection of a sample impracticable (drought, extended frozen conditions, etc.).

D. Quarterly visual examination of storm water quality. The permittee shall perform and document a visual examination of a storm water discharge associated with industrial activity from each outfall, except discharges exempted below. The visual examination(s) must be made during daylight hours (e.g., normal working hours), at least once in each of the following three-month periods: January through March, April through June, July through September, and October through December.

1. Examinations shall be made of samples collected within the first 30 minutes (or as soon thereafter as practical, but not to exceed one hour) of when the runoff or snowmelt begins discharging. The examination shall document observations of color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, and other obvious indicators of storm water pollution. The examination must be conducted in a well lit area. No analytical tests are required to be performed on the samples. All such samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previous measurable (greater than 0.1 inch rainfall) storm event. The required 72-hour storm event interval is waived where the preceding measurable storm event did not result in a measurable discharge from the facility. The required 72-hour storm event interval may also be waived where the permittee documents that less than a 72-hour interval is representative for local storm events during the season when sampling is being conducted. If no qualifying storm event resulted in discharge from the facility during a monitoring period, visual monitoring is exempted provided that the permittee document that no qualifying storm event occurred that resulted in storm water discharge during that quarter. Where practicable, the same individual should carry out the collection and examination of discharges for the entire permit term.

2. Visual examination reports must be maintained onsite with the pollution prevention plan. The report shall include the outfall location, the examination date and time, examination personnel, the nature of the discharge (i.e., runoff or snow melt), visual quality of the storm water discharge (including observations of color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, and other obvious indicators of storm water pollution), visual quality of the receiving stream (including observations of solids deposition and oil sheen from the industrial activity) in the vicinity of the outfall (including ditches and conveyances) and probable sources of any observed storm water contamination.

3. If the facility has two or more outfalls that, based on a consideration of industrial activity, significant materials, and management practices and activities within the area drained by the outfall, the permittee reasonably believes discharge substantially identical effluents, the permittee may collect a sample of effluent of one of such outfalls and report that the examination data also applies to the substantially identical outfall(s) provided that the permittee includes in the storm water pollution prevention plan a description of the location of the outfalls and explains in detail why the outfalls are expected to discharge substantially identical effluents. In addition, for each outfall that the permittee believes is representative, an estimate of the size of the drainage area (in square feet) and an estimate of the runoff coefficient of the drainage area (i.e., low (under 40%), medium (40 to 65%), or high (above 65%)) shall be provided in the plan.

4. When the permittee is unable to conduct the visual examination due to adverse climatic conditions, the permittee must document the reason for not performing the visual examination and retain this documentation onsite with the records of the visual examinations. Adverse weather conditions that may prohibit the collection of samples include weather conditions that create dangerous conditions for personnel (such as local flooding, high winds, hurricane, tornadoes, electrical storms, etc.) or otherwise make the collection of a sample impracticable (drought, extended frozen conditions, etc.).

E. Allowable nonstorm water discharges.

1. The following nonstorm water discharges are authorized by this permit provided the nonstorm water component of the discharge is in compliance with Part II E 2 below.

a. Discharges from fire fighting activities;

b. Fire hydrant flushings;

c. Potable water including water line flushings;

d. Uncontaminated air conditioning or compressor condensate;

e. Irrigation drainage;

f. Landscape watering provided all pesticides, herbicides, and fertilizer have been applied in accordance with manufacturer's instructions;

g. Pavement wash waters where no detergents are used and no spills or leaks of toxic or hazardous materials have occurred (unless all spilled material has been removed);

h. Routine external building wash down which does not use detergents;

i. Uncontaminated ground water or spring water;

j. Foundation or footing drains where flows are not contaminated with process materials such as solvents;

k. Incidental windblown mist from cooling towers that collects on rooftops or adjacent portions of the facility, but NOT intentional discharges from the cooling tower (e.g., "piped" cooling tower blowdown or drains).

2. Except for flows from fire fighting activities, the Storm Water Pollution Prevention Plan must include:

a. Identification of each allowable nonstorm water source;

b. The location where it is likely to be discharged; and

c. Descriptions of appropriate BMPs for each source.

3. If mist blown from cooling towers is included as one of the allowable nonstorm water discharges, the facility must specifically evaluate the potential for the discharges to be contaminated by chemicals used in the cooling tower. The permittee must determine that the levels of such chemicals in the discharges will not cause or contribute to a violation of an applicable water quality standard after implementation of the BMPs selected to control such discharges.

F. Releases of hazardous substances or oil in excess of reportable quantities. The discharge of hazardous substances or oil in the storm water discharge(s) from this facility shall be prevented or minimized in accordance with the applicable storm water pollution prevention plan for the facility. This permit does not authorize the discharge of hazardous substances or oil resulting from an onsite spill. Where a release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity established under either 40 CFR Part 110 (1998), 40 CFR Part 117 (1998) or 40 CFR Part 302 (1998) occurs during a 24-hour period, the permittee is required to notify the department in accordance with the requirements of Part III G as soon as he has knowledge of the discharge. Where a release enters a municipal separate storm sewer system (MS4), the permittee shall also notify the owner of the MS4. In addition, the storm water pollution prevention plan required by this permit must be reviewed to identify measures to prevent the reoccurrence of such releases and to respond to such releases, and the plan must be modified where appropriate. This permit does not relieve the permittee of the reporting requirements of 40 CFR Part 110 (1998), 40 CFR Part 117 (1998) and 40 CFR Part 302 (1998) or §62.1-44.34:19 of the Code of Virginia.

G. Storm water pollution prevention plans. A storm water pollution prevention plan is required to be developed for the facility. The plan shall be prepared in accordance with good engineering practices, and shall identify potential sources of pollution which may reasonably be expected to affect the quality of storm water discharges associated with industrial activity from the facility. In addition, the plan shall describe

and ensure the implementation of practices which are to be used to reduce the pollutants in storm water discharges associated with industrial activity at the facility and to assure compliance with the terms and conditions of this permit. Permittees must implement the provisions of the storm water pollution prevention plan as a condition of this permit.

The storm water pollution prevention plan requirements of this permit may be fulfilled by incorporating by reference other plans or documents such as an erosion and sediment control plan, a spill prevention control and countermeasure (SPCC) plan developed for the facility under §311 of the Clean Water Act or best management practices (BMP) programs otherwise required for the facility provided that the incorporated plan meets or exceeds the plan requirements of Part II G 4. If an erosion and sediment control plan is being incorporated by reference, it shall have been approved by the locality in which the activity is to occur or by another appropriate plan approving authority authorized under the Virginia Erosion and Sediment Control Regulation, 4VAC50-30. All plans incorporated by reference into the storm water pollution prevention plan become enforceable under this permit.

1. Deadlines for plan preparation and compliance.

a. For a storm water discharge associated with industrial activity that is existing on or before the effective date of this permit, the storm water pollution prevention plan shall be prepared and implemented as expeditiously as practicable, but not later than 270 days from the date of coverage under this permit. For a facility that was covered by the previous permit, a storm water pollution prevention plan was required to be developed and implemented for that facility. Within 120 days after the date of coverage under this permit, the existing storm water pollution prevention plan shall be reviewed and modified, as appropriate, to conform to the requirements of this permit. The existing storm water pollution prevention plans shall continue to be implemented until a new plan, if required, is developed and implemented.

b. The plan for any facility where industrial activity commences after the effective date of this permit, and except as provided elsewhere in this permit, shall be prepared, implemented and provide for compliance with the terms of the plan and this permit on or before the date of submission of a registration statement to be covered under this permit.

c. In cases where construction is necessary to implement measures required by the plan, the plan shall contain a schedule that provides compliance with the plan as expeditiously as practicable, but no later than three years from the date of coverage under this permit. Where a construction compliance schedule is included in the plan, the schedule shall include appropriate nonstructural and/or temporary controls to be implemented in the affected portion(s) of the facility prior to completion of the permanent control measure.

2. Signature and plan review.

a. The plan shall be signed in accordance with Part III K, and be retained on-site at the facility covered by this permit in accordance with Part III B.

b. The permittee shall make the storm water pollution prevention plan, annual site compliance inspection report, or other information available to the department upon request.

c. The director, or his designee, may notify the permittee in writing at any time that the plan does not meet one or more of the minimum requirements of this part. Such notification shall identify those provisions of the permit which are not being met by the plan, and identify which provisions of the plan require modifications in order to meet the minimum requirements of this part. Within 60 days of such notification from the director, or as otherwise provided by the director, the permittee shall make the required changes to the plan and shall submit to the department a written certification that the requested changes have been made.

3. Keeping plans current. The permittee shall amend the plan whenever there is a change in design, construction, operation, or maintenance, which has a significant effect on the potential for the discharge of pollutants to surface waters of the state or if the storm water pollution prevention plan proves to be ineffective in eliminating or significantly minimizing pollutants from sources identified under Part II G 4 b of this permit, or in otherwise achieving the general objectives of controlling pollutants in storm water discharges associated with industrial activity.

4. Contents of plan. The plan shall include, at a minimum, the following items:

a. Pollution prevention team. Each plan shall identify a specific individual or individuals within the facility organization as members of a storm water pollution prevention team that are responsible for developing the storm water pollution prevention plan and assisting the facility or plant manager in its implementation, maintenance, and revision. The plan shall clearly identify the responsibilities of each team member. The activities and responsibilities of the team shall address all aspects of the facility's storm water pollution prevention plan.

b. Description of potential pollutant sources. Each plan shall provide a description of potential sources which may reasonably be expected to add significant amounts of pollutants to storm water discharges or which may result in the discharge of pollutants during dry weather from separate storm sewers draining the facility. Each plan shall identify all activities and significant materials

which may potentially be significant pollutant sources. Each plan shall include, at a minimum:

(1) Drainage. A site map indicating an outline of the portions of the drainage area of each storm water outfall that are within the facility boundaries, each existing structural control measure to reduce pollutants in storm water runoff, surface water bodies, locations where significant materials are exposed to precipitation, locations where major spills or leaks identified under Part II G 4 b (3) have occurred, and the locations of the following activities: fueling stations; vehicle and equipment maintenance and/or cleaning areas; loading/unloading areas; bag house or other dust control device, recycle/sedimentation pond, clarifier or other device used for the treatment of process wastewater, and the areas that drain to the treatment device, locations used for the storage or disposal of wastes; liquid storage tanks; processing areas; and storage areas. The map must indicate the outfall locations and the types of discharges contained in the drainage areas of the outfalls; and for each area of the facility that generates storm water discharges associated with industrial activity with a reasonable potential for containing significant amounts of pollutants, a prediction of the direction of flow, and an identification of the types of pollutants which are likely to be present in storm water discharges associated with industrial activity. Factors to consider include the toxicity of the chemicals; quantity of chemicals used, produced or discharged; the likelihood of contact with storm water; and history of significant leaks or spills of toxic or hazardous pollutants. Flows with a significant potential for causing erosion shall be identified.

(2) Inventory of exposed materials. An inventory of the types of materials handled at the site that potentially may be exposed to precipitation. Such inventory shall include a narrative description of significant materials that have been handled, treated, stored or disposed in a manner to allow exposure to storm water between the time of three years prior to the date of coverage under this general permit and the present; method and location of on-site storage or disposal; materials management practices employed to minimize contact of materials with storm water runoff between the time of three years prior to the date of coverage under this general permit and the present; the location and a description of existing structural and nonstructural control measures to reduce pollutants in storm water runoff; and a description of any treatment the storm water receives.

(3) Spills and leaks. A list of significant spills and significant leaks of toxic or hazardous pollutants that occurred at areas that are exposed to precipitation or that otherwise drain to a storm water conveyance at the facility after the date of three years prior to the date of coverage under this general permit. Such list shall be updated as appropriate during the term of the permit.

(4) Sampling data. A summary of existing discharge sampling data describing pollutants in storm water discharges from the facility, including a summary of sampling data collected during the term of this permit.

(5) Risk identification and summary of potential pollutant sources. A narrative description of the potential pollutant sources from the following activities: loading and unloading operations; outdoor storage activities; outdoor manufacturing or processing activities; significant dust or particulate generating processes; and on-site waste disposal practices. The description shall specifically list any significant potential source of pollutants at the site and for each potential source, any pollutant or pollutant parameter (e.g., biochemical oxygen demand, etc.) of concern shall be identified.

c. Measures and controls. Each facility covered by this permit shall develop a description of storm water management controls appropriate for the facility, and implement such controls. The appropriateness and priorities of controls in a plan shall reflect identified potential sources of pollutants at the facility. The description of storm water management controls shall address the following minimum components, including a schedule for implementing such controls:

(1) Good housekeeping. Good housekeeping requires the clean and orderly maintenance of areas that may contribute pollutants to storm waters discharges. Particular attention should be paid to areas where raw materials are stockpiled, material handling areas, storage areas, liquid storage tanks and loading/unloading areas. The plan shall describe procedures performed to minimize the discharge of: spilled cement, aggregate (including sand and gravel), fly ash, settled dust, or other significant material in storm water from paved portions of the site that are exposed to storm water. Regular sweeping or other equivalent measures to minimize the presence of these materials shall be employed. The frequency of sweeping or equivalent measures shall be specified in the plan based upon a consideration of the amount of industrial activity occurring in the areas and the frequency of precipitation, but it shall be a minimum of once a week if cement, aggregate, kiln dust, fly ash or settled dust are being handled/processed. Where practicable, efforts must be made to prevent the exposure of fine granular solids (cement, fly ash, etc.) to storm water by storing these materials in enclosed silos/hoppers, buildings or under other covering.

(2) Preventive maintenance. A preventive maintenance program shall involve timely inspection and maintenance of storm water management devices (e.g., cleaning

oil/water separators, catch basins) inspecting and testing facility equipment and systems to uncover conditions that could cause breakdowns or failures resulting in discharges of pollutants to surface waters, and appropriate maintenance of such equipment and systems.

(3) Spill prevention and response procedures. Areas where potential spills which can contribute pollutants to storm water discharges can occur, and their accompanying drainage points shall be identified clearly in the storm water pollution prevention plan. Where appropriate, specifying material handling procedures, storage requirements, and use of equipment such as diversion valves in the plan should be considered. Procedures for cleaning up spills shall be identified in the plan and made available to the appropriate personnel. The necessary equipment to implement a clean up should be available to personnel.

(4) Routine facility inspections. Facility personnel who are familiar with the industrial activity, the BMPs and the storm water pollution prevention plan shall be identified to inspect designated equipment and areas of the facility. Inspections shall be conducted while the facility is in operation and include, but are not limited to, the following areas exposed to storm water: material handling areas, above ground storage tanks, hoppers or silos, dust collection/containment systems, and truck wash down/equipment cleaning areas. The inspection frequency shall be specified in the plan based on a consideration of the level of industrial activity at the facility, but it shall be a minimum of quarterly unless more frequent intervals are specified elsewhere in the permit. A set of tracking or followup procedures shall be used to ensure that appropriate actions are taken in response to the inspections. Records of inspections shall be maintained with the pollution prevention plan.

(5) Employee training. Employee training programs shall inform personnel responsible for implementing activities identified in the storm water pollution prevention plan or otherwise responsible for storm water management at all levels of responsibility of the components and goals of the storm water pollution prevention plan. Training should address topics such as spill response, good housekeeping and material management practices. A pollution prevention plan shall identify periodic dates for such training.

(6) Recordkeeping and internal reporting procedures. A description of incidents such as spills, or other discharges, along with other information describing the quality and quantity of storm water discharges shall be included in the plan. Inspections and maintenance activities shall be documented and records of such activities shall be incorporated into the plan.

(7) Sediment and erosion control. The plan shall identify areas which, due to topography, activities, or other factors, have a high potential for significant soil erosion, and identify structural, vegetative, and/or stabilization measures to be used to limit erosion.

(8) Management of runoff. The plan shall contain a narrative consideration of the appropriateness of traditional storm water management practices (practices other than those which control the generation or source(s) of pollutants) used to divert, infiltrate, reuse, or otherwise manage storm water runoff in a manner that reduces pollutants in storm water discharges from the site. The plan shall provide that measures that the permittee determines to be reasonable and appropriate shall be implemented and maintained. The potential of various sources at the facility to contribute pollutants to storm water discharges associated with industrial activity shall be considered when determining reasonable and appropriate measures. Appropriate measures may include: vegetative swales and practices, reuse of collected storm water (such as for a process or as an irrigation source), inlet controls (such as oil/water separators), snow management activities, infiltration devices, wet detention/retention devices; or other equivalent measures.

d. Comprehensive site compliance evaluation. Qualified facility personnel who are familiar with the industrial activity, the BMPs and the storm water pollution prevention plan shall conduct site compliance evaluations at appropriate intervals specified in the plan, but, in no case less than once a year. Such evaluations shall include the following:

(1) Areas contributing to a storm water discharge associated with industrial activity shall be visually inspected for evidence of, or the potential for, pollutants entering the drainage system. Measures to reduce pollutant loadings shall be evaluated to determine whether they are adequate and properly implemented in accordance with the terms of the permit or whether additional control measures are needed. Structural storm water management measures, sediment and erosion control measures, and other structural pollution prevention measures identified in the plan shall be observed to ensure that they are operating correctly. A visual inspection of equipment needed to implement the plan, such as spill response equipment, shall be made.

(2) Based on the results of the evaluation, the description of potential pollutant sources identified in the plan in accordance with Part II G 4 b and pollution prevention measures and controls identified in the plan in accordance with Part II G 4 c shall be revised as appropriate within two weeks of such evaluation and shall provide for implementation of any changes to the

plan in a timely manner, but in no case more than 12 weeks after the evaluation.

(3) A report summarizing the scope of the inspection, personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the storm water pollution prevention plan, and actions taken in accordance with Part II G 4 d shall be made and retained as part of the storm water pollution prevention plan as required in Part III B. The report shall identify any incidents of noncompliance. Where a report does not identify any incidents of noncompliance, the report shall contain a certification that the facility is in compliance with the storm water pollution prevention plan and this permit. The report shall be signed in accordance with Part III K.

(4) Where compliance evaluation schedules overlap with inspections required under Part II G 4 c (4), the compliance evaluation may be conducted in place of one such inspection.

5. Special pollution prevention plan requirements:

a. Additional requirements for storm water discharges associated with industrial activity from facilities subject to §313 of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) reporting requirements. Potential pollutant sources for which the facility has reporting requirements under EPCRA 313 must be identified in the summary of potential pollutant sources as per Part II G 4 b.

b. Additional requirements for salt storage. Storage piles of salt used for deicing or other commercial or industrial purposes must be enclosed or covered to prevent exposure to precipitation (except for exposure resulting from adding or removing materials from the pile). Piles do not need to be enclosed or covered where storm water from the pile is not discharged to surface waters or the discharges from the piles are authorized under another permit.

Part III.
Conditions Applicable To All VPDES Permits.

A. Monitoring.

1. Samples and measurements taken as required by this permit shall be representative of the monitored activity.

2. Monitoring shall be conducted according to procedures approved under 40 CFR Part 136 or alternative methods approved by the U.S. Environmental Protection Agency unless other procedures have been specified in this permit.

3. The permittee shall periodically calibrate and perform maintenance procedures on all monitoring and analytical instrumentation at intervals that will ensure accuracy of measurements.

B. Records.

1. Records of monitoring information shall include:

a. The date, exact place, and time of sampling or measurements;

b. The individuals who performed the sampling or measurements;

c. The dates and times analyses were performed;

d. The individuals who performed the analyses;

e. The analytical techniques or methods used; and

f. The results of such analyses.

2. Except for records of monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years, the permittee shall retain (i) records of all monitoring information including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, (ii) copies of all reports required by this permit, and (iii) records of all data used to complete the registration statement for this permit for a period of at least three years from the date of the sample, measurement, report or request for coverage. This period of retention shall be extended automatically during the course of any unresolved litigation regarding the regulated activity or regarding control standards applicable to the permittee, or as requested by the board.

C. Reporting monitoring results.

1. The permittee shall submit the results of the monitoring required by this permit not later than the 10th day of the month after monitoring takes place, unless another reporting schedule is specified elsewhere in this permit. Monitoring results shall be submitted to the department's regional office.

2. Monitoring results shall be reported on a Discharge Monitoring Report (DMR) or on forms provided, approved or specified by the department.

3. If the permittee monitors any pollutant specifically addressed by this permit more frequently than required by this permit using test procedures approved under 40 CFR Part 136 or using other test procedures approved by the U.S. Environmental Protection Agency or using procedures specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or reporting form specified by the department.

4. Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in this permit.

D. Duty to provide information. The permittee shall furnish to the department, within a reasonable time, any information which the board may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The board may require the permittee to furnish, upon request, such plans, specifications, and other pertinent information as may be necessary to determine the effect of the wastes from his discharge on the quality of state waters, or such other information as may be necessary to accomplish the purposes of the State Water Control Law. The permittee shall also furnish to the department upon request copies of records required to be kept by this permit.

E. Compliance schedule reports. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.

F. Unauthorized discharges. Except in compliance with this permit, or another permit issued by the board, it shall be unlawful for any person to:

1. Discharge into state waters sewage, industrial wastes, other wastes, or any noxious or deleterious substances; or

2. Otherwise alter the physical, chemical or biological properties of such state waters and make them detrimental to the public health, or to animal or aquatic life, or to the use of such waters for domestic or industrial consumption, for recreation, or for other uses.

G. Reports of unauthorized discharges. Any permittee who discharges or causes or allows a discharge of sewage, industrial waste, other wastes or any noxious or deleterious substance into or upon state waters in violation of Part III F; or who discharges or causes or allows a discharge that may reasonably be expected to enter state waters in violation of Part III F, shall notify the department of the discharge immediately upon discovery of the discharge, but in no case later than 24 hours after said discovery. A written report of the unauthorized discharge shall be submitted to the department, within five days of discovery of the discharge. The written report shall contain:

1. A description of the nature and location of the discharge;

2. The cause of the discharge;

3. The date on which the discharge occurred;

4. The length of time that the discharge continued;

5. The volume of the discharge;

6. If the discharge is continuing, how long it is expected to continue;

7. If the discharge is continuing, what the expected total volume of the discharge will be; and

8. Any steps planned or taken to reduce, eliminate and prevent a recurrence of the present discharge or any future discharges not authorized by this permit.

Discharges reportable to the department under the immediate reporting requirements of other regulations are exempted from this requirement.

H. Reports of unusual or extraordinary discharges. If any unusual or extraordinary discharge including a bypass or upset should occur from a treatment works and the discharge enters or could be expected to enter state waters, the permittee shall promptly notify, in no case later than 24 hours, the department by telephone after the discovery of the discharge. This notification shall provide all available details of the incident, including any adverse affects on aquatic life and the known number of fish killed. The permittee shall reduce the report to writing and shall submit it to the department within five days of discovery of the discharge in accordance with Part III I 2. Unusual and extraordinary discharges include but are not limited to any discharge resulting from:

1. Unusual spillage of materials resulting directly or indirectly from processing operations;

2. Breakdown of processing or accessory equipment;

3. Failure or taking out of service some or all of the treatment works; and

4. Flooding or other acts of nature.

I. Reports of noncompliance. The permittee shall report any noncompliance which may adversely affect state waters or may endanger public health.

1. An oral report shall be provided within 24 hours from the time the permittee becomes aware of the circumstances. The following shall be included as information which shall be reported within 24 hours under this subdivision:

a. Any unanticipated bypass; and

b. Any upset which causes a discharge to surface waters.

2. A written report shall be submitted within five days and shall contain:

a. A description of the noncompliance and its cause;

b. The period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and

c. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

The board may waive the written report on a case-by-case basis for reports of noncompliance under Part III I if the oral report has been received within 24 hours and no adverse impact on state waters has been reported.

3. The permittee shall report all instances of noncompliance not reported under Parts III I 1 or 2, in writing, at the time the next monitoring reports are submitted. The reports shall contain the information listed in Part III I 2.

NOTE: The immediate (within 24 hours) reports required in Parts III G, H and I may be made to the department's regional office by telephone or by fax. For reports outside normal working hours, leave a message and this shall fulfill the immediate reporting requirement. For emergencies, the Virginia Department of Emergency Services maintains a 24 hour telephone service at 1-800-468-8892.

J. Notice of planned changes.

1. The permittee shall give notice to the department as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:

a. The permittee plans alteration or addition to any building, structure, facility, or installation from which there is or may be a discharge of pollutants, the construction of which commenced:

(1) After promulgation of standards of performance under §306 of Clean Water Act which are applicable to such source; or

(2) After proposal of standards of performance in accordance with §306 of Clean Water Act which are applicable to such source, but only if the standards are promulgated in accordance with §306 within 120 days of their proposal;

b. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations nor to notification requirements specified elsewhere in this permit; or

c. The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.

2. The permittee shall give advance notice to the department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

K. Signatory requirements.

1. Registration statements. All registration statements shall be signed as follows:

a. For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means (i) president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation or (ii) the manager of one or more manufacturing, production, or operating facilities provided the manager is authorized to make management decisions that govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long-term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

c. For a municipality, state, federal, or other public agency: by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a public agency includes (i) the chief executive officer of the agency or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency.

2. Reports, etc. All reports required by permits, and other information requested by the board shall be signed by a person described in Part III K 1, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described in Part III K 1;

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. A duly authorized representative may thus be either a named individual or any individual occupying a named position; and

c. The written authorization is submitted to the department.

3. Changes to authorization. If an authorization under Part III K 2 is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Part III K 2 shall be submitted to the department prior to or together with any reports, or information to be signed by an authorized representative.

4. Certification. Any person signing a document under Parts III K 1 or 2 shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

L. Duty to comply. The permittee shall comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the State Water Control Law and the Clean Water Act, except that noncompliance with certain provisions of this permit may constitute a violation of the State Water Control Law but not the Clean Water Act. Permit noncompliance is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

The permittee shall comply with effluent standards or prohibitions established under §307(a) of the Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under §405(d) of the Clean Water Act within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if this permit has not yet been modified to incorporate the requirement.

M. Duty to reapply. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee shall apply for and obtain a new permit. All permittees with a currently effective permit shall submit a new application at least 180 days before the expiration date of the existing permit, unless permission for a later date has been granted by the board. The board shall not grant permission for applications to be submitted later than the expiration date of the existing permit.

N. Effect of a permit. This permit does not convey any property rights in either real or personal property or any exclusive privileges, nor does it authorize any injury to private property or invasion of personal rights, or any infringement of federal, state or local law or regulations.

O. State law. Nothing in this permit shall be construed to preclude the institution of any legal action under, or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any other state law or regulation or under authority preserved by §510 of the Clean Water Act. Except as provided in permit conditions on "bypassing" (Part III U), and "upset" (Part III V) nothing in this permit shall be construed to relieve the permittee from civil and criminal penalties for noncompliance.

P. Oil and hazardous substance liability. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under §§62.1-44.34:14 through 62.1-44.34:23 of the State Water Control Law.

Q. Proper operation and maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes effective plant performance, adequate funding, adequate staffing, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by the permittee only when the operation is necessary to achieve compliance with the conditions of this permit.

R. Disposal of solids or sludges. Solids, sludges or other pollutants removed in the course of treatment or management of pollutants shall be disposed of in a manner so as to prevent any pollutant from such materials from entering state waters.

S. Duty to mitigate. The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

T. Need to halt or reduce activity not a defense. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

U. Bypass.

1. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of Parts III U 2 and U 3.

2. Notice.

a. Anticipated bypass. If the permittee knows in advance of the need for a bypass, prior notice shall be submitted, if possible at least 10 days before the date of the bypass.

b. Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in Part III I.

3. Prohibition of bypass.

a. Bypass is prohibited, and the board may take enforcement action against a permittee for bypass, unless:

(1) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

(2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

(3) The permittee submitted notices as required under Part III U 2.

b. The board may approve an anticipated bypass, after considering its adverse effects, if the board determines that it will meet the three conditions listed above in Part III U 3 a.

V. Upset.

1. An upset constitutes an affirmative defense to an action brought for noncompliance with technology based permit effluent limitations if the requirements of Part III V 2 are met. A determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is not a final administrative action subject to judicial review.

2. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

a. An upset occurred and that the permittee can identify the causes of the upset;

b. The permitted facility was at the time being properly operated;

c. The permittee submitted notice of the upset as required in Part III I; and

d. The permittee complied with any remedial measures required under Part III S.

3. In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

W. Inspection and entry. The permittee shall allow the director, or his designee, upon presentation of credentials and other documents as may be required by law, to:

1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

2. Have access to and copy at reasonable times any records that must be kept under the conditions of this permit;

3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

4. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act and the State Water Control Law, any substances or parameters at any location.

For purposes of this section, the time for inspection shall be deemed reasonable during regular business hours, and whenever the facility is discharging. Nothing contained herein shall make an inspection unreasonable during an emergency.

X. Permit actions. Permits may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

Y. Transfer of permits.

1. Permits are not transferable to any person except after notice to the department. Except as provided in Part III Y 2, a permit may be transferred by the permittee to a new owner or operator only if the permit has been modified or revoked and reissued, or a minor modification made, to identify the new permittee and incorporate such other requirements as may be necessary under the State Water Control Law and the Clean Water Act.

2. As an alternative to transfers under Part III Y 1, this permit may be automatically transferred to a new permittee if:

a. The current permittee notifies the department at least 30 days in advance of the proposed transfer of the title to the facility or property;

b. The notice includes a written agreement between the existing and new permittees containing a specific date for transfer of permit responsibility, coverage, and liability between them; and

c. The board does not notify the existing permittee and the proposed new permittee of its intent to modify or revoke and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in Part III Y 2 b.

Z. Severability. The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

DOCUMENTS INCORPORATED BY REFERENCE

Standard Industrial Classification Manual, 1987, Office of Management and Budget.

Standard Methods for the Examination of Water and Wastewater, [~~18th Edition~~ 18th, 19th, 20th and 21st Editions], 1992 [, 1995, 1998 and 2005], American Public Health Association.

Method [~~8270C~~ 8270D], Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS), [~~Revision 3~~ Revision 4], [~~December 1996~~ February 2007], U.S. Government Printing Office.

Method [~~8015B~~ 8015C], Nonhalogenated Organics Using GC/FID, [~~Revision 2~~ Revision 3], [~~December 1996~~ February 2007], U.S. Government Printing Office.

Modified DRO Method for Determining Diesel Range Organics, PUBL-SW-141, September 1995, Wisconsin Department of Natural Resources.

VA.R. Doc. No. R07-33; Filed April 17, 2008, 10:44 a.m.

Final Regulation

REGISTRAR'S NOTICE: The State Water Control Board is claiming an exemption from the Administrative Process Act in accordance with §2.2-4006 A 3, which excludes regulations that consist only of changes in style or form or corrections of technical errors. The State Water Control Board will receive, consider and respond to petitions by any interested person at any time with respect to reconsideration or revision.

Title of Regulation: **9VAC25-196. General Virginia Pollutant Discharge Elimination System (VPDES) Permit for Noncontact Cooling Water Discharges of 50,000 Gallons Per Day or Less (amending 9VAC25-196-70).**

Statutory Authority: §62.1-44.15 of the Code of Virginia; §402 of the Clean Water Act; 40 CFR Parts 122, 123 and 124.

Effective Date: June 11, 2008.

Agency Contact: Burt Tuxford, Department of Environmental Quality, 629 East Main Street, P.O. Box 1105, Richmond, VA 23218, telephone 804-698-4086, FAX 804-698-4032, or email brtuxford@deq.virginia.gov.

Summary

This regulation was adopted by the State Water Control Board on December 4, 2007. Subsequent to the adoption, errors were found in 9VAC25-196-70 (General Permit) in the Part I A (Effluent Limitations and Monitoring Requirements) table footnotes. This regulatory action is to correct the errors, which are as follows:

1. Footnote (4) - Method Corrections: EPA updated the 40 CFR Part 136 Test Procedures rule on March 12, 2007. This update contains new and revised analytical methods for some of the methods specified in this regulation. To conform to the federal methods changes, the following changes are made: for Copper, delete EPA Methods 220.1 and 220.2; for Zinc, delete EPA Method 289.1; and for Silver, delete EPA Methods 272.1 and 272.2.

2. Footnote (3) - Typo Correction: Change "...and chlorine monitoring only applies..." to "...and chlorine monitoring only apply...".

3. Footnote (6) - Typo Corrections: Change "phosphorous" to "phosphorus" (2 instances).

9VAC25-196-70. General permit.

Any owner whose registration statement is accepted by the board will receive the following permit and shall comply with the requirements therein and be subject to all requirements of 9VAC25-31.

General Permit No: VAG25
Effective Date: March 2, 2008
Expiration Date: March 1, 2013

GENERAL PERMIT FOR NONCONTACT COOLING WATER DISCHARGES OF 50,000 GALLONS PER DAY OR LESS
AUTHORIZATION TO DISCHARGE UNDER THE VIRGINIA POLLUTANT DISCHARGE ELIMINATION SYSTEM AND THE VIRGINIA STATE WATER CONTROL LAW

In compliance with the provisions of the Clean Water Act, as amended, and pursuant to the State Water Control Law and regulations adopted pursuant thereto, owners of noncontact cooling water discharges of 50,000 gallons per day or less are authorized to discharge to surface waters within the boundaries of the Commonwealth of Virginia, except Class V stockable trout waters, Class VI natural trout waters, and those specifically named in board regulations or policies which prohibit such discharges. Chlorine or any other halogen compounds shall not be used for disinfection or other treatment purposes, including biocide applications, for any discharges to waters containing endangered or threatened species as identified in 9VAC25-260-110 C of the Water Quality Standards.

The authorized discharge shall be in accordance with this cover page, Part I—Effluent Limitations and Monitoring Requirements, and Part II—Conditions Applicable to all VPDES Permits, as set forth herein.

Part I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS.

During the period beginning on the permit's effective date and lasting until the permit's expiration date, the permittee is authorized to discharge noncontact cooling water. Samples taken in compliance with the monitoring requirements specified below shall be taken at the following location(s): outfall(s): _____.

Such discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS	
	Maximum	Minimum	Frequency	Sample Type
Flow (MGD)	0.05	NA	1/3 Months	Estimate
Temperature (°C)	(1)	NA	1/3 Months	Immersion Stabilization
pH (SU)	9(2)	6(2)	1/3 Months	Grab
Ammonia-N(3) (mg/l)	NL	NA	1/3 Months	Grab
Total Residual Chlorine(3) (mg/l)	Nondetectable	NA	1/3 Months	Grab
Hardness (mg/l $CaCO_3$)	NL	NA	1/3 Months	Grab
Total Dissolved Copper(4) (µg/l)	NL	NA	1/3 Months	Grab
Total Dissolved Zinc(4) (µg/l)	NL	NA	1/3 Months	Grab
Total Dissolved Silver(4), (5) (µg/l)	NL	NA	1/3 Months	Grab
Total Phosphorus(6) (mg/l)	NL	NA	1/3 Months	Grab

NL = No limitation, monitoring required

NA = Not applicable

(1)The effluent temperature shall not exceed a maximum 32°C for discharges to nontidal coastal and piedmont waters, or 31°C for mountain and upper piedmont waters. No maximum temperature limit, only monitoring, applies to discharges to estuarine waters.

The effluent shall not cause an increase in temperature of the receiving stream of more than 3°C above the natural water temperature. The effluent shall not cause the temperature in the receiving stream to change more than 2°C per hour. Natural temperature is defined as that temperature of a body of water (measured as the arithmetic average over one hour) due solely to natural conditions without the influence of any point-source discharge.

(2)Where the Water Quality Standards (9VAC25-260) establish alternate standards for pH in the waters receiving the discharge, those standards shall be the maximum and minimum effluent limitations.

(3)Chlorine limitation of nondetectable (<0.1 mg/l) and chlorine monitoring only ~~applies~~ apply to outfalls directly discharging to surface waters where the source of cooling water is chlorinated. Ammonia monitoring only applies where the source of cooling water is disinfected using chloramines.

(4)A specific analysis is not specified for these materials. An appropriate analysis shall be selected from the following list of EPA methods to achieve a quantification level that is less than the target level for the material under consideration:

Material	EPA Method	Target Level (µg/l)
Copper	~~220.1, 220.2,~~ 200.7, 200.8, 200.9, 1638, 1640	9.2
Zinc	~~289.1,~~ 289.2, 200.7, 200.8, 1638, 1639	65.0
Silver	~~272.1, 272.2,~~ 200.7, 200.8, 200.9, 1638	1.2

Quality control/assurance information shall be submitted to document that the required quantification level has been attained.

(5) Silver monitoring is only required where Cu/Ag anode is used.

(6) ~~Phosphorous~~ Phosphorus monitoring is only required where additive containing ~~phosphorous~~ phosphorus is used.

B. Special conditions.

1. There shall be no discharge of floating solids or visible foam in other than trace amounts.

2. No discharges other than cooling water, as defined, are permitted under this general permit.

3. The use of any chemical additives not identified in the registration statement, except chlorine, without prior approval is prohibited under this general permit. Prior approval shall be obtained from the DEQ before any changes are made to the chemical and/or nonchemical treatment technology employed in the cooling water system. Requests for approval of the change shall be made in writing and shall include the following information:

a. Describe the chemical and/or nonchemical treatment to be employed and its purpose; if chemical additives are used, provide the information prescribed in subdivisions 3 b, c, d , e and f;

b. Provide the name and manufacturer of each additive used;

c. Provide a list of active ingredients and percentage of composition;

d. Give the proposed schedule and quantity of chemical usage, and provide either an engineering analysis, or a technical evaluation of the active ingredients, to determine the concentration in the discharge;

e. Attach available aquatic toxicity information for each additive proposed for use; and

f. Attach any other information such as product or constituent degradation, fate, transport, synergies, bioavailability, etc., that will aid the board with the toxicity evaluation for the discharge.

4. Where cooling water is discharged through a municipal storm sewer system to surface waters, the permittee shall, within 30 days of coverage under this general permit, notify the owner of the municipal separate storm sewer system of the existence of the discharge and provide the following information: the name of the facility, a contact person and phone number, nature of the discharge, number of the outfalls, and the location of the discharge. A copy of such notification shall be provided to the department.

5. The permittee shall at all times properly operate and maintain all cooling water systems. Inspection shall be conducted for each cooling water unit by the plant personnel at least once per year with reports maintained on site.

6. The permittee shall notify the department as soon as they know or have reason to believe:

a. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in this permit, if that discharge will exceed the highest of the following notification levels:

(1) One hundred micrograms per liter (100 µg/l);

(2) Two hundred micrograms per liter (200 µg/l) for acrolein and acrylonitrile; 500 micrograms per liter (500 µg/l) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/l) for antimony;

(3) Five times the maximum concentration value reported for that pollutant in the permit application; or

(4) The level established by the board in accordance with 9VAC25-31-220 F.

b. That any activity has occurred or will occur which would result in any discharge, on a nonroutine or infrequent basis, of a toxic pollutant which is not limited in this permit, if that discharge will exceed the highest of the following notification levels:

(1) Five hundred micrograms per liter (500 µg/l);

(2) One milligram per liter (1 mg/l) for antimony;

(3) Ten times the maximum concentration value reported for that pollutant in the permit application; or

(4) The level established by the board in accordance with 9VAC25-31-220 F.

7. Geothermal systems using groundwater and no chemical additives. Geothermal systems using groundwater and no chemical additives may be eligible for reduced monitoring requirements.

If a geothermal system was covered by the previous cooling water general permit, and the monitoring results from the previous permit term demonstrate full compliance with the effluent limitations, the permittee may request authorization from the department to reduce the monitoring to once in the first monitoring quarter of the first year of this permit term.

Owners of new geothermal systems, and previously unpermitted geothermal systems that receive coverage under this permit shall submit monitoring results to the department for the first four monitoring quarters after coverage begins. If the monitoring results demonstrate full compliance with the effluent limitations, the permittee may request authorization from the department to suspend monitoring for the remainder of the permit term.

Should the permittee be issued a warning letter related to violation of effluent limitations, a notice of violation, or be the subject of an active enforcement action, upon issuance of the letter or notice, or initiation of the enforcement action the monitoring frequency shall revert to 1/3 months and remain in effect until the permit's expiration date.

Part II
Conditions Applicable to All VPDES Permits

A. Monitoring.

1. Samples and measurements taken as required by this permit shall be representative of the monitored activity.

2. Monitoring shall be conducted according to procedures approved under 40 CFR Part 136 or alternative methods approved by the U.S. Environmental Protection Agency, unless other procedures have been specified in this permit.

3. The permittee shall periodically calibrate and perform maintenance procedures on all monitoring and analytical instrumentation at intervals that will ensure accuracy of measurements.

B. Records.

1. Records of monitoring information shall include:

a. The date, exact place and time of sampling or measurements;

b. The individual(s) who performed the sampling or measurements;

c. The date(s) and time(s) analyses were performed;

d. The individual(s) who performed the analyses;

e. The analytical techniques or methods used; and

f. The results of such analyses.

2. Except for records of monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years, the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the registration statement for this permit, for a period of at least three years from the date of the sample, measurement, report or request for coverage. This period of retention shall be extended automatically during the course of any unresolved litigation regarding the regulated activity or regarding control standards applicable to the permittee or as requested by the board.

C. Reporting monitoring results.

1. The permittee shall submit the results of the monitoring required by this permit not later than the 10th day of the month after monitoring takes place, unless another reporting schedule is specified elsewhere in this permit. Monitoring results shall be submitted to the department's regional office.

2. Monitoring results shall be reported on a Discharge Monitoring Report (DMR) or on forms provided, approved or specified by the department.

3. If the permittee monitors any pollutant specifically addressed by this permit more frequently than required by this permit using test procedures approved under 40 CFR Part 136 or using other test procedures approved by the U.S. Environmental Protection Agency or using procedures specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or reporting form specified by the department.

4. Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in this permit.

D. Duty to provide information. The permittee shall furnish to the department, within a reasonable time, any information which the board may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The board may require the permittee to furnish, upon request, such plans, specifications, and other pertinent information as may be necessary to determine the effect of the wastes from his discharge on the quality of state waters, or such other information as may be necessary to accomplish the purposes of the State Water Control Law. The permittee shall also furnish to the department upon request copies of records required to be kept by this permit.

E. Compliance schedule reports. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.

F. Unauthorized discharges. Except in compliance with this permit or another permit issued by the board, it shall be unlawful for any person to:

1. Discharge into state waters sewage, industrial wastes, other wastes, or any noxious or deleterious substances; or

2. Otherwise alter the physical, chemical or biological properties of such state waters and make them detrimental to the public health, to animal or aquatic life, to the use of such waters for domestic or industrial consumption, for recreation, or for other uses.

G. Reports of unauthorized discharges. Any permittee who discharges or causes or allows a discharge of sewage, industrial waste, other wastes or any noxious or deleterious

substance into or upon state waters in violation of Part II F, or who discharges or causes or allows a discharge that may reasonably be expected to enter state waters in violation of Part II F, shall notify the department of the discharge immediately upon discovery of the discharge, but in no case later than 24 hours after said discovery. A written report of the unauthorized discharge shall be submitted to the department within five days of discovery of the discharge. The written report shall contain:

1. A description of the nature and location of the discharge;

2. The cause of the discharge;

3. The date on which the discharge occurred;

4. The length of time that the discharge continued;

5. The volume of the discharge;

6. If the discharge is continuing, how long it is expected to continue;

7. If the discharge is continuing, what the expected total volume of the discharge will be; and

8. Any steps planned or taken to reduce, eliminate and prevent a recurrence of the present discharge or any future discharges not authorized by this permit.

Discharges reportable to the department under the immediate reporting requirements of other regulations are exempted from this requirement.

H. Reports of unusual or extraordinary discharges. If any unusual or extraordinary discharge including a bypass or upset should occur from a treatment works and the discharge enters or could be expected to enter state waters, the permittee shall promptly notify, in no case later than 24 hours, the department by telephone after the discovery of the discharge. This notification shall provide all available details of the incident, including any adverse affects on aquatic life and the known number of fish killed. The permittee shall reduce the report to writing and shall submit it to the department within five days of discovery of the discharge in accordance with Part II I 2. Unusual and extraordinary discharges include but are not limited to any discharge resulting from:

1. Unusual spillage of materials resulting directly or indirectly from processing operations;

2. Breakdown of processing or accessory equipment;

3. Failure or taking out of service some or all of the treatment works; and

4. Flooding or other acts of nature.

I. Reports of noncompliance. The permittee shall report any noncompliance which may adversely affect state waters or may endanger public health.

1. An oral report shall be provided within 24 hours from the time the permittee becomes aware of the circumstances. The following shall be included as information which shall be reported within 24 hours under this subsection:

a. Any unanticipated bypass; and

b. Any upset which causes a discharge to surface waters.

2. A written report shall be submitted within five days and shall contain:

a. A description of the noncompliance and its cause;

b. The period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and

c. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

The board may waive the written report on a case-by-case basis for reports of noncompliance under Part II I if the oral report has been received within 24 hours and no adverse impact on state waters has been reported.

3. The permittee shall report all instances of noncompliance not reported under Part II I 1 or 2, in writing, at the time the next monitoring reports are submitted. The reports shall contain the information listed in Part II I 2.

NOTE: The immediate (within 24 hours) reports required in Parts II G, H and I may be made to the department's regional office by telephone or by fax. For reports outside normal working hours, leave a message and this shall fulfill the immediate reporting requirement. For emergencies, the Virginia Department of Emergency Services maintains a 24-hour telephone service at 1-800-468-8892.

J. Notice of planned changes.

1. The permittee shall give notice to the department as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:

a. The permittee plans alteration or addition to any building, structure, facility, or installation from which there is or may be a discharge of pollutants, the construction of which commenced:

(1) After promulgation of standards of performance under §306 of Clean Water Act which are applicable to such source; or

(2) After proposal of standards of performance in accordance with §306 of Clean Water Act which are applicable to such source, but only if the standards are

promulgated in accordance with §306 within 120 days of their proposal;

b. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations nor to notification requirements specified elsewhere in this permit; or

c. The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.

2. The permittee shall give advance notice to the department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

K. Signatory requirements.

1. Registration statements. All registration statements shall be signed as follows:

a. For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy-making or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided the manager is authorized to make management decisions that govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long-term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

c. For a municipality, state, federal, or other public agency: by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a public agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency.

2. Reports, etc. All reports required by permits, and other information requested by the board shall be signed by a person described in Part II K 1, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described in Part II K 1;

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company (a duly authorized representative may thus be either a named individual or any individual occupying a named position); and

c. The written authorization is submitted to the department.

3. Changes to authorization. If an authorization under Part II K 2 is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Part II K 2 shall be submitted to the department prior to or together with any reports or information to be signed by an authorized representative.

4. Certification. Any person signing a document under Part II K 1 or 2 shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

L. Duty to comply. The permittee shall comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the State Water Control Law and the Clean Water Act, except that noncompliance with certain provisions of this permit may constitute a violation of the State Water Control Law but not the Clean Water Act. Permit noncompliance is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

The permittee shall comply with effluent standards or prohibitions established under §307(a) of the Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under §405(d) of the Clean Water Act within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if this permit has not yet been modified to incorporate the requirement.

M. Duty to reapply. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee shall apply for and obtain a new permit. All permittees with a currently effective permit shall submit a new registration statement at least 90 days before the expiration date of the existing permit, unless permission for a later date has been granted by the board. The board shall not grant permission for registration statements to be submitted later than the expiration date of the existing permit.

N. Effect of a permit. This permit does not convey any property rights in either real or personal property or any exclusive privileges, nor does it authorize any injury to private property or invasion of personal rights, or any infringement of federal, state or local law or regulations.

O. State law. Nothing in this permit shall be construed to preclude the institution of any legal action under, or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any other state law or regulation or under authority preserved by §510 of the Clean Water Act. Except as provided in permit conditions on bypass (Part II U) and upset (Part II V), nothing in this permit shall be construed to relieve the permittee from civil and criminal penalties for noncompliance.

P. Oil and hazardous substance liability. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under §§62.1-44.34:14 through 62.1-44.34:23 of the State Water Control Law.

Q. Proper operation and maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes effective plant performance, adequate funding, adequate staffing, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by the permittee only when the operation is necessary to achieve compliance with the conditions of this permit.

R. Disposal of solids or sludges. Solids, sludges or other pollutants removed in the course of treatment or management of pollutants shall be disposed of in a manner so as to prevent any pollutant from such materials from entering state waters.

S. Duty to mitigate. The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

T. Need to halt or reduce activity not a defense. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

U. Bypass.

1. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to ensure efficient operation. These bypasses are not subject to the provisions of Part II U 2 and U 3.

2. Notice.

a. Anticipated bypass. If the permittee knows in advance of the need for a bypass, prior notice shall be submitted, if possible at least 10 days before the date of the bypass.

b. Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in Part II I.

3. Prohibition of bypass.

a. Bypass is prohibited, and the board may take enforcement action against a permittee for bypass, unless:

(1) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

(2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

(3) The permittee submitted notices as required under Part II U 2.

b. The board may approve an anticipated bypass, after considering its adverse effects, if the board determines that it will meet the three conditions listed in Part II U 3 a.

V. Upset.

1. An upset constitutes an affirmative defense to an action brought for noncompliance with technology based permit effluent limitations if the requirements of Part II V 2 are met. A determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is not a final administrative action subject to judicial review.

2. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

a. An upset occurred and that the permittee can identify the cause(s) of the upset;

b. The permitted facility was at the time being properly operated;

c. The permittee submitted notice of the upset as required in Part II I; and

d. The permittee complied with any remedial measures required under Part II S.

3. In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

W. Inspection and entry. The permittee shall allow the director, or an authorized representative, upon presentation of credentials and other documents as may be required by law, to:

1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

4. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act and the State Water Control Law, any substances or parameters at any location.

For purposes of this subsection, the time for inspection shall be deemed reasonable during regular business hours, and whenever the facility is discharging. Nothing contained herein shall make an inspection unreasonable during an emergency.

X. Permit actions. Permits may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

Y. Transfer of permits.

1. Permits are not transferable to any person except after notice to the department. Except as provided in Part II Y 2, a permit may be transferred by the permittee to a new owner or operator only if the permit has been modified or revoked and reissued, or a minor modification made, to identify the new permittee and incorporate such other requirements as may be necessary under the State Water Control Law and the Clean Water Act.

2. As an alternative to transfers under Part II Y 1, this permit may be automatically transferred to a new permittee if:

a. The current permittee notifies the department at least 30 days in advance of the proposed transfer of the title to the facility or property;

b. The notice includes a written agreement between the existing and new permittees containing a specific date for transfer of permit responsibility, coverage, and liability between them; and

c. The board does not notify the existing permittee and the proposed new permittee of its intent to modify or revoke and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in Part II Y 2 b.

Z. Severability. The provisions of this permit are severable. If any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

DOCUMENTS INCORPORATED BY REFERENCE

~~Wisconsin Publication SW-141 (1995).~~

Method Cited	
200.7	EPA 600/R-94-111; 40 CFR Part 136~~, App D, 1996~~ (2007)
200.8	EPA 600/R-94-111; 40 CFR Part 136 (2007)
200.9	EPA 600/R-94-111; 40 CFR Part 136 (2007)
~~220.1~~	~~EPA 600/4-79-020; 40 CFR 136, App D, 1996~~
~~220.2~~	~~EPA 600/4-79-020; 40 CFR 136, App D, 1996~~
~~272.1~~	~~EPA 600/4-79-020~~
~~272.2~~	~~EPA 600/4-79-020; 40 CFR 136, App D, 1996~~
~~289.1~~	~~EPA 600/4-79-020; 40 CFR 136, App D, 1996~~
289.2	EPA 600/4-79-020
1638	EPA 821/R-95-031

1639 EPA 821/R-95-032
1640 EPA 821/R-95-033

VA.R. Doc. No. R08-1211; Filed April 17, 2008, 10:44 a.m.

Final Regulation

REGISTRAR'S NOTICE: The following regulatory action is exempt from the Administrative Process Act in accordance with §2.2-4006 A 4 c of the Code of Virginia, which excludes regulations that are necessary to meet the requirements of federal law or regulations, provided such regulations do not differ materially from those required by federal law or regulation. The State Water Control Board will receive, consider and respond to petitions by any interested person at any time with respect to reconsideration or revision.

Title of Regulation: **9VAC25-720. Water Quality Management Planning Regulation (amending 9VAC25-720-50, 9VAC25-720-130).**

Statutory Authority: §62.1-44.15 of the Code of Virginia; 33 USC §1313(e) of the Clean Water Act.

Effective Date: June 11, 2008.

Agency Contact: David Lazarus, Department of Environmental Quality, 629 East Main Street, P.O. Box 1105, Richmond, VA 23218, telephone 804-698-4299, FAX 804-698-4116, or email dslazarus@deq.virginia.gov.

Summary:

The amendments to the state's Water Quality Management Planning Regulation (9VAC25-720) include 24 new total maximum daily load (TMDL) wasteload allocations. The amendments are to the Potomac-Shenandoah River Basin (9VAC25-720-50 A) and the New River Basin (9VAC25-720-130 A).

The TMDLS were developed in accordance with federal regulations (40 CFR 130.7). The TMDLs were subject to the TMDL public participation process and the waste load allocations are adopted as part of 9VAC25-720 in accordance with Virginia's "Public Participation Procedures for Water Quality Management Planning."

9VAC25-720-50. Potomac-Shenandoah River Basin.

A. Total Maximum Daily Load (TMDLs).

TMDL #	Stream Name	TMDL Title	City/County	WBID	Pollutant	WLA	Units
1.	Muddy Creek	Nitrate TMDL Development for Muddy Creek/Dry River, Virginia	Rockingham	B21R	Nitrate	49,389.00	LB/YR
2.	Blacks Run	TMDL Development for Blacks Run and Cooks Creek	Rockingham	B25R	Sediment	32,844.00	LB/YR
3.	Cooks Creek	TMDL Development for Blacks Run and Cooks Creek	Rockingham	B25R	Sediment	69,301.00	LB/YR
4.	Cooks Creek	TMDL Development for Blacks Run and Cooks Creek	Rockingham	B25R	Phosphorus	0	LB/YR
5.	Muddy Creek	TMDL Development for Muddy Creek and Holmans Creek, Virginia	Rockingham	B22R	Sediment	286,939.00	LB/YR
6.	Muddy Creek	TMDL Development for Muddy Creek and Holmans Creek, Virginia	Rockingham	B22R	Phosphorus	38.00	LB/YR
7.	Holmans Creek	TMDL Development for Muddy Creek and Holmans Creek, Virginia	Rockingham/ Shenandoah	B45R	Sediment	78,141.00	LB/YR
8.	Mill Creek	TMDL Development for Mill Creek and Pleasant Run	Rockingham	B29R	Sediment	276.00	LB/YR
9.	Mill Creek	TMDL Development for Mill Creek and Pleasant Run	Rockingham	B29R	Phosphorus	138.00	LB/YR

10.	Pleasant Run	TMDL Development for Mill Creek and Pleasant Run	Rockingham	B27R	Sediment	0.00	LB/YR
11.	Pleasant Run	TMDL Development for Mill Creek and Pleasant Run	Rockingham	B27R	Phosphorus	0.00	LB/YR
12.	Linville Creek	Total Maximum Load Development for Linville Creek: Bacteria and Benthic Impairments	Rockingham	B46R	Sediment	5.50	TONS/YR
13.	Quail Run	Benthic TMDL for Quail Run	Rockingham	B35R	Ammonia	7,185.00	KG/YR
14.	Quail Run	Benthic TMDL for Quail Run	Rockingham	B35R	Chlorine	27.63	KG/YR
15.	Shenandoah River	Development of Shenandoah River PCB TMDL (South Fork and Main Stem)	Warren & Clarke	B41R B55R B57R B58R	PCBs	179.38	G/YR
16.	Shenandoah River	Development of Shenandoah River PCB TMDL (North Fork)	Warren & Clarke	B51R	PCBs	0.00	G/YR
17.	Shenandoah River	Development of Shenandoah River PCB TMDL (Main Stem)	Warren & Clarke	WV	PCBs	179.38	G/YR
18.	Cockran Spring	Benthic TMDL Reports for Six Impaired Stream Segments in the Potomac-Shenandoah and James River Basins	Augusta	B10R	Organic Solids	1,556.00	LB/YR
19.	Lacey Spring	Benthic TMDL Reports for Six Impaired Stream Segments in the Potomac-Shenandoah and James River Basins	Rockingham	B47R	Organic Solids	680.00	LB/YR
20.	Orndorff Spring	Benthic TMDL Reports for Six Impaired Stream Segments in the Potomac-Shenandoah and James River Basins	Shenandoah	B52R	Organic Solids	103.00	LB/YR
21.	Toms Brook	Benthic TMDL for Toms Brook in Shenandoah County, Virginia	Shenandoah	B50R	Sediment	8.1	T/YR
22.	Goose Creek	Benthic TMDLs for the Goose Creek Watershed	Loudoun, Fauquier	A08R	Sediment	1,587	T/YR
23.	Little River	Benthic TMDLs for the Goose Creek Watershed	Loudoun	A08R	Sediment	105	T/YR

24.	Christians Creek	Fecal Bacteria and General Standard Total Maximum Daily Load Development for Impaired Streams in the Middle River and Upper South River Watersheds, Augusta County, VA	Augusta	B14R	Sediment	145	T/YR
25.	Moffett Creek	Fecal Bacteria and General Standard Total Maximum Daily Load Development for Impaired Streams in the Middle River and Upper South River Watersheds, Augusta County, VA	Augusta	B13R	Sediment	0	T/YR
26.	Upper Middle River	Fecal Bacteria and General Standard Total Maximum Daily Load Development for Impaired Streams in the Middle River and Upper South River Watersheds, Augusta County, VA	Augusta	B10R	Sediment	1.355	T/YR
27.	Mossy Creek	Total Maximum Daily Load Development for Mossy Creek and Long Glade Run: Bacteria and General Standard (Benthic) Impairments	Rockingham	B19R	Sediment	0.04	T/YR
28.	Smith Creek	Total Maximum Daily Load (TMDL) Development for Smith Creek	Rockingham, Shenandoah	B47R	Sediment	353,867	LB/YR
29.	Abrams Creek	Opequon Watershed TMDLs for Benthic Impairments: Abrams Creek and Lower Opequon Creek, Frederick and Clarke counties, Virginia	Frederick	B09R	Sediment	478	T/YR
30.	Lower Opequon Creek	Opequon Watershed TMDLs for Benthic Impairments: Abrams Creek and Lower Opequon Creek, Frederick and Clarke counties, Virginia	Frederick, Clarke	B09R	Sediment	1,039	T/YR
31.	Mill Creek	Mill Creek Sediment TMDL for a Benthic Impairment, Shenandoah County, Virginia	Shenandoah	B48R	Sediment	0.9	T/YR
32.	South Run	Benthic TMDL Development for South Run, Virginia	Fauquier	A19R	Phosphorus	0.038	T/YR

33.	Lewis Creek	Total Maximum Daily Load Development for Lewis Creek, General Standard (Benthic)	Augusta	B12R	Sediment	40	T/YR
34.	Lewis Creek	Total Maximum Daily Load Development for Lewis Creek, General Standard (Benthic)	Augusta	B12R	Lead	0	KG/YR
35.	Lewis Creek	Total Maximum Daily Load Development for Lewis Creek, General Standard (Benthic)	Augusta	B12R	PAHs	0	KG/YR
36.	Bull Run	Total Maximum Daily Load Development for Lewis Creek, General Standard (Benthic)	Loudoun, Fairfax, and Prince William counties, and the Cities of Manassas and Manassas Park	A23R-01	Sediment	5,986.8	T/TR
37.	Popes Head Creek	Total Maximum Daily Load Development for Lewis Creek, General Standard (Benthic)	Fairfax County and Fairfax City	A23R-02	Sediment	1,594.2	T/YR
38.	Accotink Bay	PCB Total Maximum Daily Load Development in the tidal Potomac and Anacostia Rivers and their tidal tributaries	Fairfax	A15R	PCBs	0.0992	G/YR
39.	Aquia Creek	PCB Total Maximum Daily Load Development in the tidal Potomac and Anacostia Rivers and their tidal tributaries	Stafford	A28E	PCBs	6.34	G/YR
40.	Belmont Bay/ Occoquan Bay	PCB Total Maximum Daily Load Development in the tidal Potomac and Anacostia Rivers and their tidal tributaries	Prince William	A25E	PCBs	0.409	G/YR
41.	Chopawamsic Creek	PCB Total Maximum Daily Load Development in the tidal Potomac and Anacostia Rivers and their tidal tributaries	Prince William	A26E	PCBs	1.35	G/YR
42.	Coan River	PCB Total Maximum Daily Load Development in the tidal Potomac and Anacostia Rivers and their tidal tributaries	Northumberland	A34E	PCBs	0	G/YR
43.	Dogue Creek	PCB Total Maximum Daily Load Development in the tidal Potomac and Anacostia Rivers and their tidal tributaries	Fairfax	A14E	PCBs	20.2	G/YR

44.	Fourmile Run	PCB Total Maximum Daily Load Development in the tidal Potomac and Anacostia Rivers and their tidal tributaries	Arlington	A12E	PCBs	11	G/YR
45.	Gunston Cove	PCB Total Maximum Daily Load Development in the tidal Potomac and Anacostia Rivers and their tidal tributaries	Fairfax	A15E	PCBs	0.517	G/YR
46.	Hooff Run & Hunting Creek	PCB Total Maximum Daily Load Development in the tidal Potomac and Anacostia Rivers and their tidal tributaries	Fairfax	A13E	PCBs	36.8	G/YR
47.	Little Hunting Creek	PCB Total Maximum Daily Load Development in the tidal Potomac and Anacostia Rivers and their tidal tributaries	Fairfax	A14E	PCBs	10.1	G/YR
48.	Monroe Creek	PCB Total Maximum Daily Load Development in the tidal Potomac and Anacostia Rivers and their tidal tributaries	Fairfax	A31E	PCBs	.0177	G/YR
49.	Neabsco Creek	PCB Total Maximum Daily Load Development in the tidal Potomac and Anacostia Rivers and their tidal tributaries	Prince William	A25E	PCBs	6.63	G/YR
50.	Occoquan River	PCB Total Maximum Daily Load Development in the tidal Potomac and Anacostia Rivers and their tidal tributaries	Prince William	A25E	PCBs	2.86	G/YR
51.	Pohick Creek/Pohick Bay	PCB Total Maximum Daily Load Development in the tidal Potomac and Anacostia Rivers and their tidal tributaries	Fairfax	A16E	PCBs	13.5	G/YR
52.	Potomac Creek	PCB Total Maximum Daily Load Development in the tidal Potomac and Anacostia Rivers and their tidal tributaries	Stafford	A29E	PCBs	0.556	G/YR
53.	Potomac River, Fairview Beach	PCB Total Maximum Daily Load Development in the tidal Potomac and Anacostia Rivers and their tidal tributaries	King George	A29E	PCBs	0.0183	G/YR

54.	Powells Creek	PCB Total Maximum Daily Load Development in the tidal Potomac and Anacostia Rivers and their tidal tributaries	Prince William	A26R	PCBs	0.0675	G/YR
55.	Quantico Creek	PCB Total Maximum Daily Load Development in the tidal Potomac and Anacostia Rivers and their tidal tributaries	Prince William	A26R	PCBs	0.742	G/YR
56.	Upper Machodoc Creek	PCB Total Maximum Daily Load Development in the tidal Potomac and Anacostia Rivers and their tidal tributaries	King George	A30E	PCBs	0.0883	G/YR

B. Non-TMDL waste load allocations.

Water Body	Permit No.	Facility Name	Outfall No.	Receiving Stream	River Mile	Parameter Description	WLA	Units WLA
VAV-B02R	VA0023281	Monterey STP	001	West Strait Creek	3.85	$CBOD_5$	11.4	KG/D
VAV-B08R	VA0065552	Opequon Water Reclamation Facility	001	Opequon Creek	32.66	BOD_5, JUN-NOV	207	KG/D
		AKA Winchester - Frederick Regional				$CBOD_5$, DEC-MAY	1514	KG/D
VAV-B14R	VA0025291	Fishersville Regional STP	001	Christians Creek	12.36	BOD_5	182	KG/D
VAV-B23R	VA0060640	North River WWTF	001	North River	15.01	$CBOD_5$, JAN-MAY	700	KG/D
	7.23.04	AKA Harrisonburg - Rockingham Reg. Sewer Auth.				$CBOD_5$, JUN-DEC TKN, JUN-DEC TKN, JAN-MAY	800 420 850	KG/D KG/D KG/D
VAV-B32R	VA0002160	INVISTA - Waynesboro Formerly Dupont - Waynesboro	001	South River	25.3	BOD_5	272	KG/D
VAV-B32R	VA0025151	Waynesboro STP	001	South River	23.54	$CBOD_5$ $CBOD_5$, JUN-OCT	227 113.6	KG/D KG/D
VAV-B32R	VA0028037	Skyline Swannanoa STP	001	South River UT	2.96	BOD_5	8.5	KG/D

VAV-B35R	VA0024732	Massanutten Public Service STP	001	Quail Run	5.07	BOD_5	75.7	KG/D
VAV-B37R	VA0002178	Merck & Company	001	S.F. Shenandoah River	88.09	BOD_5 AMMONIA, AS N	1570 645.9	KG/D KG/D
VAV-B49R	VA0028380	Stoney Creek Sanitary District STP	001	Stoney Creek	19.87	BOD_5, JUN-NOV	29.5	KG/D
VAV-B53R	VA0020982	Middletown STP	001	Meadow Brook	2.19	$CBOD_5$	24.0	KG/D
VAV-B58R	VA0020532	Berryville STP	001	Shenandoah River	24.23	$CBOD_5$	42.6	KG/D

C. Nitrogen and phosphorus waste load allocations to restore the Chesapeake Bay and its tidal rivers.

The following table presents nitrogen and phosphorus waste load allocations for the identified significant dischargers and the total nitrogen and total phosphorus waste load allocations for the listed facilities.

Virginia Waterbody ID	Discharger Name	VPDES Permit No.	Total Nitrogen (TN) Waste Load Allocation (lbs/yr)	Total Phosphorus (TP) Waste Load Allocation (lbs/yr)
B37R	Coors Brewing Company	VA0073245	54,820	4,112
B14R	Fishersville Regional STP	VA0025291	48,729	3,655
B32R	INVISTA - Waynesboro (Outfall 101)	VA0002160	78,941	1,009
B39R	Luray STP	VA0062642	19,492	1,462
B35R	Massanutten PSA STP	VA0024732	18,273	1,371
B37R	Merck - Stonewall WWTP (Outfall 101)	VA0002178	14,619	1,096
B12R	Middle River Regional STP	VA0064793	82,839	6,213
B23R	North River WWTF (2)	VA0060640	253,391	19,004
B22R	VA Poultry Growers -Hinton	VA0002313	27,410	1,371
B38R	Pilgrims Pride - Alma	VA0001961	18,273	914
B31R	Stuarts Draft WWTP	VA0066877	48,729	3,655
B32R	Waynesboro STP	VA0025151	48,729	3,655
B23R	Weyers Cave STP	VA0022349	6,091	457
B58R	Berryville STP	VA0020532	8,528	640
B55R	Front Royal STP	VA0062812	48,729	3,655
B49R	Georges Chicken LLC	VA0077402	31,065	1,553
B48R	Mt. Jackson STP (3)	VA0026441	8,528	640
B45R	New Market STP	VA0022853	6,091	457

B45R	North Fork (SIL) WWTF	VA0090263	23,390	1,754
B49R	Stoney Creek SD STP	VA0028380	7,309	548
B50R	North Fork Regional WWTP (1)	VA0090328	9,137	685
B51R	Strasburg STP	VA0020311	11,939	895
B50R	Woodstock STP	VA0026468	24,364	1,827
A06R	Basham Simms WWTF (4)	VA0022802	18,273	1,371
A09R	Broad Run WRF (5)	VA0091383	134,005	3,350
A08R	Leesburg WPCF	MD0066184	121,822	9,137
A06R	Round Hill Town WWTF	VA0026212	9,137	685
A25R	DSC - Section 1 WWTF (6)	VA0024724	42,029	2,522
A25R	DSC - Section 8 WWTF (7)	VA0024678	42,029	2,522
A25E	H L Mooney WWTF	VA0025101	219,280	13,157
A22R	UOSA - Centreville	VA0024988	1,315,682	16,446
A19R	Vint Hill WWTF (8)	VA0020460	8,680	868
B08R	Opequon WRF	VA0065552	102,336	7,675
B08R	Parkins Mills STP (9)	VA0075191	60,911	4,568
A13E	Alexandria SA WWTF	VA0025160	493,381	29,603
A12E	Arlington County Water PCF	VA0025143	365,467	21,928
A16R	Noman M Cole Jr PCF	VA0025364	612,158	36,729
A12R	Blue Plains (VA Share)	DC0021199	581,458	26,166
A26R	Quantico WWTF	VA0028363	20,101	1,206
A28R	Aquia WWTF	VA0060968	73,093	4,386
A31E	Colonial Beach STP	VA0026409	18,273	1,827
A30E	Dahlgren WWTF	VA0026514	9,137	914
A29E	Fairview Beach	MD0056464	1,827	183
A30E	US NSWC-Dahlgren WWTF	VA0021067	6,578	658
A31R	Purkins Corner STP	VA0070106	1,096	110
	TOTALS:		5,156,169	246,635

NOTE: (1) Shenandoah Co. - North Fork Regional WWTP waste load allocations (WLAs) based on a design flow capacity of 0.75 million gallons per day (MGD). If plant is not certified to operate at 0.75 MGD design flow capacity by December 31, 2010, the WLAs will be deleted and facility removed from Significant Discharger List.

(2) Harrisonburg-Rockingham Regional S.A.-North River STP: waste load allocations (WLAs) based on a design flow capacity of 20.8 million gallons per day (MGD). If plant is not certified to operate at 20.8 MGD design flow capacity by December 31, 2010, the WLAs will decrease to TN = 194,916 lbs/yr; TP = 14,619 lbs/yr, based on a design flow capacity of 16.0 MGD.

(3) Mount Jackson STP: waste load allocations (WLAs) based on a design flow capacity of 0.7 million gallons per day (MGD). If plant is not certified to operate at 0.7 MGD design flow capacity by December 31, 2010, the WLAs will decrease to TN = 7,309 lbs/yr; TP = 548 lbs/yr, based on a design flow capacity of 0.6 MGD.

(4) Purcellville-Basham Simms STP: waste load allocations (WLAs) based on a design flow capacity of 1.5 million gallons per day (MGD). If plant is not certified to operate at 1.5 MGD design flow capacity by December 31, 2010, the WLAs will decrease to TN = 12,182 lbs/yr; TP = 914lbs/yr, based on a design flow capacity of 1.0 MGD.

(5) Loudoun Co. S.A.-Broad Run WRF: waste load allocations (WLAs) based on a design flow capacity of 11.0 million gallons per day (MGD). If plant is not certified to operate at 11.0 MGD design flow capacity by December 31, 2010, the WLAs will decrease to TN = 121,822 lbs/yr; TP = 3,046 lbs/yr, based on a design flow capacity of 10.0 MGD.

(6) Dale Service Corp.-Section 1 WWTF: waste load allocations (WLAs) based on a design flow capacity of 4.6 million gallons per day (MGD). If plant is not certified to operate at 4.6 MGD design flow capacity by December 31, 2010, the WLAs will decrease to TN = 36,547 lbs/yr; TP = 2,193 lbs/yr, based on a design flow capacity of 4.0 MGD.

(7) Dale Service Corp.-Section 8 WWTF: waste load allocations (WLAs) based on a design flow capacity of 4.6 million gallons per day (MGD). If plant is not certified to operate at 4.6 MGD design flow capacity by December 31, 2010, the WLAs will decrease to TN = 36,547 lbs/yr; TP = 2,193 lbs/yr, based on a design flow capacity of 4.0 MGD.

(8) Fauquier Co. W&SA-Vint Hill STP: waste load allocations (WLAs) based on a design flow capacity of 0.95 million gallons per day (MGD). If plant is not certified to operate at 0.95 MGD design flow capacity by December 31, 2010, the WLAs will decrease to TN = 5,482 lbs/yr; TP = 548 lbs/yr, based on a design flow capacity of 0.6 MGD.

(9) Parkins Mill STP: waste load allocations (WLAs) based on a design flow capacity of 5.0 million gallons per day (MGD). If plant is not certified to operate at 5.0 MGD design flow capacity by December 31, 2010, the WLAs will decrease to TN = 36,547 lbs/yr; TP = 2,741 lbs/yr, based on a design flow capacity of 3.0 MGD.

9VAC25-720-130. New River Basin.

A. Total Maximum Daily Load (TMDLs).

TMDL #	Stream Name	TMDL Title	City/County	WBID	Pollutant	WLA	Units
1.	Stroubles Creek	Benthic TMDL for Stroubles Creek in Montgomery County, Virginia	Montgomery	N22R	Sediment	233.15	T/YR
2.	Back Creek	Fecal Bacterial and General Standard Total Maximum Daily Load Development for Back Creek Watershed, Pulaski County, VA	Pulaski	N22R	Sediment	0.28	T/YR
3.	Crab Creek	Fecal Bacterial and General Standard Total Maximum Daily Load Development for Crab Creek Watershed, Montgomery County, VA	Montgomery	N18R	Sediment	77	T/YR
4.	Peak Creek	Fecal Bacterial and General Standard Total Maximum Daily Load Development for Peak Creek Watershed, Pulaski County, VA	Pulaski	N17R	Copper	12	KG/YR
5.	Peak Creek	Fecal Bacterial and General Standard Total Maximum Daily Load Development for Peak Creek Watershed, Pulaski County, VA	Pulaski	N17R	Zinc	57	KG/YR

6.	Bluestone River	Fecal Bacterial and General Standard Total Maximum Daily Load Development for Bluestone River	Tazewell	N36R	Sediment	116.2	T/YR
7.	Hunting Camp Creek	Total Maximum Daily Load (TMDL) Development for Hunting Camp Creek Aquatic Life Use (Benthic) and E. coli (Bacteria) impairments	Bland	N31R	Sediment	0	LB/YR
8.	Chestnut Creek	Total Maximum Daily Load Development for Chestnut Creek, Fecal Bacteria and General Standard (Benthic)	Carroll, Grayson	N06R	Sediment	18.9	T/YR
9.	Laurel Fork	Benthic TMDL for Laurel Fork, Sussex County, Virginia	Tazewell, Pocahontas	N37R	Sediment	21	T/YR

B. Non-TMDL waste load allocations.

Water Body	Permit No.	Facility Name	Receiving Stream	River Mile	Outfall No.	Parameter Description	WLA	Units WLA
VAS-N11R	VA0020281	Wytheville WWTP	Reed Creek	25.79	001	BOD_5	360	KG/D
VAS-N15R	VA0089443	Hillsville WWTP	Little Reed Island Creed	25.12	001	$CBOD_5$, JAN-MAY $CBOD_5$, JUN-DEC	118 95	KG/D KG/D
VAW-N21R	VA0024040	Montgomery Co. PSA - Riner Town - Sewage Treatment Plant	Mill Creek	5.12	001	BOD_5 TKN (N-KJEL)	7.5 1.9	KG/D KG/D
VAW-N22R	VA0060844	Blacksburg VPI Sanitation Auth. - Lower Stroubles Creek WWTP	New River	71.37	001	BOD_5	818	KG/D
VAS-N36R	VA0025054	Bluefield Westside WWTP	Bluestone River	25.64	001	BOD_5, JUN-NOV BOD_5, DEC-MAY	130 260	KG/D KG/D
VAS-N36R	VA0062561	Tazewell County PSA - Falls Mills Hales Bottom STP	Bluestone River	22.49	001	BOD_5	5.5	KG/D
VAS-N37R	VA0029602	Pocahontas STP	Laurel Fork	1.99	001	BOD_5	17	KG/D

VAW-N21R	VA002040	Montgomery Co. PSA - Riner Town - Sewage Treatment Pant	Mill Creek	5.12	001	BOD_5 TKN (N-KJEL)	7.5 1.9	KG/D KG/D
VAW-N22R	VA0060844	Blacksburg VPI Sanitation Auth. - Lower Stroubles Creek WWTP	New River	71.37	001	BOD_5	818	KG/D

VA.R. Doc. No. R08-1236; Filed April 17, 2008, 10:42 a.m.

Proposed Regulation

REGISTRAR'S NOTICE: The following regulation filed by the State Water Control Board is exempt from the Administrative Process Act in accordance with §2.2-4006 A 9 of the Code of Virginia, which exempts general permits issued by the State Water Control Board pursuant to the State Water Control Law (§62.1-44.2 et seq.), Chapter 24 (§62.1-242 et seq.) of Title 62.1 and Chapter 25 (§62.1-254 et seq.) of Title 62.1, if the board (i) provides a Notice of Intended Regulatory Action in conformance with the provisions of §2.2-4007.01, (ii) following the passage of 30 days from the publication of the Notice of Intended Regulatory Action forms a technical advisory committee composed of relevant stakeholders, including potentially affected citizens groups, to assist in the development of the general permit, (iii) provides notice and receives oral and written comment as provided in §2.2-4007.03, and (iv) conducts at least one public hearing on the proposed general permit.

Title of Regulation: **9VAC25-860. General Virginia Pollutant Discharge Elimination System (VPDES) Permit for Potable Water Treatment Plants (adding 9VAC25-860-10 through 9VAC25-860-70).**

Statutory Authority: §62.1-44.15 of the Code of Virginia; §402 of the Clean Water Act.

Public Hearing Information:

June 17, 2008 - 10 a.m. - Department of Environmental Quality, Piedmont Regional Office, 4949-A Cox Road, Glen Allen, VA

Public Comments: Public comments may be submitted until 5 p.m. on July 11, 2008.

Public Participation: In addition to any other comments, the board is seeking comments on the costs and benefits of the proposal, the potential impacts on the regulated community and on any impacts of the regulation on farm and forest land preservation. Also, the board is seeking information on impacts on small businesses as defined in §2.2-4007.1 of the Code of Virginia. Information may include (i) projected reporting, recordkeeping and other administrative costs, (ii) probable effect of the regulation on affected small businesses, and (iii) description of less intrusive or costly alternative methods of achieving the purpose of the regulation.

Anyone wishing to submit written comments for the public comment file may do so at the public hearing or by mail, email or fax to the contact person identified below. Comments may also be submitted through the public forum feature of the Virginia Regulatory Town Hall website at: www.townhall.virginia.gov. Written comments must include the name and address of the commenter. In order to be considered comments must be received by 5 p.m. on the date established as the close of the comment period.

A public hearing will be held and notice of the public hearing can be found on the Virginia Regulatory Town Hall website and in the Virginia Register of Regulations. Both oral and written comments may be submitted at that time.

Agency Contact: George E. Cosby, Department of Environmental Quality, Office of Water Permits and Compliance Assistance, 629 East Main Street, P.O. Box 1105, Richmond, VA 23218, telephone (804) 698-4067, or email gecosby@deq.virginia.gov.

Summary

The proposed regulation establishes appropriate and necessary permitting requirements for discharge of wastewater from potable water treatment plants. The proposed regulation sets forth standard language for effluent limitations and monitoring requirements necessary to regulate this category of dischargers.

CHAPTER 860
GENERAL VIRGINIA POLLUTANT DISCHARGE ELIMINATION SYSTEM (VPDES) PERMIT FOR POTABLE WATER TREATMENT PLANTS

9VAC25-860-10. Definitions.

The words and terms used in this regulation shall have the meanings defined in the State Water Control Law and 9VAC25-31, VPDES Permit Regulation, unless the context clearly indicates otherwise, except that for the purposes of this chapter:

"Potable water treatment plants" means establishments primarily engaged in distributing water for sale for domestic,

commercial, and industrial use as designated by Standard Industrial Classified (SIC) Code 4941 – Water Supply (Office of Management and Budget (OMB) SIC Manual, 1987).

"Reverse osmosis" means a method of water treatment that involves the application of pressure to a concentrated solution that causes the passage of a liquid from the concentrated solution to a weaker solution across a semi-permeable membrane. The membrane allows the passage of the solvent (water) but not the dissolved solids (solutes).

9VAC25-860-20. Purpose.

This general permit regulation governs the discharge of wastewater from potable water treatment plants to surface waters.

9VAC25-860-30. Delegation of authority.

The director, or an authorized representative, may perform any act of the board provided under this chapter, except as limited by §62.1-44.14 of the Code of Virginia.

9VAC25-860-40. Effective date of the permit.

This general permit will become effective on ***** 2008. This general permit will expire five years after the effective date. This general permit is effective for any covered owner upon compliance with all the provisions of 9VAC25-860-50 and the receipt of this general permit.

9VAC25-860-50. Authorization to discharge.

A. Any owner governed by this general permit is hereby authorized to discharge to surface waters of the Commonwealth of Virginia provided that the owner files and receives acceptance by the board of the registration statement of 9VAC25-860-60, files the required permit fee, complies with the effluent limitations and other requirements of 9VAC25-860-70, and provided that:

1. The owner has not been required to obtain an individual permit according to 9VAC25-31-170 B 3;

2. The proposed discharge is not to state waters specifically named in other board regulations or policies that prohibit such discharges; and

3. The owner demonstrates that there is not a reasonable potential for toxicity by performing a toxicity screening, the results of which are to be submitted with the registration statement. The toxicity screening shall consist of a minimum of four sets (set = vertebrate and invertebrate) of acute or chronic tests that reflect the characteristics of the current effluent using the following tests and organisms.

For an intermittent or batch discharger	48 hour static acute toxicity tests
Freshwater organisms	Pimephales promelas or Oncorhynchus mykiss (for cold water) (vertebrates) Ceriodaphnia dubia (invertebrate)
Saltwater organisms	Cyprinodon variegates (vertebrate) Americamysis bahia (invertebrate)
For a continuous discharger	
Freshwater	7-Day Chronic Static Renewal Larval Survival and Growth Test with Pimephales promelas (vertebrate) 3-Brood Chronic Static Renewal Survival and Reproduction Test with Ceriodaphnia dubia (invertebrate)
Saltwater	7-Day Chronic Static Renewal Larval Survival and Growth Test with Cyprinodon variegatus (vertebrate) 7-Day Chronic Static Renewal Survival, Growth and Fecundity Test with Americamysis bahia (invertebrate)

Freshwater organisms are used where the salinity of the receiving water is less than 1.0%. Where the salinity of the receiving water is greater than 1.0% but less than 5.0% either freshwater or saltwater organisms may be used. Saltwater organisms are used where the salinity is greater than 5.0%.

There shall be a minimum of 30 days between sets of tests, and test procedures shall follow 40 CFR Part 136, which references the EPA guidance manuals for whole effluent toxicity testing. The data will be evaluated statistically to see if there is reasonable potential for toxicity; if such a potential exists, the facility must either continue operation under its existing individual VPDES permit, or apply for an individual VPDES permit.

Facilities that are subject to the requirements of 9VAC25-820-70 Part I G 1 (General VPDES Watershed Permit

Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Watershed in Virginia - Requirement to Register), are excluded from coverage under this general permit.

B. Receipt of this general permit does not relieve any owner of the responsibility to comply with any other federal, state or local statute, ordinance or regulation.

9VAC25-860-60. Registration statement.

The owner/operator shall file a complete VPDES general permit registration statement for potable water treatment plants. Any owner/operator proposing a new discharge shall file the registration statement at least 60 days prior to the date planned for commencing operation of the new discharge. Any owner of an existing potable water treatment plants covered by an individual VPDES permit who is proposing to be covered by this general permit shall file the registration statement at least 180 days prior to the expiration date of the individual VPDES permit. Any owner of an existing potable water treatment plant not currently covered by a VPDES permit who is proposing to be covered by this general permit shall file the registration statement. The required registration statement shall contain the following information:

1. Facility name and location address (street no., route no., or other identifier), mailing address, telephone number and the email address;

2. Facility owner's name mailing address, telephone number and the email address;

3. Facility operator name and mailing address and telephone number;

4. The nature of the business;

5. A USGS topographic map showing the facility location extending to at least one mile beyond property boundary and the location of the discharge point(s);

6. The receiving waters of the discharge;

7. The actual or projected wastewater flow rate (typical volume, duration of discharges, and number of discharges per day/week) and the number of outfalls;

8. If the type of water treatment plant is conventional, reverse osmosis, or a combination of both;

9. If this facility currently has an existing VPDES permit, and if so, the permit number;

10. If the existing VPDES permit contains a ground water monitoring plan requirement and, if so, submit a copy of the DEQ approved groundwater monitoring plan;

11. Indicate if the settling basins, lagoons, or both are earthen lined, and if so, whether the units have a permeability of no greater than 10^{-6} cm/sec;

12. The results of the whole effluent toxicity evaluation required by 9VAC25-860-50 A 3;

13. A schematic drawing showing the source(s) of water used on the property and the conceptual design of the methods of treatment and disposal of wastewater;

14. Information on chemicals used in the treatment, to include (i) description of chemical, and (ii) proposed or actual schedule and quantity of chemical usage;

15. A description of how solids and residue from the settling basins are disposed; and

16. The following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations."

The registration statement shall be signed in accordance with 9VAC25-31-110.

9VAC25-860-70. General permit.

Any owner whose registration statement is accepted by the board will receive the following permit and shall comply with the requirements therein and be subject to all requirements of 9VAC25-31.

General Permit No.: VAG64
Effective Date:
Expiration Date:
GENERAL PERMIT FOR POTABLE WATER TREATMENT PLANTS

AUTHORIZATION TO DISCHARGE UNDER THE VIRGINIA POLLUTANT DISCHARGE ELIMINATION SYSTEM AND THE VIRGINIA STATE WATER CONTROL LAW

In compliance with the provisions of the Clean Water Act, as amended, and pursuant to the State Water Control Law and regulations adopted pursuant thereto, owners/operators of potable water treatment plants are authorized to discharge to surface waters within the boundaries of the Commonwealth of Virginia, except those specifically named in board regulations or policies that prohibit such discharges.

The authorized discharge shall be in accordance with this cover page, Part I - Effluent Limitations and Monitoring

Requirements, and Part II - Conditions Applicable To All VPDES Permits, as set forth herein.

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS.

1. During the period beginning with the permittee's coverage under this general permit and lasting until the permit's expiration date, the permittee is authorized to discharge wastewater originating from a potable water treatment plant from outfall(s):

EFFLUENT CHARACTERISTICS	EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
	Monthly Average	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NL	NA	NL	1/ Month(4)	Estimate
pH (SU)	NA	6.0(1)	9(1)	1/ Month(4)	Grab
Total Suspended Solids (mg/l)	30	NA	60	1/ Month(4)	5G/8HC(2)
Total Residual Chlorine(3) (mg/l)	0.011	NA	0.011	1/ Month(4)	Grab

NL - No Limitation, monitoring requirement only

NA - Not applicable

(1)Where the Water Quality Standards (9VAC25-260) establish alternate standards for pH in waters receiving the discharge, those standards shall be the maximum and minimum effluent limitations.

(2)5G/8HC - Eight-hour composite - Consisting of five grab samples collected at hourly intervals until the discharge ceases, or until a minimum of five grab samples have been collected. Samples shall be comprised of wastewater discharged during all phases of wastewater generation, including back wash, etc.

(3) Total residual chlorine limit shall only be applicable to facilities discharging to surface waters that use chlorine in the treatment process.

(4)Monitoring frequency shall be reduced to 1/quarter upon written notification from the DEQ regional office. Reports of quarterly monitoring shall be submitted to the DEQ regional office no later than the 10th day of April, July, October and January. Reference special condition no. 4.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Such discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS	EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
	Monthly Average	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NL	NA	NL	1/ Month(3)	Estimate
pH (SU)	NA	6.0(1)	9.0(1)	1/ Month(3)	Grab
Total Dissolved Solids (mg/l)	NA	NA	800	1/ Month(3)	5G/8HC(2)
Dissolved Oxygen (mg/l)	NA	4.0(1)	0.011	1/ Month(3)	Grab

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS.

2. During the period beginning with the permittee's coverage under this general permit and lasting until the permit's expiration date, the permittee is authorized to discharge wastewater originating from a reverse osmosis potable water treatment plant from outfall(s):

Such discharges shall be limited and monitored by the permittee as specified below:

NL - No limitation, monitoring requirement only

NA - Not applicable

(1) Where the Water Quality Standards (9 VAC 25-260) establish alternate standards for pH and dissolved oxygen in waters receiving the discharge, those standards shall be the maximum and minimum effluent limitations.

(2)5G/8HC - Eight-hour composite - Consisting of five grab samples collected at hourly intervals until the discharge ceases, or until a minimum of five grab samples have been collected. Samples shall be comprised of wastewater discharged during all phases of wastewater generation, including back wash, etc.

(3)Monitoring frequencies shall be reduced to 1/quarter upon written notification from the DEQ regional office. Reports of quarterly monitoring shall be submitted to the DEQ regional office no later than the 10th day of April, July, October and January. Reference special condition no. 4.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

B. Special conditions.

1. Inspection of the effluent, and maintenance of the wastewater treatment facility, shall be performed daily. Documentation of the inspection and maintenance shall be recorded in an operational log. This operational log shall be made available for review by the department personnel upon request.

2. No domestic sewage discharges to surface waters are permitted under this general permit.

3. Adding chemicals to the water or waste that may be discharged, other than those listed on the owner's accepted registration statement, is prohibited. Prior approval shall be obtained from Department of Environmental Quality before any changes are made to the chemical(s), in order to assure protection of water quality and beneficial uses of the waters receiving the discharge.

4. Monitoring frequency shall be 1/month unless a written request is sent to the appropriate regional office to reduce monitoring to 1/quarter. Upon written notification from DEQ regional office, monitoring frequency shall be reduced to 1/quarter. Should the permittee be issued a warning letter related to violation of effluent limitations, a notice of violation, or be subject of an active enforcement action, monitoring frequency shall revert to 1/month upon issuance of the letter of notice of initiation of the enforcement action, and remain in effect until the permit's expiration date.

5. The permittee shall comply with the following solids management plan that includes:

a. A prohibition on the discharge of floating solids or visible foam in other than trace amounts.

b. A requirement to clean settling basins frequently in order to achieve effective treatment.

c. A requirement that all solids shall be handled, stored and disposed of so as to prevent a discharge to state waters.

6. If the discharge is into a municipal separate storm sewer, the permittee is required to notify the owner of the municipal separate storm sewer system of the existence of the discharge within 30 days of coverage under the general permit, and provide the following information: the name of the facility, a contact person and phone number, and the location of the discharge.

7. The permittee shall notify the department as soon as he knows or has reason to believe:

a. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in this permit, if that discharge will exceed the highest of the following notification levels:

(1) One hundred micrograms per liter;

(2) Two hundred micrograms per liter for acrolein and acrylonitrile; five hundred micrograms per liter for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter for antimony;

(3) Five times the maximum concentration value reported for that pollutant in the permit application; or

(4) The level established by the board.

b. That any activity has occurred or will occur that would result in any discharge, on a nonroutine or infrequent basis, of a toxic pollutant that is not limited in this permit, if that discharge will exceed the highest of the following notification levels:

(1) Five hundred micrograms per liter;

(2) One milligram per liter for antimony;

(3) Ten times the maximum concentration value reported for that pollutant in the permit application; or

(4) The level established by the board.

8. If a DEQ-approved ground water monitoring plan was submitted with the registrations statement the permittee shall continue sampling and reporting in accordance with the plan. The approved plan shall be an enforceable part of this permit.

9. Compliance reporting under Part I A.

a. The quantification levels (QL) shall be as follows:

Effluent Characteristic	Quantification Level
Chlorine	0.10 mg/l
TSS	1.0 mg/l

b. Reporting.

(1) Monthly average. Compliance with the monthly average limitations and/or reporting requirements for the parameters listed in subdivision 9 a shall be determined as follows: all concentration data below the QL listed above shall be treated as zero. All concentration data equal to or above the QL listed in subdivision 9 a shall be treated as it is reported. An arithmetic average shall be calculated using all reported data for the month, including the defined zeros. This arithmetic average shall be reported on the Discharge Monitoring Report (DMR) as calculated. If all data are below the QL, then the average shall be reported as "<QL." If reporting for quantity is required on the DMR and the calculated concentration is <QL, then report "<QL" for the quantity. Otherwise use the calculated concentration.

(2) Daily maximum. Compliance with the daily maximum limitations and/or reporting requirements for the parameters listed in subdivision 9 a above shall be determined as follows: all concentration data below the QL listed in subdivision 9 a above shall be treated as zero. All concentration data equal to or above the QL shall be treated as reported. An arithmetic average shall be calculated using all reported data, including the defined zeros, collected within each day during the reporting month. The maximum value of these daily averages thus determined shall be reported on the DMR as the Daily Maximum. If all data are below the QL, then the average shall be reported as "<QL." If reporting for quantity is required on the DMR and the calculated concentration is <QL, then report "<QL" for the quantity. Otherwise use the calculated concentration.

c. Any single datum required shall be reported as "<QL" if it is less than the QL in subdivision 9 a. Otherwise, the numerical value shall be reported.

d. The permittee shall report at least the same number of significant digits as the permit limit for a given parameter. Regardless of the rounding convention used (i.e., 5 always rounding up or to the nearest even number) by the permittee, the permittee shall use the convention consistently, and shall ensure that consulting laboratories employed by the permittee use the same convention.

10. Operation and Maintenance Manual Requirement.

a. The permittee shall develop an Operation and Maintenance (O & M) Manual for the treatment works. This manual shall detail the practices and procedures that will be followed to ensure compliance with the requirements of this permit. The manual shall be submitted to the DEQ regional office for approval within 90 days of the date of coverage under the general permit or completion of construction. The permittee shall operate the treatment works in accordance with the approved O & M Manual. This manual shall include, but not necessarily be limited to, the following items, as appropriate:

(1) Techniques to be employed in the collection, preservation, and analysis of effluent samples;

(2) Discussion of best management practices, if applicable;

(3) Treatment system design, treatment system operation, routine preventive maintenance of units within the treatment system, critical spare parts inventory and record keeping;

(4) A plan for the management and/or disposal of waste solids and residues; and

(5) Procedures for measuring and recording the duration and volume of treated wastewater discharged.

Any changes in the practices and procedures followed by the permittee shall be documented and submitted for staff approval within 90 days of the effective date of the changes. Upon approval of the submitted manual changes, the revised manual becomes an enforceable part of the permit. Noncompliance with the O & M Manual shall be deemed a violation of the permit.

b. If an approved O & M Manual is already on file with DEQ, the permittee shall review the existing Operations and Maintenance (O & M) Manual and notify the DEQ regional office in writing within 90 days of the date of coverage under the general permit whether it is still accurate and complete. If the O & M Manual is no longer accurate and complete, a revised O & M Manual shall be submitted for approval to the DEQ regional office within 90 days of [the date of coverage under the general permit] or with the above required notification. The permittee will maintain an accurate, approved operation and maintenance manual for the treatment works. This manual shall detail the practices and procedures that will be followed to ensure compliance with the requirements of the permit. The permittee shall operate the treatment works accordance with the approved O&M Manual. This manual shall include, but not necessarily be limited to, the following items, as appropriate:

(1) Techniques to be employed in the collection, preservation, and analysis of effluent samples;

(2) Discussion of best management practices, if applicable;

(3) Treatment works design, treatment works operation, routine preventative maintenance of units within the treatment system, critical spare parts inventory and record keeping;

(4) A plan for the management and/or disposal of waste solids and residues; and

(5) Procedures for measuring and recording the duration and volume of treated wastewater discharged.

Any changes in the practices and procedures followed by the permittee shall be documented and submitted for staff approval within 90 days of the effective date of the changes. Upon approval of the submitted manual changes, the revised manual becomes an enforceable part of the permit. Noncompliance with the O & M Manual shall be deemed a violation of the permit.

PART II
CONDITIONS APPLICABLE TO ALL VPDES PERMITS.

A. Monitoring.

1. Samples and measurements taken as required by this permit shall be representative of the monitored activity.

2. Monitoring shall be conducted according to procedures approved under 40 CFR Part 136 or alternative methods approved by the U.S. Environmental Protection Agency, unless other procedures have been specified in this permit.

3. The permittee shall periodically calibrate and perform maintenance procedures on all monitoring and analytical instrumentation at intervals that will insure accuracy of measurements.

B. Records.

1. Records of monitoring information shall include:

a. The date, exact place, and time of sampling or measurements;

b. The individual(s) who performed the sampling or measurements;

c. The date(s) and time(s) analyses were performed;

d. The individual(s) who performed the analyses;

e. The analytical techniques or methods used; and

f. The results of such analyses.

2. Except for records of monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years, the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the registration statement for this permit, for a period of at least three years from the date of the sample, measurement, report or request for coverage. This period of retention shall be extended automatically during the course of any unresolved litigation regarding the regulated activity or regarding control standards applicable to the permittee, or as requested by the board.

C. Reporting monitoring results.

1. The permittee shall submit the results of the monitoring required by this permit not later than the 10th day of the month after monitoring takes place, unless another reporting schedule is specified elsewhere in this permit. Monitoring results shall be submitted to the department's regional office.

2. Monitoring results shall be reported on a discharge monitoring report (DMR) or on forms provided, approved or specified by the department.

3. If the permittee monitors any pollutant specifically addressed by this permit more frequently than required by this permit using test procedures approved under 40 CFR Part 136 or using other test procedures approved by the U.S. Environmental Protection Agency or using procedures specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or reporting form specified by the department.

4. Calculations for all limitations that require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in this permit.

D. Duty to provide information. The permittee shall furnish to the department, within a reasonable time, any information that the board may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The board may require the permittee to furnish, upon request, such plans, specifications, and other pertinent information as may be necessary to determine the effect of the wastes from his discharge on the quality of state waters, or such other information as may be necessary to accomplish the purposes of the State Water Control Law. The permittee shall also furnish to the department upon request, copies of records required to be kept by this permit.

E. Compliance schedule reports. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.

F. Unauthorized discharges. Except in compliance with this permit, or another permit issued by the board, it shall be unlawful for any person to:

1. Discharge into state waters sewage, industrial wastes, other wastes, or any noxious or deleterious substances; or

2. Otherwise alter the physical, chemical or biological properties of such state waters and make them detrimental to the public health, or to animal or aquatic life, or to the use of such waters for domestic or industrial consumption, or for recreation, or for other uses.

G. Reports of unauthorized discharges. Any permittee who discharges or causes or allows a discharge of sewage, industrial waste, other wastes or any noxious or deleterious substance into or upon state waters in violation of Part II F, or who discharges or causes or allows a discharge that may reasonably be expected to enter state waters in violation of Part II F, shall notify the department of the discharge immediately upon discovery of the discharge, but in no case later than 24 hours after said discovery. A written report of the unauthorized discharge shall be submitted to the department, within five days of discovery of the discharge. The written report shall contain:

1. A description of the nature and location of the discharge;

2. The cause of the discharge;

3. The date on which the discharge occurred;

4. The length of time that the discharge continued;

5. The volume of the discharge;

6. If the discharge is continuing, how long it is expected to continue;

7. If the discharge is continuing, what the expected total volume of the discharge will be; and

8. Any steps planned or taken to reduce, eliminate and prevent a recurrence of the present discharge or any future discharges not authorized by this permit.

Discharges reportable to the department under the immediate reporting requirements of other regulations are exempted from this requirement.

H. Reports of unusual or extraordinary discharges. If any unusual or extraordinary discharge including a bypass or upset should occur from a treatment works and the discharge enters or could be expected to enter state waters, the permittee shall promptly notify, in no case later than 24 hours, the department by telephone after the discovery of the discharge. This notification shall provide all available details of the incident, including any adverse affects on aquatic life and the known number of fish killed. The permittee shall reduce the report to writing and shall submit it to the department within five days of discovery of the discharge in accordance with Part II I 2. Unusual and extraordinary discharges include but are not limited to any discharge resulting from:

1. Unusual spillage of materials resulting directly or indirectly from processing operations;

2. Breakdown of processing or accessory equipment;

3. Failure or taking out of service some or all of the treatment works; and

4. Flooding or other acts of nature.

I. Reports of noncompliance. The permittee shall report any noncompliance that may adversely affect state waters or may endanger public health.

1. An oral report shall be provided within 24 hours from the time the permittee becomes aware of the circumstances. The following shall be included as information that shall be reported within 24 hours under this paragraph:

a. Any unanticipated bypass; and

b. Any upset that causes a discharge to surface waters.

2. A written report shall be submitted within five days and shall contain:

a. A description of the noncompliance and its cause;

b. The period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and

c. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

The board may waive the written report on a case-by-case basis for reports of noncompliance under Part II I if the oral report has been received within 24 hours and no adverse impact on state waters has been reported.

3. The permittee shall report all instances of noncompliance not reported under Parts II I 1 or 2, in writing, at the time the next monitoring reports are submitted. The reports shall contain the information listed in Part II I 2.

NOTE: The immediate (within 24 hours) reports required in Parts II G, H and I may be made to the department's regional office. Reports may be made by telephone or by fax. For reports outside normal working hours, leave a message and this shall fulfill the immediate reporting requirement. For emergencies, the Virginia Department of Emergency Services maintains a 24-hour telephone service at 1-800-468-8892.

J. Notice of planned changes.

1. The permittee shall give notice to the department as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:

a. The permittee plans alteration or addition to any building, structure, facility, or installation from which

there is or may be a discharge of pollutants, the construction of which commenced:

(1) After promulgation of standards of performance under §306 of Clean Water Act that are applicable to such source; or

(2) After proposal of standards of performance in accordance with §306 of Clean Water Act that are applicable to such source, but only if the standards are promulgated in accordance with §306 within 120 days of their proposal;

b. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are subject neither to effluent limitations nor to notification requirements specified elsewhere in this permit; or

c. The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.

2. The permittee shall give advance notice to the department of any planned changes in the permitted facility or activity that may result in noncompliance with permit requirements.

K. Signatory requirements.

1. Registration statement. All registration statements shall be signed as follows:

a. For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer mean: (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided the manager is authorized to make management decisions that govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long-term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

c. For a municipality, state, federal, or other public agency: by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a public agency includes (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency.

2. Reports, etc. All reports required by permits, and other information requested by the board shall be signed by a person described in Part II K 1, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described in Part II K 1;

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and

c. The written authorization is submitted to the department.

3. Changes to authorization. If an authorization under Part II K 2 is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Part II K 2 shall be submitted to the department prior to or together with any reports, or information to be signed by an authorized representative.

4. Certification. Any person signing a document under Parts II K 1 or 2 shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

L. Duty to comply. The permittee shall comply with all conditions of this permit. Any permit noncompliance

constitutes a violation of the State Water Control Law and the Clean Water Act, except that noncompliance with certain provisions of this permit may constitute a violation of the State Water Control Law but not the Clean Water Act. Permit noncompliance is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

The permittee shall comply with effluent standards or prohibitions established under §307(a) of the Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under §405(d) of the Clean Water Act within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if this permit has not yet been modified to incorporate the requirement.

M. Duty to reapply. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee shall submit a new registration statement at least 90 days before the expiration date of the existing permit, unless permission for a later date has been granted by the board. The board shall not grant permission for registration statements to be submitted later than the expiration date of the existing permit.

N. Effect of a permit. This permit does not convey any property rights in either real or personal property or any exclusive privileges, nor does it authorize any injury to private property or invasion of personal rights, or any infringement of federal, state or local law or regulations.

O. State law. Nothing in this permit shall be construed to preclude the institution of any legal action under, or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any other state law or regulation or under authority preserved by §510 of the Clean Water Act. Except as provided in permit conditions on "bypassing" (Part II U), and "upset" (Part II V) nothing in this permit shall be construed to relieve the permittee from civil and criminal penalties for noncompliance.

P. Oil and hazardous substance liability. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under §§62.1-44.34:14 through 62.1-44.34:23 of the State Water Control Law.

Q. Proper operation and maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes effective plant performance, adequate funding, adequate staffing, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems that are installed by the permittee only when the operation is necessary to achieve compliance with the conditions of this permit.

R. Disposal of solids or sludges. Solids, sludges or other pollutants removed in the course of treatment or management of pollutants shall be disposed of in a manner so as to prevent any pollutant from such materials from entering state waters.

S. Duty to mitigate. The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment.

T. Need to halt or reduce activity not a defense. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

U. Bypass.

1. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of Parts II U 2 and U 3.

2. Notice.

a. Anticipated bypass. If the permittee knows in advance of the need for a bypass, prior notice shall be submitted, if possible at least 10 days before the date of the bypass.

b. Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in Part II I.

3. Prohibition of bypass.

a. Bypass is prohibited, and the board may take enforcement action against a permittee for bypass, unless:

(1) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

(2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance; and

(3) The permittee submitted notices as required under Part II U 2.

b. The board may approve an anticipated bypass, after considering its adverse effects, if the board determines that it will meet the three conditions listed above in Part II U 3 a.

V. Upset.

1. An upset constitutes an affirmative defense to an action brought for noncompliance with technology-based permit effluent limitations if the requirements of Part II V 2 are met. A determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is not a final administrative action subject to judicial review.

2. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

a. An upset occurred and that the permittee can identify the cause(s) of the upset;

b. The permitted facility was at the time being properly operated;

c. The permittee submitted notice of the upset as required in Part II I; and

d. The permittee complied with any remedial measures required under Part II S.

3. In any enforcement preceding the permittee seeking to establish the occurrence of an upset has the burden of proof.

W. Inspection and entry. The permittee shall allow the director, or an authorized representative, upon presentation of credentials and other documents as may be required by law, to:

1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

4. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act and the State Water Control Law, any substances or parameters at any location.

For purposes of this section, the time for inspection shall be deemed reasonable during regular business hours, and whenever the facility is discharging. Nothing contained herein shall make an inspection unreasonable during an emergency.

X. Permit actions. Permits may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

Y. Transfer of permits.

1. Permits are not transferable to any person except after notice to the department. Except as provided in Part II Y 2, a permit may be transferred by the permittee to a new owner or operator only if the permit has been modified or revoked and reissued, or a minor modification made, to identify the new permittee and incorporate such other requirements as may be necessary under the State Water Control Law and the Clean Water Act.

2. As an alternative to transfers under Part II Y 1, this permit may be automatically transferred to a new permittee if:

a. The current permittee notifies the department at least 30 days in advance of the proposed transfer of the title to the facility or property;

b. The notice includes a written agreement between the existing and new permittees containing a specific date for transfer of permit responsibility, coverage, and liability between them; and

c. The board does not notify the existing permittee and the proposed new permittee of its intent to modify or revoke and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in Part II Y 2 b.

Z. Severability. The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

VA.R. Doc. No. R07-12; Filed April 21, 2008, 2:06 p.m.

TITLE 10. FINANCE AND FINANCIAL INSTITUTIONS

STATE CORPORATION COMMISSION

Reproposed Regulation

REGISTRAR'S NOTICE: The State Corporation Commission is exempt from the Administrative Process Act in accordance with §2.2-4002 A 2 of the Code of Virginia, which exempts courts, any agency of the Supreme Court, and any agency that by the Constitution is expressly granted any of the powers of a court of record.

Title of Regulation: **10VAC5-40. Credit Unions (adding 10VAC5-40-5, 10VAC5-40-60).**

Statutory Authority: §§6.1-225.3, 6.1-225.3:1, 6.1-225.22, 6.1-225.57, and 12.1-13 of the Code of Virginia; 12 USC §1757 (7)(I); 12 CFR 712.1.

Public Hearing Information: A public hearing will be scheduled upon request.

Public Comments: Public comments may be submitted until 5 p.m. on May 23, 2008.

Agency Contact: E.J. Face, Jr., Bureau of Financial Institutions Commissioner, State Corporation Commission, P.O. Box 640, Richmond, VA 23218, telephone (804) 371-9659, FAX (804) 371-9416, or email joe.face@scc.virginia.gov.

Summary:

The modified proposed regulations establish the terms and conditions under which state-chartered credit unions may invest in or make loans to credit union service organizations (CUSOs). The modified proposed regulations contain various changes relative to the regulations that were initially proposed. The modified proposed regulations amend the definition of "credit union service organization," relax the notification requirement for credit unions that wish to invest in or make loans to CUSOs, and amend the customer base requirement to mirror the customer base requirement applicable to federal credit unions' CUSOs. The modified proposed regulations also add travel agency services to the list of permissible activities for CUSOs, authorize CUSOs to invest in non-CUSO service providers under certain circumstances, and advance the dates by which credit unions would be required to comply with the regulations.

AT RICHMOND, APRIL 18, 2008

COMMONWEALTH OF VIRGINIA, ex rel.

STATE CORPORATION COMMISSION

CASE NO. BFI-2007-00161

Ex Parte: In re: credit union service organizations

ORDER TO TAKE NOTICE

On October 5, 2007, the State Corporation Commission ("Commission") entered an Order To Take Notice of regulations proposed by the Bureau of Financial Institutions ("Bureau") that would authorize state-chartered credit unions to invest in or make loans to credit union service organizations on similar terms and conditions as federal credit unions. The Order and proposed regulations were published in the Virginia Register on October 29, 2007, posted on the Commission's website, and mailed to all state-chartered credit unions and other interested persons. Credit unions and other interested persons were given until December 14, 2007, to file written comments or request a hearing.

The Commission received comment letters from various credit unions and organizations as well as several requests for a hearing. On December 21, 2007, the Commission entered an Order scheduling a hearing for February 26, 2008, in order to consider the adoption of the proposed regulations. The Commission also directed the Bureau to meet with representatives from those entities that submitted comments in an attempt to narrow the issues for the Commission's consideration at the hearing. The Commission's Order also required the Bureau to make a filing in this case in which it (i) identified any issues that had been resolved as a result of the Bureau's meeting, and (ii) responded to the comments filed in this case that pertained to issues that remained unresolved after the Bureau's meeting.

On February 15, 2008, the Bureau filed its Response to Comments. In its Response, the Bureau informed the Commission that as a result of its meeting with representatives from those entities that submitted comments, the credit unions and organizations that initially requested a hearing no longer desired a hearing and had withdrawn their requests. The Bureau also informed the Commission that it had drafted certain changes to the proposed regulations in order to address the commenters' issues and concerns. The Bureau attached to its Response the draft regulations that were agreed to by the Bureau and the commenters.

NOW THE COMMISSION, having considered the record, the proposed regulations, the comments filed, and the Bureau's Response, finds that the proposed regulations should be modified to reflect the changes agreed to by the Bureau and the commenters, and that all state-chartered credit unions and other interested parties should be afforded an opportunity

to file written comments or request a hearing on the modified proposed regulations.

IT IS THEREFORE ORDERED THAT:

(1) The modified proposed regulations are appended hereto and made a part of the record herein.

(2) Comments or requests for a hearing on the modified proposed regulations must be submitted in writing to Joel H. Peck, Clerk, State Corporation Commission, c/o Document Control Center, P.O. Box 2118, Richmond, Virginia 23218, on or before May 23, 2008. Comments should be limited to the modifications made to the proposed regulations and not reiterate comments that were previously filed in this case. Requests for hearing shall state why a hearing is necessary and why the issues cannot be adequately addressed in written comments. All correspondence shall contain a reference to Case No. BFI-2007-00161. Interested persons desiring to submit comments or request a hearing electronically may do so by following the instructions available at the Commission's website: http://www.scc.virginia.gov/case.

(3) The modified proposed regulations shall be posted on the Commission's website at http://www.scc.virginia.gov/case.

(4) AN ATTESTED COPY hereof, together with a copy of the modified proposed regulations, shall be sent to the Registrar of Regulations for publication in the Virginia Register.

AN ATTESTED COPY hereof shall be sent to the Commissioner of Financial Institutions, who shall forthwith mail a copy of this Order, together with a copy of the modified proposed regulations, to all state-chartered credit unions and such other interested parties as he may designate.

10VAC5-40-5. Definitions.

The following words and terms when used in this chapter shall have the following meanings unless the context clearly indicates otherwise:

"Credit union service organization" or "CUSO" means a corporation, limited liability company, or limited partnership [~~of which more than 50% of,~~] the voting shares or ownership interest [of which] is [primarily] held, directly or indirectly, by one or more credit unions or organizations of credit unions.

"GAAP" means generally accepted accounting principles.

"Immediate family member" means a spouse or other family member living in the same household.

"Officials" means a credit union's directors or committee members.

"Reserves" means the total of undivided earnings, regular reserves, and any other type of funds held in reserve except allowances for loan losses.

"Senior management employee" means a credit union's chief executive officer (typically the president or treasurer/manager), any assistant chief executive officers (e.g., assistant president, vice president, or assistant treasurer/manager), and the chief financial officer (comptroller).

10VAC5-40-60. Credit union service organizations (CUSOs).

A. 1. Except as otherwise provided in this section, a state-chartered credit union shall not, directly or indirectly, invest its funds or make loans pursuant to subdivision 10 of §6.1-225.57 of the Code of Virginia.

2. [~~A~~ Except as provided in subsection H of this section, a] CUSO shall not, directly or indirectly, invest any of its funds in a corporation, limited liability company, partnership, association, trust, or other legal or commercial entity unless the state-chartered credit union or credit unions having an interest in the CUSO would be permitted to directly invest its funds in such entity and the state-chartered credit union or credit unions comply with the notice [~~requirements~~ requirement] in subsection B and the other provisions of this section.

3. CUSOs shall not, directly or indirectly, acquire control of another depository institution, nor invest in shares, stocks, or obligations of an insurance company, trade association, liquidity facility, or similar organization, corporation, or association.

B. 1. [~~At least 60 days prior to investing in or making loans to a CUSO, either directly or indirectly, a~~ A] state-chartered credit union shall give [the Commissioner of Financial Institutions (commissioner)] written notice of its [~~proposed~~] investment [in] or loans to [~~the Commissioner of Financial Institutions (commissioner) along with a business plan, marketing plan, financial analyses, and any other information the commissioner may require concerning the proposed investment or loans~~ a CUSO].

[~~2. If a state-chartered credit union wishes to subsequently increase the amount of its investment in or loans to a CUSO, it shall give written notice to the commissioner at least 30 days prior to such additional investment or loans along with any additional information the commissioner may require.~~

~~3.~~ 2.] A state-chartered credit union may invest up to 5.0% of its outstanding shares and reserves in a CUSO. However, a state-chartered credit union's total investments in all CUSOs shall not exceed, in the aggregate, 5.0% of its outstanding shares and reserves.

[~~4.~~ 3.] A state-chartered credit union may make loans to a CUSO provided that the amount of the loans, when combined with the credit union's total investments in and

loans to all CUSOs, does not exceed, in the aggregate, 5.0% of its outstanding shares and reserves.

[~~5.~~ 4.] If the limits specified above are reached or exceeded because of the profitability of the CUSO and the related GAAP valuation of the investment under the equity method, without an additional cash outlay by the state-chartered credit union, divestiture is not required. A state-chartered credit union may continue to invest up to these limits without regard to the increase in the GAAP valuation resulting from a CUSO's profitability.

[~~6.~~ 5.] The 5.0% limits specified in this subsection may be exceeded with prior written approval from the commissioner.

C. 1. A state-chartered credit union may invest in or make loans to a CUSO only if the CUSO is or will be structured as a corporation, limited liability company, or limited partnership. A state-chartered credit union may only participate in a limited partnership as a limited partner.

2. A state-chartered credit union may invest in or make loans to a CUSO only if the CUSO [~~is or will be providing its products and services exclusively to (i) the credit union or credit unions that have invested in the CUSO; (ii) the members of the credit union or credit unions that have invested in the CUSO; (iii) other credit unions; and (iv) organizations of credit unions~~ primarily serves credit unions, its membership, or the membership of credit unions contracting with the CUSO].

3. A state-chartered credit union shall account for its investments in or loans to a CUSO in conformity with GAAP.

4. A state-chartered credit union shall obtain written agreements from a CUSO, prior to investing in or making loans to the CUSO, that the CUSO shall:

a. Account for all of its transactions in accordance with GAAP;

b. Prepare quarterly financial statements and obtain an annual financial statement audit of its financial statements by a licensed certified public accountant in accordance with generally accepted auditing standards. A wholly owned CUSO is not required to obtain a separate annual financial statement audit if it is included in the annual consolidated financial statement audit of the credit union that is its parent; and

c. Provide the Bureau of Financial Institutions (bureau) and its staff with complete access to any books and records of the CUSO and the ability to review CUSO internal controls, as deemed necessary by the bureau in carrying out its responsibilities under the Virginia Credit Union Act (§6.1-225.1 et seq. of the Code of Virginia).

5. A CUSO shall comply with all applicable federal, state, and local laws and regulations.

D. 1. A state-chartered credit union and a CUSO shall be operated in a manner that demonstrates to the public the separate existence of the state-chartered credit union and the CUSO. Good business practices dictate that each shall operate so that:

a. Its respective business transactions, accounts, and records are not intermingled;

b. Each observes the formalities of its separate company procedures;

c. Each is adequately financed as a separate unit in light of normal obligations reasonably foreseeable in a business of its size and character;

d. Each is held out to the public as a separate enterprise;

e. The state-chartered credit union does not dominate the CUSO to the extent that the CUSO is treated as a department of the credit union; and

f. Unless the state-chartered credit union has guaranteed a loan obtained by the CUSO, all borrowings by the CUSO shall indicate that the state-chartered credit union is not liable.

2. If a CUSO in which a state-chartered credit union has an investment plans to change its structure, the credit union shall obtain prior, written legal advice that the CUSO shall remain established in a manner that will limit potential exposure of the credit union to no more than the loss of funds invested in or loaned to the CUSO. The legal advice shall address factors that have led courts to "pierce the corporate veil" such as inadequate capitalization, lack of separate corporate identity, common boards of directors and employees, control of one entity over another, and lack of separate books and records. The legal advice may be provided by independent legal counsel of either the investing state-chartered credit union or the CUSO.

E. The commissioner may at any time, based upon supervisory, legal, or safety and soundness considerations, prohibit or otherwise limit any CUSO activities or services.

F. A state-chartered credit union may only invest in or make loans to CUSOs that are or will be sufficiently bonded or insured for their specific operations.

G. A state-chartered credit union may only invest in or make loans to CUSOs that are or will be engaged in activities and services that are reasonably related to the operations of credit unions, including but not limited to the following:

1. Checking and currency services (i.e., check cashing, coin and currency services, money orders, savings bonds, travelers checks, and purchase and sale of U.S. Mint commemorative coin services);

2. Clerical, professional and management services (i.e., accounting services, courier services, credit analyses, facsimile transmissions, copying services, internal audits for credit unions, locator services, management and personnel training and support, marketing services, research services, and supervisory committee audits);

3. Business loan origination;

4. Consumer mortgage loan origination and processing;

5. Electronic transaction services (i.e., automated teller machine (ATM) services, credit card and debit card services, data processing, electronic fund transfer (EFT) services, electronic income tax filing, payment item processing, wire transfer services, and cyber financial services);

6. Financial counseling services (i.e., developing and administering Individual Retirement Accounts (IRAs), Keogh, deferred compensation, and other personnel benefit plans, estate planning, financial planning and counseling, income tax preparation, investment counseling, and retirement counseling);

7. Fixed asset services (i.e., management, development, sale, or lease of fixed assets, and sale, lease, or servicing of computer hardware or software);

8. Insurance brokerage or agency (i.e., agency for sale of insurance, provision of vehicle warranty programs, and provision of group purchasing programs);

9. Leasing personal property and real estate leasing of excess CUSO property;

10. Loan support services (i.e., debt collection services, loan processing, loan servicing, loan sales, and selling repossessed collateral);

11. Record retention, security and disaster recovery services (i.e., alarm-monitoring and other security services, disaster recovery services, microfilm, microfiche, optical and electronic imaging, CD-ROM data storage and retrieval services, provision of forms and supplies, and record retention and storage);

12. Securities brokerage services;

13. Shared credit union branch (service center) operations;

14. Student loan origination;

15. [Travel agency services;

16.] Trust and trust-related services (i.e., acting as administrator for prepaid legal service plans, acting as trustee, guardian, conservator, estate administrator, or in any other fiduciary capacity, and other trust services); and

[~~16.~~ 17.] Real estate brokerage services and real estate listing services.

H. [In connection with providing a permissible service, a CUSO may invest in a non-CUSO service provider. The amount of the CUSO's investment is limited to the amount necessary to participate in the service provider, or a greater amount if necessary to receive a reduced price for goods or services.

I.] In order for a state-chartered credit union to invest in or make loans to a CUSO that is or will be engaged in activities or services that are not enumerated in subsection G of this section, the state-chartered credit union shall obtain prior approval from the State Corporation Commission (commission). A request for commission approval of an activity or service that is not enumerated in subsection G of this section shall be submitted [~~with the written notice required by subsection B of this section~~ in writing to the commissioner] and include a full explanation and complete documentation of the activity or service and how that activity or service is reasonably related to the operations of credit unions.

[~~I.~~ J.] 1. If a state-chartered credit union has outstanding loans or investments in a CUSO, then the credit union's officials, senior management employees, and their immediate family members shall not receive, either directly or indirectly, any salary, commission, investment income, or other income or compensation from the CUSO or from any person being served through the CUSO. This provision does not prohibit the credit union's officials or senior management employees from assisting in the operation of a CUSO, provided the officials or senior management employees are not compensated by the CUSO. Furthermore, the CUSO may reimburse the state-chartered credit union for the services provided by such credit union officials and senior management employees only if the account receivable of the credit union due from the CUSO is paid in full at least every 120 days.

2. The prohibition contained in subdivision 1 of this subsection also applies to state-chartered credit union employees not otherwise covered if the employees are directly involved in dealing with the CUSO, unless the state-chartered credit union's board of directors determines that the credit union's employees' positions do not present a conflict of interest.

3. All transactions with business associates or family members of state-chartered credit union officials, senior management employees, or their immediate family members that are not specifically prohibited by subdivision 1 or 2 of this subsection shall be conducted at arm's length and in the interest of the state-chartered credit union.

[~~J.~~ K.] 1. A state-chartered credit union's investments in CUSOs in existence prior to [~~February~~ July] 1, 2008, shall conform with this section no later than [~~August 1, 2008~~ January 1, 2009], unless the commissioner grants prior

written approval to continue the credit union's investments for a stated period.

2. A state-chartered credit union's loans to CUSOs in existence prior to [~~February~~ July] 1, 2008, shall conform with this section no later than [~~August 1, 2008~~ January 1, 2009], unless (i) the commissioner grants prior written approval to continue the credit union's loans for a stated period, or (ii) under the terms of its loan agreement, the credit union cannot require accelerated repayment without breaching the agreement.

VA.R. Doc. No. R08-921; Filed April 22, 2008, 10:40 a.m.

TITLE 12. HEALTH

BOARD OF HEALTH

Final Regulation

REGISTRAR'S NOTICE: The following regulatory actions are exempt from the Administrative Process Act in accordance with §2.2-4006 A 4 c of the Code of Virginia, which excludes regulations that are necessary to meet the requirements of federal law or regulations, provided such regulations do not differ materially from those required by federal law or regulation. The State Board of Health will receive, consider and respond to petitions by any interested person at any time with respect to reconsideration or revision.

Title of Regulation: **12VAC5-481. Virginia Radiation Protection Regulations (amending 12VAC5-481-10, 12VAC5-481-20, 12VAC5-481-30, 12VAC5-481-90, 12VAC5-481-100, 12VAC5-481-110, 12VAC5-481-130, 12VAC5-481-150, 12VAC5-481-230 through 12VAC5-481-270, 12VAC5-481-340, 12VAC5-481-370 through 12VAC5-481-450, 12VAC5-481-470, 12VAC5-481-480, 12VAC5-481-500 through 12VAC5-481-590, 12VAC5-481-630 through 12VAC5-481-760, 12VAC5-481-780, 12VAC5-481-790, 12VAC5-481-810 through 12VAC5-481-910, 12VAC5-481-930 through 12VAC5-481-1050, 12VAC5-481-1070, 12VAC5-481-1090, 12VAC5-481-1100, 12VAC5-481-1110, 12VAC5-481-1130, 12VAC5-481-1190, 12VAC5-481-1200, 12VAC5-481-1220, hrough 12VAC5-481-1250, 12VAC5-481-1270, 12VAC5-481-1300, 12VAC5-481-1310, 12VAC5-481-1320, 12VAC5-481-1350, 12VAC5-481-1380, 12VAC5-481-1420, 12VAC5-481-1440, 12VAC5-481-1490, 12VAC5-481-1520, 12VAC5-481-1560, 12VAC5-481-1570, 12VAC5-481-1670, through 12VAC5-481-2040, 12VAC5-481-2060, 12VAC5-481-2070, 12VAC5-481-2080, 12VAC5-481-2100, 12VAC5-481-2230, 12VAC5-481-2240, 12VAC5-481-2260, 12VAC5-481-2270, 12VAC5-481-2280, 12VAC5-481-2330, 12VAC5-481-2420, 12VAC5-481-2430, 12VAC5-481-2470, 12VAC5-481-2490, 12VAC5-481-2510, 12VAC5-481-2530, 12VAC5-481-2540, 12VAC5-481-2550, 12VAC5-481-2660 through 12VAC5-481-2950, 12VAC5-481-2970, 12VAC5-481-2980, 12VAC5-481-3000 through 12VAC5-481-3040, 12VAC5-481-3070 through 12VAC5-481-3140, 12VAC5-481-3160, 12VAC5-481-3200 through 12VAC5-481-3270, 12VAC5-481-3290, 12VAC5-481-3300, 12VAC5-481-3340, 12VAC5-481-3350, 12VAC5-481-3400, 12VAC5-481-3430, 12VAC5-481-3440, 12VAC5-481-3480, 12VAC5-481-3490, 12VAC5-481-3510, 12VAC5-481-3520, 12VAC5-481-3530, 12VAC5-481-3560, 12VAC5-481-3580, 12VAC5-481-3600, 12VAC5-481-3610, 12VAC5-481-3650; adding 12VAC5-481-571, 12VAC5-481-971, 12VAC5-481-1151, 12VAC5-481-1161, 12VAC5-481-2001, 12VAC5-481-2571, 12VAC5-481-2572, 12VAC5-481-2573, 12VAC5-481-3051, 12VAC5-481-3091, 12VAC5-481-3151, 12VAC5-481-3241, 12VAC5-481-3261, 12VAC5-481-3680, 12VAC5-481-3690, 12VAC5-481-3700, 12VAC5-481-3710, 12VAC5-481-3720, 12VAC5-481-3730, 12VAC5-481-3740, 12VAC5-481-3750, 12VAC5-481-3760, 12VAC5-481-3770, 12VAC5-481-3780; repealing 12VAC5-481-200, 12VAC5-481-460, 12VAC5-481-800, 12VAC5-481-1160, 12VAC5-481-1540, 12VAC5-481-1550, 12VAC5-481-2050, 12VAC5-481-3050, 12VAC5-481-3670).**

Statutory Authority: §32.1-229 of the Code of Virginia; 42 USC §2021.

Effective Date: June 12, 2008.

Agency Contact: Mike Welling, Director, Radioactive Materials Program, Department of Health, 109 Governor Street, Richmond, VA 23233, telephone 804-864-8168, FAX 804-864-8155, or email mike.welling@vdh.virginia.gov.

Summary:

12VAC5-481, Virginia Radiation Protection Regulations, are used by the Virginia Department of Health, Division of Radiological Health in the licensing and inspecting of radioactive materials used in the Commonwealth of Virginia. These regulations are based upon Part 10, Energy, of the Federal Code of Regulations (10 CFR).

Virginia is in the process of entering into an agreement with the Nuclear Regulatory Commission (NRC) for regulating certain radioactive materials in the Commonwealth. In order to enter into such agreement, 12VAC5-481 must be compatible with 10 CFR. The NRC has reviewed the regulations twice and supplied comments. These amendments are based upon those comments.

12VAC5-481 provides regulations to protect the public from unnecessary radiation exposure while allowing for the safe and effective use of radioactive materials in areas such as medical, industrial and research and development.

Part I
General Provisions

12VAC5-481-10. Definitions.

As used in these regulations, these terms have the definitions set forth below.

"A_1" means the maximum activity of special form radioactive material permitted in a Type A package. This value is listed in Table 1 of 12VAC5-481-3770.

"A_2" means the maximum activity of radioactive material, other than special form radioactive material, LSA, and SCO material, permitted in a Type A package. This value is listed in Table 1 of 12VAC5-481-3770.

"Absorbed dose" means the energy imparted by ionizing radiation per unit mass of irradiated material. The units of absorbed dose are the gray (Gy) and the rad.

"Absorbed dose rate" means absorbed dose per unit time, for machines with timers, or dose monitor unit per unit time for linear accelerators.

"Accelerator" means any machine capable of accelerating electrons, protons, deuterons, or other charged particles in a vacuum and of discharging the resultant particulate or other radiation into a medium at energies usually in excess of one MeV. For purposes of this definition, "particle accelerator" is an equivalent term.

"Accelerator-produced material" means any material made radioactive by a particle accelerator.

"Accessible surface" means the external surface of the enclosure or housing of the radiation producing machine as provided by the manufacturer. It also means surface of equipment or of an equipment part that can be easily or accidentally touched by persons without the use of a tool.

"Act" means §§32.1-227 through 32.1-238 of the Code of Virginia.

"Active maintenance" means any significant activity needed during the period of institutional control to maintain a reasonable assurance that the performance objectives in 12VAC5-481-2490 and 12VAC5-481-2500 are met. Such active maintenance includes ongoing activities such as the pumping and treatment of water from a disposal unit or one-time measures such as replacement of a disposal unit cover. Active maintenance does not include custodial activities such as repair of fencing, repair or replacement of monitoring equipment, revegetation, minor additions to soil cover, minor repair of disposal unit covers, and general disposal site upkeep such as mowing grass.

"Activity" means the rate of disintegration or transformation or decay of radioactive material. The units of activity are the becquerel (Bq) and the curie (Ci).

"Acute" means a single radiation dose or chemical exposure event or multiple radiation dose or chemical exposure events occurring within a short time (24 hours or less).

"Added filtration" means any filtration that is in addition to the inherent filtration.

"Address of use" means the building or buildings that are identified on the license and where radioactive material may be produced, prepared, received, used, or stored.

"Adult" means an individual 18 or more years of age.

"Agency" means the Radiological Health Program of the Virginia Department of Health.

"Agreement state" means any state with which the ~~Nuclear Regulatory Commission~~ NRC or the Atomic Energy Commission has entered into an effective agreement under subsection 274b of the Atomic Energy Act of 1954, as amended (73 Stat. 689).

"Airborne radioactive material" means any radioactive material dispersed in the air in the form of dusts, fumes, particulates, mists, vapors, or gases.

"Airborne radioactivity area" means a room, enclosure, or area in which airborne radioactive materials composed wholly or partly of licensed material exist in concentrations:

1. In excess of the derived air concentrations (DACs) specified in ~~Appendix B to 10 CFR Part 20~~ 12VAC5-481-3690; or

2. To such a degree that an individual present in the area without respiratory protective equipment could exceed, during the hours an individual is present in a week, an intake of 0.6% of the annual limit on intake (ALI) or 12 DAC-hours.

"Air kerma (K)" means the kinetic energy released in air by ionizing radiation. Kerma is determined as the quotient of De by Dm, where De is the sum of the initial kinetic energies of all the charged ionizing particles liberated by uncharged ionizing particles in air of mass Dm. The SI unit of air kerma is joule per kilogram and the special name for the unit of kerma is the gray (Gy).

"Air-purifying respirator" means a respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element.

"Alert" means events may occur, are in progress, or have occurred that could lead to a release of radioactive material but that the release is not expected to require a response by offsite response organizations to protect persons offsite.

"Aluminum equivalent" means the thickness of type 1100 aluminum alloy affording the same attenuation, under specified conditions, as the material in question. The nominal

chemical composition of type 100 aluminum is 99.00% minimum aluminum, 0.12% copper.

"Analytical X-ray equipment" means equipment used for X-ray diffraction or fluorescence analysis.

"Analytical X-ray system" means a group of components utilizing x- or gamma-rays to determine the elemental composition or to examine the microstructure of materials.

"Annual limit on intake" (ALI) means the derived limit for the amount of radioactive material taken into the body of an adult worker by inhalation or ingestion in a year. ALI is the smaller value of intake of a given radionuclide in a year by the reference man that would result in a committed effective dose equivalent of 0.05 Sv (5 rem) or a committed dose equivalent of 0.5 Sv (50 rem) to any individual organ or tissue. ALI values for intake by ingestion and by inhalation of selected radionuclides are given in Tables 1 and 2 in ~~Appendix B of 10 CFR 20~~ 12VAC5-481-3690.

"Annual refresher safety training" means a review conducted or provided by the licensee or registrant for its employees on radiation safety aspects of industrial radiography. The review shall include, as a minimum, any results of internal inspections, new procedures or equipment, new or revised regulations, and accidents or errors that have been observed. The review shall also provide opportunities for employees to ask safety questions.

"Annually" means at intervals not to exceed one year.

"ANSI" means the American National Standards Institute.

"Area of use" means a portion of a physical structure that has been set aside for the purpose of producing, preparing, receiving, using, or storing radioactive material.

"Assigned protection factor (APF)" means the expected workplace level of respiratory protection that would be provided by a properly functioning respirator or a class of respirators to properly fitted and trained users. Operationally, the inhaled concentration can be estimated by dividing the ambient airborne concentration by the APF.

"As low as is reasonably achievable" (ALARA) means making every reasonable effort to maintain exposures to radiation as far below the dose limits in these regulations as is practical, consistent with the purpose for which the licensed or registered activity is undertaken, taking into account the state of technology, the economics of improvements in relation to state of technology, the economics of improvements in relation to benefits to the public health and safety, and other societal and socioeconomic considerations, and in relation to utilization of nuclear energy and licensed or registered sources of radiation in the public interest.

"Assembler" means any person engaged in the business of assembling, replacing, or installing one or more components into an X-ray system or subsystem. The term includes the owner of an X-ray system or his or her employee or agent who assembles components into an X-ray system that is subsequently used to provide professional or commercial services.

"Associated equipment" means equipment that is used in conjunction with a radiographic exposure device to make radiographic exposures that drive, guide, or come in contact with the source.

"Atmosphere-supplying respirator" means a respirator that supplies the respirator user with breathing air from a source independent of the ambient atmosphere, and includes supplied-air respirators (SARs) and self-contained breathing apparatus (SCBA) units.

"Attenuation block" means a block or stack, having dimensions 20 centimeters by 20 centimeters by 3.8 centimeters, of type 1100 aluminum alloy or other materials having equivalent attenuation. The nominal chemical composition of type 100 aluminum is 99.00% minimum aluminum, 0.12% copper.

"Authorized medical physicist" means an individual who:

1. Meets the requirements in 12VAC5-481-1760 and 12VAC5-481-1790; or

2. Is identified as an authorized medical physicist or teletherapy physicist on:

a. A specific medical use license issued by the NRC or another agreement state;

b. A medical use permit issued by an NRC master material licensee;

c. A permit issued by an NRC or another agreement state broad scope medical use licensee; or

d. A permit issued by an NRC master material license broad scope medical use permittee.

"Authorized nuclear pharmacist" means a pharmacist who:

1. Meets the requirements in 12VAC5-481-1770 and 12VAC5-481-1790;

2. Is identified as an authorized nuclear pharmacist on:

a. A specific license issued by the NRC or another agreement state that authorizes medical use or the practice of nuclear pharmacy;

b. A permit issued by an NRC master material licensee that authorizes medical use or the practice of nuclear pharmacy;

c. A permit issued by an NRC or another agreement state broad scope medical use licensee that authorizes medical use or the practice of nuclear pharmacy; or

d. A permit issued by an NRC master material license broad scope medical use permittee that authorizes medical use or the practice of nuclear pharmacy;

3. Is identified as an authorized nuclear pharmacist by a commercial nuclear pharmacy that has been authorized to identify authorized nuclear pharmacists; or

4. Is designated as an authorized nuclear pharmacist in accordance with 12VAC5-481-440 I 2.

~~"Authorized user" means a practitioner of the healing arts who is identified as an authorized user on an agency, agreement state, licensing state or the Nuclear Regulatory Commission license that authorizes the medical use of radioactive material.~~

"Authorized user" means a practitioner of the healing arts who:

1. Meets the requirements in 12VAC5-481-1790 and any of the following:

a. 12VAC5-481-1910;

b. 12VAC5-481-1940;

c. 12VAC5-481-1980;

d. 12VAC5-481-1990;

e. 12VAC5-481-2000;

f. 12VAC5-481-2010;

g. 12VAC5-481-2030;

h. 12VAC5-481-2040; or

2. Is identified as an authorized user on:

a. A specific license issued by the NRC or another agreement state that authorizes medical use;

b. A permit issued by an NRC master material licensee that authorizes medical use;

c. A permit issued by an NRC or another agreement state broad scope medical use licensee that authorizes medical use; or

d. A permit issued by an NRC master material license broad scope medical use permittee that authorizes medical use.

"Automatic exposure control (AEC)" means a device that automatically controls one or more technique factors in order to obtain, at a preselected location(s), a required quantity of radiation (includes devices such as phototimers and ion chambers).

"Background radiation" means radiation from cosmic sources~~;~~, naturally occurring radioactive materials, that have not been technologically enhanced, including radon, except as a decay product of source or special nuclear material, and including global fallout as it exists in the environment from the testing of nuclear explosive devices, or from past nuclear accidents such as Chernobyl that contribute to background radiation and are not under the control of the licensee or registrant. "Background radiation" does not include sources of radiation from radioactive materials regulated by the agency.

"Barrier" (See "Protective barrier").

"Beam axis" means a line from the source through the centers of the X-ray fields.

"Beam-limiting device" means a device that provides a means to restrict the dimensions of the X-ray field.

"Beam monitoring system" means a system designed and installed in the radiation head to detect and measure the radiation present in the useful beam.

"Beam scattering foil" means a thin piece of material (usually metallic) placed in the beam to scatter a beam of electrons in order to provide a more uniform electron distribution in the useful beam.

"Becquerel" (Bq) means the SI unit of activity. One becquerel is equal to one disintegration or transformation per second (dps or tps).

"Beneficial attribute" means, as used in Part XVI (12VAC5-481-3460 et seq.) of this chapter, the radioactivity of the product necessary to the use of the product.

"Beneficial to the product" see "Beneficial attribute."

"Bent beam linear accelerator" means a linear accelerator geometry in which the accelerated electron beam must change direction by passing through a bending magnet.

"Bioassay" means the determination of kinds, quantities or concentrations, and, in some cases, the locations of radioactive material in the human body, whether by direct measurement, in-vivo counting, or by analysis and evaluation of materials excreted or removed from the human body. For purposes of these regulations, "radiobioassay" is an equivalent term.

"Board" means the State Board of Health.

"Brachytherapy" means a method of radiation therapy in which sealed sources are utilized to deliver a radiation dose at a distance of up to a few centimeters, by surface, intracavitary, or interstitial application.

"Buffer zone" means a portion of the disposal site that is controlled by the licensee and that lies under the disposal units and between the disposal units and the boundary of the site.

"Byproduct material" means:

1. Any radioactive material~~,~~ (except special nuclear material)~~,~~ yielded in, or made radioactive by, exposure to

the radiation incident to the process of producing or ~~utilizing~~ using special nuclear material; ~~and~~

2. The tailings or wastes produced by the extraction or concentration of uranium or thorium from ore processed primarily for its source material content, including discrete surface wastes resulting from uranium ~~or thorium~~ solution extraction processes. Underground ore bodies depleted by these solution extraction operations do not constitute "byproduct material" within this definition~~.~~ ;

3. a. Any discrete source of radium-226 that is produced, extracted, or converted after extraction, before, on, or after August 8, 2005, for use for a commercial, medical, or research activity; or

b. Any material that:

(1) Has been made radioactive by use of a particle accelerator; and

(2) Is produced, extracted, or converted after extraction, before, on, or after August 8, 2005, for use for a commercial, medical, or research activity; and

4. Any discrete source of naturally occurring radioactive material, other than source material, that:

a. The NRC, in consultation with the Administrator of the Environmental Protection Agency, the Secretary of Energy, the Secretary of Homeland Security, and the head of any other appropriate federal agency, determines would pose a threat similar to the threat posed by a discrete source of radium-226 to the public health and safety or the common defense and security; and

b. Before, on, or after August 8, 2005, is extracted or converted after extraction for use in a commercial, medical, or research activity.

"C-arm X-ray system" means an X-ray system in which the image receptor and X-ray tube housing assembly are connected by a common mechanical support system in order to maintain a desired spatial relationship. This system is designed to allow a change in the projection of the beam through the patient without a change in the position of the patient.

"Cabinet radiography" means industrial radiography conducted in an enclosure or cabinet so shielded that every location on the exterior meets the dose limits for individual members of the public as specified in 12VAC5-481-720.

"Cabinet X-ray system" means an X-ray system with the X-ray tube installed in an enclosure independent of existing architectural structures except the floor on which it may be placed. The cabinet X-ray system is intended to contain at least that portion of a material being irradiated, provide radiation attenuation, and exclude personnel from its interior during generation of radiation. Included are all X-ray systems designed primarily for the inspection of carry-on baggage at airline, railroad, and bus terminals, and in similar facilities. An X-ray tube used within a shielded part of a building, or X-ray equipment that may temporarily or occasionally incorporate portable shielding, is not considered a cabinet X-ray system.

"Calendar quarter" means not less than 12 consecutive weeks nor more than 14 consecutive weeks. The first calendar quarter of each year shall begin in January and subsequent calendar quarters shall be so arranged such that no day is included in more than one calendar quarter and no day in any one year is omitted from inclusion within a calendar quarter. The method observed by the licensee or registrant for determining calendar quarters shall only be changed at the beginning of a year.

"Calibration" means the determination of (i) the response or reading of an instrument relative to a series of known radiation values over the range of the instrument or (ii) the strength of a source of radiation relative to a standard.

"Camera" (See "Radiographic exposure device").

"Carrier" means a person engaged in the transportation of passengers or property by land or water as a common, contract, or private carrier, or by civil aircraft.

"Cephalometric device" means a device intended for the radiographic visualization and measurement of the dimensions of the human head.

"Certifiable cabinet X-ray system" means an existing uncertified X-ray system that has been modified to meet the certification requirements specified in 21 CFR 1020.40.

"Certificate holder" means a person who has been issued a certificate of compliance or other package approval by the NRC.

"Certificate of compliance (CoC)" means the certificate issued by the NRC that approves the design of a package for the transportation of radioactive material.

"Certified cabinet X-ray system" means an X-ray system that has been certified in accordance with 21 CFR 1010.2 as being manufactured and assembled pursuant to the provisions of 21 CFR 1020.40.

"Certified components" means components of X-ray systems that are subject to regulations promulgated under Pub.L. 90-602, the Radiation Control for Health and Safety Act of 1968 of the Food and Drug Administration.

"Certified system" means any X-ray system which has one or more certified component(s).

"Certifying entity" means an independent certifying organization meeting the agency's requirements for documenting applicant's training in topics set forth in

12VAC5-481-1320 or equivalent state or ~~Nuclear Regulatory Commission~~ NRC regulations.

"CFR" means Code of Federal Regulations.

"Changeable filters" means any filter, exclusive of inherent filtration, that can be removed from the useful beam through any electronic, mechanical, or physical process.

"Chelating agent" means amine polycarboxylic acids, hydroxycarboxylic acids, gluconic acid, and polycarboxylic acids.

"Class" means a classification scheme for inhaled material according to its rate of clearance from the pulmonary region of the lung. Materials are classified as D, W, or Y, which applies to a range of clearance half-times: for Class D, Days, of less than 10 days; for Class W, Weeks, from 10 to 100 days; and for Class Y, Years, of greater than 100 days. For purposes of these regulations, "lung class" and "inhalation class" are equivalent terms.

"Closed transport vehicle" means a transport vehicle equipped with a securely attached exterior enclosure that during normal transportation restricts the access of unauthorized persons to the cargo space containing the radioactive material. The enclosure may be either temporary or permanent but shall limit access from top, sides, and ends. In the case of packaged materials, it may be of the "see-through" type.

"Coefficient of variation (C)" means the ratio of the standard deviation to the mean value of a set of observations. It is estimated using the following equation:

$$C = \frac{s}{\bar{x}} = \frac{1}{\bar{x}}\left[\frac{\sum_{i=1}^{n}(x_i-\bar{x})^2}{n-1}\right]^{1/2}$$

where:

s = Standard deviation of the observed values;

$\bar{x}$ = Mean value of observations in sample;

$x_i = i_{th}$ observation in sample;

n = Number of observations in sample.

"Collective dose" means the sum of the individual doses received in a given period of time by a specified population from exposure to a specified source of radiation.

"Collimator" means a device used to limit the size, shape, and direction of the primary radiation beam. For industrial radiography it means a radiation shield that is placed on the end of the guide tube or directly onto a radiographic exposure device to restrict the size of the radiation beam when the sealed source is cranked into position to make a radiographic exposure.

"Commencement of construction" means any clearing of land, excavation, or other substantial action that would adversely affect the environment of a land disposal facility. The term does not mean disposal site exploration, necessary roads for disposal site exploration, borings to determine foundation conditions, or other preconstruction monitoring or testing to establish background information related to the suitability of the disposal site or the protection of environmental values.

"Committed dose equivalent" ($H_{T,50}$) means the dose equivalent to organs or tissues of reference (T) that will be received from an intake of radioactive material by an individual during the 50-year period following the intake.

"Committed effective dose equivalent" ($H_{E,50}$) is the sum of the products of the weighting factors (w_T) applicable to each of the body organs or tissues that are irradiated and the committed dose equivalent to each of these organs or tissues ($H_{E,50} = \Sigma (w_T H_{T,50})$).

"Computed tomography" means the production of a tomogram by the acquisition and computer processing of X-ray transmission data.

"Computed tomography dose index" means the integral from -7T to +7T of the dose profile along a line perpendicular to the tomographic plane divided by the product of the nominal tomographic section thickness and the number of tomograms produced in a single scan, that is:

$$CTDI = \frac{1}{nT}\int_{-7T}^{+7T} D(z)\,dz$$

where:

z = Position along a line perpendicular to the tomographic plane;

D(z) = Dose at position z;

T = Nominal tomographic section thickness;

n = Number of tomograms produced in a single scan.

This definition assumes that the dose profile is centered around z = 0 and that, for a multiple tomogram system, the scan increment between adjacent scans is nT.

"Consignment" means each shipment of a package or groups of packages or load of radioactive material offered by a shipper for transport.

"Consortium" means an association of medical use licensees and a PET radionuclide production facility in the same geographical area that jointly own or share in the operation and maintenance cost of the PET radionuclide production facility that produces PET radionuclides for use in producing radioactive drugs within the consortium for noncommercial distributions among its associated members for medical use. The PET radionuclide production facility within the

consortium must be located at an educational institution or a federal facility or a medical facility.

"Constraint" means each shipment of a package or groups of packages or load of radioactive material offered by a shipper for transport.

"Constraint (dose constraint)" means a value above which specified licensee actions are required.

"Contact therapy system" means a therapeutic radiation machine with a short target to skin distance (TSD), usually less than five centimeters.

"Contrast scale" means the change in the linear attenuation coefficient per CTN relative to water, that is:

$$\overline{CS} = \frac{\mu_x - \mu_w}{\overline{CTN_x} - \overline{CTN_w}}$$

where:

μ_x = Linear attenuation coefficient of the material of interest;

μ_w = Linear attenuation coefficient of water;

$\overline{CTN_x}$ = of the material of interest;

$\overline{CTN_w}$ = of water.

"Control (drive) cable" means the cable that is connected to the source assembly and used to drive the source to and from the exposure location.

"Control drive mechanism" means a device that enables the source assembly to be moved into and out of the exposure device.

"Control panel" means that part of the X-ray control upon which are mounted the switches, knobs, pushbuttons, and other hardware necessary for manually setting the technique factors.

"Control tube" means a protective sheath for guiding the control cable. The control tube connects the control drive mechanism to the radiographic exposure device.

"Controlled area" means an area, outside of a restricted area but inside the site boundary, access to which can be limited by the licensee for any reason.

"Conveyance" means:

1. For transport by public highway or rail any transport vehicle or large freight container;

2. For transport by water any vessel, or any hold, compartment, or defined deck area of a vessel including any transport vehicle on board the vessel; and

3. For transport by any aircraft.

"Cooling curve" means the graphical relationship between heat units stored and cooling time.

"Critical group" means the group of individuals reasonably expected to receive the greatest exposure to residual radioactivity for any applicable set of circumstances.

"Criticality safety index (CSI)" means the dimensionless number (rounded up to the next tenth) assigned to and placed on the label of a fissile material package, to designate the degree of control of accumulation of packages containing fissile material during transportation. Determination of the criticality safety index is described in Part XIII (12VAC5-481-2950 et seq.).

"CS" (See "Contrast scale").

"CT" (See "Computed tomography").

"CT conditions of operation" means all selectable parameters governing the operation of a CT X-ray system including, but not limited to, nominal tomographic section thickness, filtration, and the technique factors as defined in these regulations.

"CTDI" (See "Computed tomography dose index").

"CT gantry" means the tube housing assemblies, beam-limiting devices, detectors, and the supporting structures and frames which hold these components.

"CTN" (See "CT number").

"CT Number" means the number used to represent the X-ray attenuation associated with each elemental area of the CT image.

$$\overline{CTN} = \frac{k(\mu_x - \mu_w)}{\mu_w}$$

where:

k = A constant, a normal value of 1,000 when the Houndsfield scale of CTN is used;

μ_x = Linear attenuation coefficient of the material of interest;

μ_w = Linear attenuation coefficient of water.

"Curie" means a unit of quantity of activity. One curie (Ci) is that quantity of radioactive material that decays at the rate of 3.7E+10 disintegrations or transformations per second (dps or tps).

"Custodial agency" means an agency of the government designated to act on behalf of the government owner of the disposal site.

"Dead-man switch" means a switch so constructed that a circuit closing contact can be maintained only by continuous pressure on the switch by the operator.

"Declared pregnant woman" means a woman who has voluntarily informed ~~her employer~~ the licensee, in writing, of her pregnancy and the estimated date of conception. The declaration remains in effect until the declared pregnant woman withdraws the declaration in writing or is no longer pregnant.

"Decommission" means to remove a facility or site safely from service and reduce residual radioactivity to a level that permits release of the property for unrestricted use and termination of the license or release of the property under restricted conditions and termination of the license.

"Dedicated check source" means a radioactive source that is used to assure the constant operation of a radiation detection or measurement device over several months or years. This source may also be used for other purposes.

"Deep dose equivalent" (H_d), which applies to external whole body exposure, means the dose equivalent at a tissue depth of one centimeter (1000 mg/cm²).

"Demand respirator" means an atmosphere-supplying respirator that admits breathing air to the facepiece only when a negative pressure is created inside the facepiece by inhalation.

"Department of Energy" means the Department of Energy established by Pub. L. 95-91, August 4, 1977, 91 Stat. 565, 42 USC §7101 et seq., to the extent that the Department exercises functions formerly vested in the Atomic Energy Commission, its Chairman, members, officers and components and transferred to the Energy Research and Development Administration and to the Administrator thereof pursuant to sections 104(b), (c) and (d) of the Energy Reorganization Act of 1974 (Pub. L. 93-438, October 11, 1974, 88 Stat. 1233 at 1237, 42 USC §5814, effective January 19, 1975) and retransferred to the Secretary of Energy pursuant to section 301(a) of the Department of Energy Organization Act (Pub. L. 95-91, August 4, 1977, 91 Stat. 565 at 577-578, 42 USC §7151, effective October 1, 1977.)

"Depleted uranium" means the source material uranium in which the isotope uranium-235 is less than 0.711 weight percentage of the total uranium present. Depleted uranium does not include special nuclear material.

"Derived air concentration" (DAC) means the concentration of a given radionuclide in air which, if breathed by the reference man for a working year of 2,000 hours under conditions of light work, results in an intake of one ALI. For purposes of these regulations, the condition of light work is an inhalation rate of 1.2 cubic meters of air per hour for 2,000 hours in a year. DAC values are given in ~~Table I, Column 3, of Appendix B to 10 CFR Part 20~~ 12VAC5-481-3690.

"Derived air concentration-hour" (DAC-hour) means the product of the concentration of radioactive material in air, expressed as a fraction or multiple of the derived air concentration for each radionuclide, and the time of exposure to that radionuclide, in hours. A licensee or registrant may take 2,000 DAC-hours to represent one ALI, equivalent to a committed effective dose equivalent of 0.05 Sv (5 rem).

"Detector" (See "Radiation detector").

"Deuterium" means, for the purposes of Part XIII (12VAC5-481-2950 et seq.) deuterium and any deuterium compounds, including heavy water, in which the ratio of deuterium atoms to hydrogen atoms exceeds 1:5000.

"Diagnostic clinical procedures manual" means a collection of written procedures that describes each method (and other instructions and precautions) by which the licensee performs diagnostic clinical procedures, where each diagnostic clinical procedure has been approved by the authorized user and includes the radiopharmaceutical, dosage, and route of administration.

"Diagnostic source assembly" means the tube housing assembly with a beam-limiting device attached.

"Diagnostic X-ray system" means an X-ray system designed for irradiation of any part of the human or animal body for the purpose of diagnosis or visualization.

"Diagnostic X-ray imaging system" means an assemblage of components for the generation, emission and reception of X-rays and the transformation, storage and visual display of the resultant X-ray image.

"Direct scattered radiation" means that scattered radiation that has been deviated in direction only by materials irradiated by the useful beam (See "Scattered radiation").

"Discrete source" means a radionuclide that has been processed so that its concentration within a material has been purposely increased for use for commercial, medical, or research activities.

"Disposable respirator" means a respirator for which maintenance is not intended and that is designed to be discarded after excessive breathing resistance, sorbent exhaustion, physical damage, or end-of-service-life renders it unsuitable for use. Examples of this type of respirator are a disposable half-mask respirator or a disposable escape-only self-contained breathing apparatus (SCBA).

"Disposal" means the isolation of wastes from the biosphere inhabited by man and his food chains by emplacement in a land disposal facility.

"Disposal site" means that portion of a land disposal facility that is used for disposal of waste. It consists of disposal units and a buffer zone.

"Disposal unit" means a discrete portion of the disposal site into which waste is placed for disposal. For near-surface disposal, the unit is usually a trench.

"Distinguishable from background" means that the detectable concentration of a radionuclide is statistically different from the background concentration of that radionuclide in the vicinity of the site or, in the case of structures, in similar materials using adequate measurement technology, survey, and statistical techniques.

"Dose" is a generic term that means absorbed dose, dose equivalent, effective dose equivalent, committed dose equivalent, committed effective dose equivalent, total organ dose equivalent, or total effective dose equivalent. For purposes of these regulations, "radiation dose" is an equivalent term.

"Dose commitment" means the total radiation dose to a part of the body that will result from retention in the body of radioactive material. For purposes of estimating the dose commitment, it is assumed that from the time of intake the period of exposure to retained material will not exceed 50 years.

"Dose equivalent (H_T)" means the product of the absorbed dose in tissue, quality factor, and all other necessary modifying factors at the location of interest. The units of dose equivalent are the sievert (Sv) and rem.

"Dose limits" means the permissible upper bounds of radiation doses established in accordance with these regulations. For purposes of these regulations, "limits" is an equivalent term.

"Dose monitor unit (DMU)" means a unit response from the beam monitoring system from which the absorbed dose can be calculated.

"Dose profile" means the dose as a function of position along a line.

"Dosimetry processor" means an individual or an organization that processes and evaluates individual monitoring devices in order to determine the radiation dose delivered to the monitoring devices.

"Doubly encapsulated sealed source" means a sealed source in which the radioactive material is sealed within an inner capsule and that capsule is sealed within an outer capsule.

"Drive cable" (See "Control cable").

"Effective dose equivalent (H_E)" means the sum of the products of the dose equivalent (H_T) to each organ or tissue and the weighting factor (w_T) applicable to each of the body organs or tissues that are irradiated ($H_E = \Sigma\, w_T H_T$).

"Elemental area" means the smallest area within a tomogram for which the X-ray attenuation properties of a body are depicted. (See also "Picture element").

"Embryo/fetus" means the developing human organism from conception until the time of birth.

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

"Engineered barrier" means a manmade structure or device that is intended to improve the land disposal facility's ability to meet the performance objectives in these regulations.

"Enriched uranium" (See "Uranium – natural, depleted, enriched").

"Entrance exposure rate" means the exposure free in air per unit time at the point where the center of the useful beam enters the patient.

"Entrance or access point" means any opening through which an individual or extremity of an individual could gain access to radiation areas or to licensed or registered radioactive materials. This includes entry or exit portals of sufficient size to permit human entry, irrespective of their intended use.

"Equipment" (See "X-ray equipment").

"Exclusive use" means the sole use by a single consignor of a conveyance for which all initial, intermediate, and final loading and unloading are carried out in accordance with the direction of the consignor or consignee. The consignor and the carrier must ensure that any loading or unloading is performed by personnel having radiological training and resources appropriate for safe handling of the consignment. The consignor must issue specific instructions, in writing, for maintenance of exclusive use shipment controls, and include them with the shipping paper information provided to the carrier by the consignor.

"Explosive material" means any chemical compound, mixture, or device that produces a substantial instantaneous release of gas and heat spontaneously or by contact with sparks or flame.

"Exposure" means being exposed to ionizing radiation or to radioactive material.

~~"Exposure" means the quotient of Dq by dm where "Dq" is the absolute value of the total charge of the ions of one sign produced in air when all the electrons (negatrons and positrons) liberated by photons in a volume element of air having mass "dm" are completely stopped in air. The SI unit of exposure is the coulomb per kilogram (C/kg). See 12VAC5-481-240 Units of Exposure and Dose for the special unit.~~

"Exposure head" means a device that locates the gamma radiography sealed source in the selected working position.

"Exposure rate" means the exposure per unit of time, such as roentgen per minute and milliroentgen per hour.

"External beam radiation therapy" means therapeutic irradiation in which the source of radiation is at a distance from the body.

"External dose" means that portion of the dose equivalent received from any source of radiation outside the body.

"Extremity" means hand, elbow, arm below the elbow, foot, knee, and leg below the knee.

~~"Eye dose equivalent" means the external dose equivalent to the lens of the eye at a tissue depth of 0.3 centimeter (300 mg/cm^2).~~

"Facility" means the location, building, vehicle, or complex under one administrative control, at which one or more radiation machines are installed, located and/or used.

"Fail-safe characteristics" mean a design feature that causes beam port shutters to close, or otherwise prevents emergence of the primary beam, upon the failure of a safety or warning device.

"Field emission equipment" means equipment that uses an X-ray tube in which electron emission from the cathode is due solely to the action of an electric field.

"Field-flattening filter" means a filter used to homogenize the absorbed dose rate over the radiation field.

"Field station" means a facility where radioactive sources may be stored or used and from which equipment is dispatched to temporary jobsites.

"Filter" means material placed in the useful beam to preferentially absorb selected radiations. It also means material placed in the useful beam to change beam quality in therapeutic radiation machines subject to Part XV (12VAC5-481-3380 et seq.) of this chapter.

"Filtering facepiece (dusk mask)" means a negative pressure particulate respirator with a filter as an integral part of the facepiece or with the entire facepiece composed of the filtering medium, not equipped with elastomeric sealing surfaces and adjustable straps.

"Fissile material" means ~~any special nuclear material consisting of or containing one or more fissile radionuclides. Fissile radionuclides are plutonium-238, plutonium-239, plutonium-241, uranium-233, and uranium-235. Neither natural nor depleted uranium is fissile material. Agency jurisdiction extends only to special nuclear material if quantities are not sufficient to form a critical mass as defined in Part I (12VAC5-481-10 et seq.) of this chapter~~ the radionuclides uranium-233, uranium-235, plutonium-239, and plutonium-241, or any combination of these radionuclides. "Fissile material" means the fissile nuclides themselves, not material containing fissile nuclides. Unirradiated natural uranium and depleted uranium and natural uranium or depleted uranium, that has been irradiated in thermal reactors only, are not included in this definition. Certain exclusions from fissile material controls are provided in 10 CFR 71.15.

1. Fissile Class I: A package that may be transported in unlimited numbers and in any arrangement, and that requires no nuclear criticality safety controls during transportation. A transport index is not assigned for purposes of nuclear criticality safety but may be required because of external radiation levels.

2. Fissile Class II: A package that may be transported together with other packages in any arrangement but, for criticality control, in numbers that do not exceed an aggregate transport index of 50. These shipments require no other nuclear criticality safety control during transportation. Individual packages may have a transport index not less than 0.1 and not more than 10.

"Fissile material package" means a fissile material packaging together with its fissile material contents.

"Fit factor" means a quantitative estimate of the fit of a particular respirator to a specific individual, and typically estimates the ratio of the concentration of a substance in ambient air to its concentration inside the respirator when worn.

"Fit test" means the use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual.

"Fluoroscopic imaging assembly" means a subsystem in which X-ray photons produce a visible image. It includes the image receptor(s) such as the image intensifier and spot-film device, electrical interlocks, if any, and structural material providing linkage between the image receptor and diagnostic source assembly.

"Focal spot (actual)" means the area projected on the anode of the X-ray tube bombarded by the electrons accelerated from the cathode and from which the useful beam originates.

"Former Atomic Energy Commission or ~~Nuclear Regulatory Commission~~ NRC licensed facilities" means nuclear reactors, nuclear fuel reprocessing plants, uranium enrichment plants, or critical mass experimental facilities where Atomic Energy Commission or ~~Nuclear Regulatory Commission~~ NRC licenses have been terminated.

"Gantry" means that part of a radiation therapy system supporting and allowing movements of the radiation head about a center of rotation.

"Generally applicable environmental radiation standards" means standards issued by the Environmental Protection Agency under the authority of the Atomic Energy Act of 1954, as amended, that impose limits on radiation exposures or levels, or concentrations or quantities of radioactive material, in the general environment outside the boundaries of

locations under the control of persons possessing or using radioactive material.

"General environment" means, as used in Part XVI (12VAC5-481-3460 et seq.) of this chapter, the total terrestrial, atmospheric, and aquatic environments outside the site boundary within which any activity, operation, or process authorized by a general or specific license issued under Part XVI, is performed.

"General purpose radiographic X-ray system" means any radiographic X-ray system which, by design, is not limited to radiographic examination of specific anatomical regions.

"Gonad shield" means a protective barrier for the testes or ovaries.

"Gray (Gy)" means the SI unit of absorbed dose. One gray is equal to an absorbed dose of one joule per kilogram (100 rad).

"Guide tube (protection sheath)" means a flexible or rigid tube, or "J" tube, for guiding the source assembly and the attached control cable from the exposure device to the exposure head. The guide tube may also include the connections necessary for attachment to the exposure device and to the exposure head.

"Half-value layer (HVL)" means the thickness of a specified material that attenuates X-radiation or gamma radiation to an extent such that the air kerma rate, exposure rate or absorbed dose rate is reduced to one-half of the value measured without the material at the same point.

"Hands-on experience" means experience in all of those areas considered to be directly involved in the radiography process, and includes taking radiographs, calibration of survey instruments, operational and performance testing of survey instruments and devices, film development, posting of radiation areas, transportation of radiography equipment, posting of records and radiation area surveillance, etc., as applicable. Excessive time spent in only one or two of these areas, such as film development or radiation area surveillance, should not be counted toward the 2,000 hours of hands-on experience required for a radiation safety officer in 12VAC5-481-1310 A 2 or the hands-on experience for a radiographer as required by 12VAC5-481-1320 A.

"Hazardous waste" means those wastes designated as hazardous by the Environmental Protection Agency regulations in 40 CFR Part 261.

"Healing arts" means the art or science or group of arts or sciences dealing with the prevention and cure or alleviation of ailments, diseases or infirmities, and has the same meaning as "medicine" when the latter term is used in its comprehensive sense.

"Healing arts screening" means the testing of human beings using X-ray machines for the detection or evaluation of health indications when such tests are not specifically and individually ordered by a licensed practitioner of the healing arts legally authorized to prescribe such X-ray tests for the purpose of diagnosis or treatment.

"Heat unit" means a unit of energy equal to the product of the peak kilovoltage, milliamperes, and seconds, such as (kVp) times (mA) times (seconds).

"Helmet" means a rigid respiratory inlet covering that also provides head protection against impact and penetration.

"High radiation area" means an area, accessible to individuals, in which radiation levels from radiation sources external to the body could result in an individual receiving a dose equivalent in excess of one mSv (0.1 rem) in one hour at 30 centimeters from any source of radiation or 30 centimeters from any surface that the radiation penetrates.

"Hood" means a respiratory inlet covering that completely covers the head and neck and may also cover portions of the shoulders and torso.

"Human use" means the internal or external administration of radiation or radioactive material to human beings.

"HVL" (See "Half-value layer").

"Hydrogeologic unit" means any soil or rock unit or zone which by virtue of its porosity or permeability, or lack thereof, has a distinct influence on the storage or movement of groundwater.

"Image intensifier" means a device, installed in its housing, that instantaneously converts an X-ray pattern into a corresponding light image of higher intensity.

"Image receptor" means any device, such as a fluorescent screen or radiographic film, that transforms incident X-ray photons either into a visible image or into another form that can be made into a visible image by further transformations.

"Image receptor support" means, for mammographic systems, that part of the system designed to support the image receptor during mammography.

"Inadvertent intruder" means a person who might occupy the disposal site after closure and engage in normal activities, such as agriculture, dwelling construction, or other pursuits in which an individual might be unknowingly exposed to radiation from the waste.

"Independent certifying organization" means an independent organization that meets the agency's criteria for documenting applicant's training in topics set forth in 12VAC5-481-1320 or equivalent agreement state or ~~Nuclear Regulatory Commission~~ NRC regulations.

"Individual" means any human being.

"Individual monitoring" means the assessment of:

1. Dose equivalent (i) by the use of individual monitoring devices or (ii) by the use of survey data; or

2. Committed effective dose equivalent (i) by bioassay or (ii) by determination of the time-weighted air concentrations to which an individual has been exposed, that is, DAC-hours. (See the definition of DAC)

"Individual monitoring devices" means devices designed to be worn by a single individual for the assessment of dose equivalent. For purposes of these regulations, "personnel dosimeter" and "dosimeter" are equivalent terms. Examples of individual monitoring devices are film badges, thermoluminescent dosimeters (TLDs), pocket ionization chambers, optically stimulated luminescence (OSL) dosimeters and personal air sampling devices.

"Industrial radiography" means an examination of the structure of materials by the nondestructive method of utilizing ionizing radiation to make radiographic images.

"Inhalation class" (See "Class").

"Inherent filtration" means the filtration of the useful beam provided by the permanently installed components of the tube housing assembly.

"Injection tool" means a device used for controlled subsurface injection of radioactive tracer material.

"Inspection" means an official examination or observation including, but not limited to, tests, surveys, and monitoring to determine compliance with rules, regulations, orders, requirements, and conditions of the agency.

"Institutional controls" means: (i) permanent markers placed at a disposal site, (ii) public records and archives, (iii) government ownership and regulations regarding land or resource use, and (iv) other methods of preserving knowledge about the location, design, and contents of a disposal system.

"Instrument traceability" (for ionizing radiation measurements) means the ability to show that an instrument has been calibrated at specified time intervals using a national standard or a transfer standard. If a transfer standard is used, the calibration must be at a laboratory accredited by a program that requires continuing participation in measurement quality assurance with the National Institute of Standards and Technology or other equivalent national or international program.

"Interlock" means a device arranged or connected such that the occurrence of an event or condition is required before a second event or condition can occur or continue to occur.

"Internal dose" means that portion of the dose equivalent received from radioactive material taken into the body.

"Interruption of irradiation" means the stopping of irradiation with the possibility of continuing irradiation without resetting of operating conditions at the control panel.

"Intruder barrier" means a sufficient depth of cover over the waste that inhibits contact with waste and helps to ensure that radiation exposures to an inadvertent intruder will meet the performance objectives set forth in these regulations, or engineered structures that provide equivalent protection to the inadvertent intruder.

"Irradiation" means the exposure of matter to ionizing radiation.

"Irradiator" means a facility that uses radioactive sealed sources for the irradiation of objects or materials and in which radiation dose rates exceeding five grays (500 rads) per hour exist at one meter from the sealed radioactive sources in air or water, as applicable for the irradiator type, but does not include irradiators in which both the sealed source and the area subject to irradiation are contained within a device and are not accessible to personnel.

"Irradiator operator" means an individual who has successfully completed the training and testing described in 12VAC5-481-2830 and is authorized by the terms of the license to operate the irradiator without a supervisor present.

"Irradiator operator supervisor" means an individual who meets the requirements for an irradiator operator and who physically oversees operation of the irradiator by an individual who is currently receiving training and testing described in 12VAC5-481-2830.

"Isocenter" means the center of the sphere through which the useful beam axis passes while the gantry moves through its full range of motions.

"kBq" means kilabecquerels.

"Kilovolt (kV) (kilo electron volt (keV))" means the energy equal to that acquired by a particle with one electron charge in passing through a potential difference of 1,000 volts in a vacuum. Current convention is to use kV for photons and keV for electrons.

"Kilovolts peak" (See "Peak tube potential").

"kV" means kilovolts.

"kVp" (See "Peak tube potential").

"kWs" means kilowatt second.

"Land disposal facility" means the land, buildings, structures and equipment that is intended to be used for the disposal of wastes into the subsurface of the land. For purposes of this chapter, a "geologic repository" as defined in 10 CFR Part 60 or 10 CFR Part 63 is not considered a land disposal facility.

"Lay-barge radiography" means industrial radiography performed on any water vessel used for laying pipe.

"Lead equivalent" means the thickness of the material in question affording the same attenuation, under specified conditions, as lead.

"Leakage radiation" means radiation emanating from the diagnostic source assembly except for:

1. The useful beam; and

2. Radiation produced when the exposure switch or timer is not activated.

"Leakage technique factors" means the technique factors associated with the diagnostic source assembly that are used in measuring leakage radiation. They are defined as follows:

1. For diagnostic source assemblies intended for capacitor energy storage equipment, the maximum-rated peak tube potential and the maximum-rated number of exposures in an hour for operation at the maximum-rated peak tube potential with the quantity of charge per exposure being 10 millicoulombs, i.e., 10 milliampere seconds, or the minimum obtainable from the unit, whichever is larger;

2. For diagnostic source assemblies intended for field emission equipment rated for pulsed operation, the maximum-rated peak tube potential and the maximum-rated number of X-ray pulses in an hour for operation at the maximum-rated peak tube potential;

3. For all other diagnostic source assemblies, the maximum-rated peak tube potential and the maximum-rated continuous tube current for the maximum-rated peak tube potential.

"Lens dose equivalent (LDE)" applies to the external exposure of the lens of the eye and is taken as the dose equivalent at a tissue depth of 0.3 cm (300 mg/cm^2).

"License" means a license issued by the agency in accordance with the regulations adopted by the ~~agency~~ board.

"Licensed material" means radioactive material received, possessed, used, transferred or disposed of under a general or specific license issued by the agency.

"Licensee" means any person who is licensed by the agency in accordance with these regulations and the Act.

~~"Licensing state" means any state that has been finally designated as such by the Conference of Radiation Control Program Directors, Inc., that reviews state regulations to establish equivalency with the Suggested State Regulations and ascertains whether a state has an effective program for control of natural occurring or accelerator produced radioactive material (NARM). The conference will designate as licensing states those states with regulations for control of radiation relating to, and an effective program for, the regulatory control of NARM.~~

"Light field" means that area of the intersection of the light beam from the beam-limiting device and one of the set of planes parallel to and including the plane of the image receptor, whose perimeter is the locus of points at which the illumination is one-fourth of the maximum in the intersection.

"Limits" (See "Dose limits").

"Line-voltage regulation" means the difference between the no-load and the load line potentials expressed as a percentage of the load line potential. It is calculated using the following equation:

Percent line-voltage regulation = 100 $(V_n-V_l)/V_l$

where:

V_n = No-load line potential; and

V_l = Load line potential.

"Lixiscope" means a portable light-intensified imaging device using a sealed source.

"Local components" mean part of an analytical X-ray system and include areas that are struck by X-rays such as radiation source housings, port and shutter assemblies, collimators, sample holders, cameras, goniometers, detectors, and shielding, but do not include power supplies, transformers, amplifiers, readout devices, and control panels.

"Logging assistant" means any individual who, under the personal supervision of a logging supervisor, handles sealed sources or tracers that are not in logging tools or shipping containers or who performs surveys required by Part XIV (12VAC5-481-3140 et seq.) of this chapter.

"Logging supervisor" means the individual who uses sources of radiation or provides personal supervision of the utilization of sources of radiation at the well site.

"Logging tool" means a device used subsurface to perform well-logging.

"Loose-fitting facepiece" means a respiratory inlet covering that is designed to form a partial seal with the face.

"Lost or missing ~~source of radiation~~ licensed material" means licensed (or registered) source of radiation whose location is unknown. This definition includes, but is not limited to, radioactive material that has been shipped but has not reached its planned destination and whose location cannot be readily traced in the transportation system.

"Lot tolerance percent defective" means, expressed in percent defective, the poorest quality in an individual inspection lot that should be accepted.

"Low specific activity (LSA) material" means radioactive material with limited specific activity that is nonfissile or is excepted under 12VAC5-481-2970 C, and that satisfies the descriptions and limits set forth below. Shielding materials surrounding the LSA material may not be considered in determining the estimated average specific activity of the package contents. LSA material must be in one of three groups:

1. LSA-I

a. ~~Ores containing only naturally occurring radionuclides (for example, uranium or thorium decay series radionuclides) and uranium or thorium concentrates of such ores~~ Uranium and thorium ores, concentrates of uranium and thorium ores, and other ores containing naturally occurring radioactive radionuclide that are not intended to be processed for the use of these radionuclides; ~~or~~

b. Solid unirradiated natural uranium or depleted uranium or natural thorium or their solid or liquid compounds or mixtures; ~~or~~

c. Radioactive material, ~~other than fissile material,~~ for which the A_2 value is unlimited; or

d. ~~Mill tailings, contaminated earth, concrete, rubble, other bulk debris, and activated material in which the radioactive material is essentially uniformly distributed, and the average specific activity does not exceed 1.0 E-06 A_2/g~~ Other radioactive material in which the activity is distributed throughout and the estimated average specific activity does not exceed 30 times the value for exempt material activity concentration determined in accordance with 12VAC5-481-3720.

2. LSA-II

a. Water with tritium concentration up to 0.8 terabecquerel per liter (20.0 Ci/L); or

b. ~~Material~~ Other material in which the ~~radioactive material~~ activity is distributed throughout, and the average specific activity does not exceed 1.0 E-04 A_2/g for solids and gases, and 1.0 E-05 A_2/g for liquids.

3. LSA-III

Solids (e.g., consolidated wastes, activated materials), excluding powders, that satisfy the requirements of 10 CFR 71.77) in which:

a. The radioactive material is distributed throughout a solid or a collection of solid objects, or is essentially uniformly distributed in a solid compact binding agent (for example: concrete, bitumen, or ceramic); ~~and~~

b. The radioactive material is relatively insoluble, or it is intrinsically contained in a relatively insoluble material, so that, even under loss of packaging, the loss of radioactive material per package by leaching, when placed in water for seven days, would not exceed 0.1 A_2; and

c. The estimated average specific activity of the solid does not exceed 2.0 E-03 A_2/g.

"Low toxicity alpha emitters" means natural uranium, depleted uranium, natural thorium; uranium-235, uranium-238, thorium-232, thorium-228 or thorium-230 when contained in ores or physical or chemical concentrates or tailings; or alpha emitters with a half-life of less than 10 days.

"Lung class" (See "Class").

"mA" means milliampere.

"mAs" means milliampere second.

"Major processor" means a user processing, handling, or manufacturing radioactive material exceeding Type A quantities as unsealed sources or material, or exceeding four times Type B quantities as sealed sources, but does not include nuclear medicine programs, universities, industrial radiographers, or small industrial programs. Type A and B quantities are defined in this section.

"Maximum line current" means the root-mean-square current in the supply line of an X-ray machine operating at its maximum rating.

"Management" means the chief executive officer or that individual's designee.

"MBq" means megabecquerels.

"Medical event" means an event that meets the criteria in 12VAC5-481-2080.

"Medical institution" means an organization in which several medical disciplines are practiced.

"Medical use" means the intentional internal or external administration of radioactive material or the radiation from radioactive material to patients or human research subjects under the supervision of an authorized user.

"Megavolt (MV) (mega electron volt (MeV))" means the energy equal to that acquired by a particle with one electron charge in passing through a potential difference of one million volts in a vacuum. (Note: current convention is to use MV for photons and MeV for electrons.)

"Member of the public" means an individual except when that individual is receiving an occupational dose.

~~"Medical use" means the intentional internal or external administration of radioactive material, or the radiation therefrom, to humans in the practice of the healing arts.~~

"Mineral logging" means any logging performed for the purpose of mineral exploration other than oil or gas.

"Minor" means an individual less than 18 years of age.

~~"Misadministration" means the administration of:~~

~~1. A radiopharmaceutical dosage greater than 1.11 megabecquerels (30 mCi) of either sodium iodide I-125 or I-131:~~

~~a. Involving the wrong patient or wrong radiopharmaceutical; or~~

~~b. When both the administered dosage differs from the prescribed dosage by more than 20% of the prescribed dosage and the difference between the administered dosage and prescribed dosage exceeds 1.11 megabecquerels (30 mCi);~~

~~2. A therapeutic radiopharmaceutical dosage, other than sodium iodide I-125 or I-131:~~

~~a. Involving the wrong patient, wrong radiopharmaceutical, or wrong route of administration; or~~

~~b. When the administered dosage differs from the prescribed dosage by more than 20% of the prescribed dosage;~~

~~3. A gamma stereotactic radiosurgery radiation dose:~~

~~a. Involving the wrong patient or wrong treatment site; or~~

~~b. When the calculated total administered dose differs from the total prescribed dose by more than 10% of the total prescribed dose;~~

~~4. A teletherapy radiation dose:~~

~~a. Involving the wrong patient, wrong mode of treatment, or wrong treatment site; or~~

~~b. When the treatment consists of three or fewer fractions and the calculated total administered dose differs from the total prescribed dose by more than 10% of the total prescribed dose; or~~

~~c. When the calculated weekly administered dose exceeds the weekly prescribed dose by 30% or more of the weekly prescribed dose; or~~

~~d. When the calculated total administered dose differs from the total prescribed dose by more than 20% of the total prescribed dose;~~

~~5. A brachytherapy radiation dose:~~

~~a. Involving the wrong patient, wrong radionuclide, or wrong treatment site (excluding, for permanent implants, seeds that were implanted in the correct site but migrated outside the treatment site); or~~

~~b. Involving a sealed source that is leaking; or~~

~~c. When, for a temporary implant, one or more sealed sources are not removed upon completion of the procedure; or~~

~~d. When the calculated administered dose differs from the prescribed dose by more than 20% of the prescribed dose;~~

~~6. A diagnostic radiopharmaceutical dosage, other than quantities greater than 1.11 megabecquerels (30 mCi) of either sodium iodide I-125 or I-131, both:~~

~~a. Involving the wrong patient, wrong radiopharmaceutical, wrong route of administration, or when the administered dosage differs from the prescribed dosage; and~~

~~b. When the dose to the patient exceeds 50 millisieverts (5 rem) effective dose equivalent or 500 millisieverts (50 rem) dose equivalent to any individual organ.~~

"Mobile nuclear medicine service" means the transportation and medical use of radioactive material.

"Mobile X-ray equipment" (See "X-ray equipment").

"Monitor unit (MU)" (See "Dose monitor unit").

"Monitoring" means the measurement of radiation, radioactive material concentrations, surface area activities or quantities of radioactive material and the use of the results of these measurements to evaluate potential exposures and doses. For purposes of these regulations, "radiation monitoring" and "radiation protection monitoring" are equivalent terms. For Part XI (12VAC5-481-2330 et seq.) of this chapter, it means observing and making measurements to provide data to evaluate the performance and characteristics of the disposal site.

"Moving beam radiation therapy" means radiation therapy with any planned displacement of radiation field or patient relative to each other, or with any planned change of absorbed dose distribution. It includes arc, skip, conformal, intensity modulation and rotational therapy.

"Multiple tomogram system" means a computed tomography X-ray system that obtains X-ray transmission data simultaneously during a single scan to produce more than one tomogram.

"NARM" means any naturally occurring or accelerator-produced radioactive material. It does not include byproduct, source, or special nuclear material.

"Nationally tracked source" means a sealed source containing a quantity equal to or greater than Category 1 or Category 2 levels of any radioactive material listed in 12VAC5-481-3780. In this context a sealed source is defined as radioactive material that is sealed in a capsule or closely bonded, in a solid form and that is not exempt from regulatory control. It does not mean material encapsulated solely for disposal, or nuclear material contained in any fuel assembly, subassembly, fuel rod, or fuel pellet. Category 1 nationally tracked sources are those containing radioactive material at a quantity equal to or greater than the Category 1 threshold. Category 2 nationally tracked sources are those containing radioactive material at a quantity equal to or greater than the Category 2 threshold but less than the Category 1 threshold.

"Natural radioactivity" means radioactivity of naturally occurring nuclides.

"Natural thorium" means thorium ~~isotopes~~ with ~~a~~ the naturally occurring distribution of thorium isotopes, which is essentially 100 weight percent thorium-232.

"Natural uranium" (See "Uranium – natural, depleted, enriched").

"Near-surface disposal facility" means a land disposal facility in which waste is disposed of within approximately the upper 30 meters of the earth's surface.

"Negative pressure respirator (tight fitting)" means a respirator in which the air pressure inside the facepiece is negative during inhalation with respect to the ambient air pressure outside the respirator.

"Noise" means the standard deviation of the fluctuations in CTN expressed as a percentage of the attenuation coefficient of water. Its estimate (S_n) is calculated using the following expression:

$$S_n = \frac{100 \cdot \overline{CS} \cdot s}{\mu_w}$$

where:

$\overline{CS}$ = Linear attenuation coefficient of the material of interest.

μ_w = Linear attenuation coefficient of water.

s = Standard deviation of the CTN of picture elements in a specified area of the CT image.

"Nominal tomographic section thickness" means the full width at half-maximum of the sensitivity profile taken at the center of the cross-sectional volume over which X-ray transmission data are collected.

"Nonstochastic effect" means a health effect, the severity of which varies with the dose and for which a threshold is believed to exist. Radiation-induced cataract formation is an example of a nonstochastic effect. For purposes of these regulations, "deterministic effect" is an equivalent term.

"NORM" means any naturally occurring radioactive material. It does not include accelerator produced, byproduct, source, or special nuclear material.

"Normal form radioactive material" means radioactive material that has not been demonstrated to qualify as special form radioactive material.

"Normal operating procedures" mean step-by-step instructions necessary to accomplish the analysis. These procedures shall include sample insertion and manipulation, equipment alignment, routine maintenance by the registrant (or licensee), and data recording procedures, which are related to radiation safety.

"Nominal treatment distance" means:

1. For electron irradiation, the distance from the scattering foil, virtual source, or exit window of the electron beam to the entrance surface of the irradiated object along the central axis of the useful beam.

2. For X-ray irradiation, the virtual source or target to isocenter distance along the central axis of the useful beam. For nonisocentric equipment, this distance shall be that specified by the manufacturer.

"Nuclear Regulatory Commission (NRC)" means the ~~Nuclear Regulatory Commission~~ NRC or its duly authorized representatives.

"Nuclear waste" means a quantity of source, byproduct or special nuclear material (the definition of nuclear waste in this part is used in the same way as in 49 CFR 173.403) required to be in ~~United States Nuclear Regulatory Commission approved~~ NRC-approved specification packaging while transported to, through or across a state boundary to a disposal site, or to a collection point for transport to a disposal site.

"Occupational dose" means the dose received by an individual in the course of employment in which the individual's assigned duties for the licensee or registrant involve exposure to sources of radiation, whether or not the sources of radiation are in the possession of the licensee, registrant, or other person. Occupational dose does not include doses received~~:~~ from background radiation, ~~or~~ from any medical administration the individual has received, from exposure to individuals administered radioactive material and released in accordance with 12VAC5-481-1870, ~~or~~ from voluntary participation in medical research programs, or as a member of the public.

"Offshore platform radiography" means industrial radiography conducted from a platform over a body of water.

"Offshore waters" means that area of land and water, beyond the Commonwealth of Virginia's jurisdiction, on or above the U.S. Outer Continental Shelf.

"Open-beam configuration" means an analytical X-ray system in which an individual could accidentally place some part of his body in the primary beam path during normal operation.

"Output" means the exposure rate, dose rate, or a quantity related in a known manner to these rates from a teletherapy unit for a specified set of exposure conditions.

"Package" means the packaging together with its radioactive contents as presented for transport.

1. Fissile material package or Type AF package, Type BF package, Type B(U)F package, or Type B(M)F package means a fissile material packaging together with its fissile material contents.

2. Type A package means a Type A packaging together with its radioactive contents. A Type A package is defined and must comply with the DOT regulations in 49 CFR Part 173.

3. Type B package means a Type B packaging together with its radioactive contents. On approval, a Type B package design is designated by NRC as B(U) unless the package has a maximum normal operating pressure of more than 700 kPa (100 lbs/in^2) gauge or a pressure relief device that would allow the release of radioactive material to the environment under the tests specified in 10 CFR 71.73 (hypothetical accident conditions), in which case it will receive a designation B(M). B(U) refers to the need for unilateral approval of international shipments; B(M) refers to the need for multilateral approval of international shipments. There is no distinction made in how packages with these designations may be used in domestic transportation. To determine their distinction for international transportation, see DOT regulations in 49 CFR Part 173. A Type B package approved before September 6, 1983, was designated only as Type B. Limitations on its use are specified in 10 CFR 71.19.

"Packaging" means the assembly of components necessary to ensure compliance with the packaging requirements of these regulations. It may consist of one or more receptacles, absorbent materials, spacing structures, thermal insulation, radiation shielding, and devices for cooling or absorbing mechanical shocks. The vehicle, tie-down system, and auxiliary equipment may be designated as part of the packaging.

"Panoramic dry-source-storage irradiator" means an irradiator in which the irradiations occur in air in areas potentially accessible to personnel and in which the sources are stored in shields made of solid materials. The term includes beam-type dry-source-storage irradiators in which only a narrow beam of radiation is produced for performing irradiations.

"Panoramic irradiator" means an irradiator in which the irradiations are done in air in areas potentially accessible to personnel. The term includes beam-type irradiators.

"Panoramic wet-source-storage irradiator" means an irradiator in which the irradiations occur in air in areas potentially accessible to personnel and in which the sources are stored under water in a storage pool.

"Particle accelerator" (See "Accelerator").

"Patient" means an individual or animal subjected to healing arts examination, diagnosis, or treatment.

"PBL" (See "Positive beam limitation").

"Peak tube potential" means the maximum value of the potential difference across the X-ray tube during an exposure.

"Periodic quality assurance check" means a procedure that is performed to ensure that a previous calibration continues to be valid.

"Permanent radiographic installation" means an enclosed shielded room, cell, or vault, not located at a temporary jobsite, in which radiography is performed.

"Person" means any individual, corporation, partnership, firm, association, trust, estate, public or private institution, group, ~~agency~~ department of the Commonwealth other than the Department of Health, political subdivision of ~~this state~~ the Commonwealth, any other state or political subdivision or ~~agency~~ department thereof, and any legal successor, representative, agent, or ~~agency~~ department of the foregoing, ~~(~~but ~~shall~~ not ~~include~~ including federal government agencies~~)~~.

~~"Personal monitoring equipment" (See "Individual monitoring devices").~~

"Personal supervision" means guidance and instruction by the supervisor who is physically present at the jobsite and watching the performance of the operation in such proximity that contact can be maintained and immediate assistance given as required. In radiography it means guidance and instruction provided to a radiographer trainee by a radiographer instructor who is present at the site, in visual contact with the trainee while the trainee is using sources of radiation, and in such proximity that immediate assistance can be given if required.

"Personnel monitoring equipment" (See "Individual monitoring devices").

"Phantom" means a volume of material behaving in a manner similar to tissue with respect to the attenuation and scattering of radiation. This requires that both the atomic number (Z) and the density of the material be similar to that of tissue.

"Pool irradiator" means any irradiator at which the sources are stored or used in a pool of water including panoramic wet-source-storage irradiators and underwater irradiators.

"Pharmacist" means an individual licensed by this state to compound and dispense drugs, prescriptions, and poisons.

"Physician" means an individual licensed by this state to ~~dispense~~ prescribe drugs in the practice of medicine.

"Picture element" means an elemental area of a tomogram.

"PID" (See "Position indicating device").

"Pigtail" (See "Source assembly").

"Pill" (See "Sealed source").

"Planned special exposure" means an infrequent exposure to radiation, separate from and in addition to the annual occupational dose limits.

"Portable X-ray equipment" (See "X-ray equipment").

"Position indicating device" means a device on dental X-ray equipment used to indicate the beam position and to establish a definite source-surface (skin) distance. It may or may not incorporate or serve as a beam-limiting device.

"Positive beam limitation" means the automatic or semi-automatic adjustment of an X-ray beam to the size of the selected image receptor, whereby exposures cannot be made without such adjustment.

~~"Primary beam" means radiation that passes through an aperture of the source housing by a direct path from the X-ray tube or a radioactive source located in the radiation source housing.~~

~~"Primary dose monitoring system" means a system that will monitor the useful beam during irradiation and that will terminate irradiation when a preselected number of dose monitor units have been delivered.~~

~~"Primary protective barrier" (See "Protective barrier").~~

"Positive emission tomography (PET) radionuclide production facility" means a facility operating a cyclotron or accelerator for the purpose of producing PET radionuclides.

"Positive pressure respirator" means a respirator in which the pressure inside the respiratory inlet covering exceeds the ambient air pressure outside the respirator.

"Powered air-purifying respirator (PAPR)" means an air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering.

"Practical examination" means a demonstration through application of the safety rules and principles in industrial radiography including use of all procedures and equipment to be used by radiographic personnel.

"Practical range of electrons" corresponds to classical electron range where the only remaining contribution to dose is from bremsstrahlung X-rays. A further explanation may be found in "Clinical Electron Beam Dosimetry: Report of AAPM Radiation Therapy Committee Task Group 25" (Medical Physics 18(1): 73-109, Jan/Feb. 1991) and ICRU Report 35, "Radiation Dosimetry: Electron Beams with Energies Between 1 and 50 MeV", International Commission on Radiation Units and Measurements, September 15, 1984.

"Preceptor" means an individual who provides, directs, or verifies training and experience required for an individual to become an authorized user, an authorized medical physicist, an authorized nuclear pharmacist, or a radiation safety officer.

"Prescribed dosage" means the quantity of radiopharmaceutical activity as documented:

1. In a written directive; or

2. Either in the diagnostic clinical procedures manual or in any appropriate record in accordance with the directions of the authorized user for diagnostic procedures.

"Prescribed dose" means:

1. For gamma stereotactic radiosurgery, the total dose as documented in the written directive; or

2. For teletherapy, the total dose and dose per fraction as documented in the written directive; or

3. For brachytherapy, either the total source strength and exposure time, or the total dose, as documented in the written directive.

"Pressure demand respirator" means a positive pressure atmosphere-supplying respirator that admits breathing air to the facepiece when the positive pressure is reduced inside the facepiece by inhalation.

"Primary beam" means radiation that passes through an aperture of the source housing by a direct path from the X-ray tube or a radioactive source located in the radiation source housing.

"Primary dose monitoring system" means a system that will monitor the useful beam during irradiation and that will terminate irradiation when a preselected number of dose monitor units have been delivered.

"Primary protective barrier" (See "Protective barrier").

"Principal activities," as used in this chapter, means activities authorized by the license that are essential to achieving the purpose(s) for which the license was issued or amended. Storage during which no licensed material is accessed for use or disposal and activities incidental to decontamination or decommissioning are not principal activities.

"Private inspector" means an individual who meets the requirements set forth in 12VAC5-481-340 and who has demonstrated to the satisfaction of the agency that such individual possesses the knowledge, training and experience to measure ionizing radiation, to evaluate safety techniques, and to advise regarding radiation protection needs.

"Product" means, as used in Part XVI (12VAC5-481-3460 et seq.) of this chapter, something produced, made, manufactured, refined, or benefited.

"Product conveyor system" means a system for moving the product to be irradiated to, from, and within the area where irradiation takes place.

"Projection sheath" (See "Guide tube").

"Projector" (See "Radiographic exposure device").

"Protective apron" means an apron made of radiation-attenuating or absorbing materials used to reduce exposure to radiation.

"Protective barrier" means a barrier of radiation absorbing material(s) used to reduce radiation exposure. The types of protective barriers are as follows:

1. "Primary protective barrier" means the material, excluding filters, placed in the useful beam;

2. "Secondary protective barrier" means the material that attenuates stray radiation.

"Protective glove" means a glove made of radiation absorbing materials used to reduce radiation exposure.

"Public dose" means the dose received by a member of the public from exposure to sources of radiation released by the licensee or registrant, or to any other source of radiation under the control of the licensee or registrant. Public dose does not include occupational dose, or doses received from background radiation, from any medical administration the individual has received, from exposure to individuals administered radioactive material and released in accordance with 12VAC5-481-1870, or from voluntary participation in medical research programs.

"Pyrophoric material" means any liquid that ignites spontaneously in dry or moist air at or below 130°F (54.4°C) or any solid material, other than one classed as an explosive, which under normal conditions is liable to cause fires through friction, retained heat from manufacturing or processing, or that can be ignited readily and, when ignited, burns so vigorously and persistently as to create a serious transportation, handling, or disposal hazard. Included are spontaneously combustible and water-reactive materials.

"Qualitative fit test (QLFT)" means a pass/fail fit test to assess the adequacy of respirator fit that relies on the individual's response to the test agent.

"Quality factor" (Q) means the modifying factor, that is referenced in 12VAC5-481-240, that is used to derive dose equivalent from absorbed dose.

"Quantitative fit test (QNFT)" means an assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.

"Quarter" means a period of time equal to one-fourth of the year observed by the licensee, approximately 13 consecutive weeks, providing that the beginning of the first quarter in a year coincides with the starting date of the year and that no day is omitted or duplicated in consecutive quarters.

"Rad" means the special unit of absorbed dose. One rad is equal to an absorbed dose of 100 erg per gram or 0.01 joule per kilogram (0.01 gray).

~~"Radioactive marker" means radioactive material placed subsurface or on a structure intended for subsurface use for the purpose of depth determination or direction orientation.~~

"Radiation" means alpha particles, beta particles, gamma rays, X-rays, neutrons, high-speed electrons, high-speed protons, and other particles capable of producing ions. For purposes of these regulations, ionizing radiation is an equivalent term. Radiation, as used in these regulations, does not include nonionizing radiation, such as radiowaves or microwaves, visible, infrared, or ultraviolet light.

"Radiation area" means any area, accessible to individuals, in which radiation levels could result in an individual receiving a dose equivalent in excess of 0.05 mSv (0.005 rem) in one hour at 30 centimeters from the source of radiation or from any surface that the radiation penetrates.

~~"Radiation detector" means a device which in the presence of radiation provides a signal or other indication suitable for use in measuring one or more quantities of incident radiation.~~

"Radiation dose" (See "Dose").

"Radiation field" (See "Useful beam").

"Radiation head" means the structure from which the useful beam emerges.

"Radiation machine" means any device capable of producing radiation except those devices with radioactive material as the only source of radiation.

"Radiation room" means a shielded room in which irradiations take place. Underwater irradiators do not have radiation rooms.

"Radiation safety officer (RSO)" means an individual who has the knowledge and responsibility to apply appropriate radiation protection regulations and has been assigned such responsibility by the licensee or registrant.

"Radiation safety officer for industrial radiography" means an individual with the responsibility for the overall radiation safety program on behalf of the licensee or registrant and who meets the requirements of 12VAC5-481-1310.

"Radiation safety officer for medical" means an individual who meets the requirements of 12VAC5-481-1750 and 12VAC5-481-1790 and is identified as an RSO on: a medical use license issued by the agency, NRC or another agreement state, or a medical use permit issued by an NRC masters material licensee.

"Radiation therapy physicist" means an individual qualified in accordance with 12VAC5-481-340.

"Radiation therapy simulation system" means a radiographic or fluoroscopic X-ray system intended for localizing the volume to be exposed during radiation therapy and confirming the position and size of the therapeutic irradiation field.

"Radioactive material" means any solid, liquid, or gas which emits radiation spontaneously.

"Radioactive marker" means radioactive material placed subsurface or on a structure intended for subsurface use for the purpose of depth determination or direction orientation.

"Radioactivity" means the transformation of unstable atomic nuclei by the emission of radiation.

"Radiobioassay" (See "Bioassay").

"Radiograph" means an image receptor on which the image is created directly or indirectly by an X-ray pattern and results in a permanent record.

"Radiographer" means any individual who performs or who, in attendance at the site where the sources of radiation are being used, personally supervises industrial radiographic operations and who is responsible to the licensee or registrant for assuring compliance with the requirements of the agency's regulations and the conditions of the license or registration.

"Radiographer certification" means written approval received from a certifying entity stating that an individual has satisfactorily met the radiation safety, testing, and experience criteria in 12VAC5-481-1320.

"Radiographer instructor" means any radiographer who has been authorized by the agency to provide on-the-job training to radiographer trainees in accordance with Part V (12VAC5-481-1170 et seq.) of this chapter.

"Radiographer trainee" means any individual who, under the personal supervision of a radiographer instructor, uses sources of radiation, related handling tools, or radiation survey instruments during the course of his instruction.

"Radiographer's assistant" means any individual who under the direct supervision of a radiographer, uses radiographic exposure devices, sources of radiation, related handling tools, or radiation survey instruments in industrial radiography.

"Radiographic exposure device" means any instrument containing a sealed source fastened or contained therein, in which the sealed source or shielding thereof may be moved, or otherwise changed, from a shielded to unshielded position for purposes of making a radiographic exposure.

"Radiographic imaging system" means any system whereby a permanent or semi-permanent image is recorded on an image receptor by the action of ionizing radiation.

~~"Radiographer instructor" means any radiographer who has been authorized by the agency to provide on the job training to radiographer trainees in accordance with Part V (12VAC5-481-1170 et seq.) of this chapter.~~

"Radiographic operations" means all activities performed with a radiographic exposure device, or with a radiation machine. Activities include using, transporting except by common or contract carriers, or storing at a temporary job site, performing surveys to confirm the adequacy of boundaries, setting up equipment, and any activity inside restricted area boundaries. Transporting a radiation machine is not considered a radiographic operation.

~~"Radiographer trainee" means any individual who, under the personal supervision of a radiographer instructor, uses sources of radiation, related handling tools, or radiation survey instruments during the course of his instruction.~~

~~"Radiographic exposure device" means any instrument containing a sealed source fastened or contained therein, in which the sealed source or shielding thereof may be moved, or otherwise changed, from a shielded to unshielded position for purposes of making a radiographic exposure.~~

"Radiographic personnel" means any radiographer, radiographer instructor, or radiographer trainee.

"Radiography" (See "Industrial radiography").

"Rating" means the operating limits as specified by the component manufacturer.

"Reasonably maximally exposed individual" means, as used in Part XVI (12VAC5-481-3460 et seq.) of this chapter, a representative of a population who is exposed to TENORM at the maximum TENORM concentration measured in environmental media found at a site along with reasonable maximum case exposure assumptions. The exposure is determined by using maximum values for one or more of the most sensitive parameters affecting exposure, based on cautious but reasonable assumptions, while leaving the others at their mean value.

~~"Recordable event" means the administration of:~~

~~1. A radiopharmaceutical or radiation without a written directive where a written directive is required;~~

~~2. A radiopharmaceutical or radiation where a written directive is required without daily recording of each administered radiopharmaceutical dosage or radiation dose in the appropriate record;~~

~~3. A radiopharmaceutical dosage greater than 1.11 megabecquerels (30 mCi) of sodium iodide I-125 or I-131 when both the administered dosage differs from the prescribed dosage by more than 10% of the prescribed dosage, and the difference between the administered dosage and the prescribed dosage exceeds 555 kilobecquerels (15 mCi);~~

~~4. A therapeutic radiopharmaceutical dosage, other than sodium iodide I-125 or I-131, when the administered dosage differs from the prescribed dosage by more than 10% of the prescribed dosage;~~

~~5. A teletherapy radiation dose when the calculated weekly administered dose exceeds the weekly prescribed dose by 15% or more of the weekly prescribed dose; or~~

~~6. A brachytherapy radiation dose when the calculated administered dose differs from the prescribed dose by more than 10% of the prescribed dose.~~

"Recording" means producing a permanent form of an image resulting from X-ray photons.

"Redundant beam monitoring system" means a combination of two dose monitoring systems in which each system is designed to terminate irradiation in accordance with a preselected number of dose monitor units.

"Reference man" means a hypothetical aggregation of human physical and physiological characteristics determined by international consensus. These characteristics may be used by researchers and public health employees to standardize results of experiments and to relate biological insult to a common base. A description of the reference man is contained in the International Commission on Radiological Protection report, ICRP Publication 23, "Report of the Task Group on Reference Man."

"Reference plane" means a plane that is displaced from and parallel to the tomographic plane.

"Registrant" means any person who is registered with the agency and is legally obligated to register with the agency pursuant to these regulations and the Act.

"Registration" means registration with the agency in accordance with the regulations adopted by the agency.

"Regulations of the United States Department of Transportation" means the regulations in 49 CFR Parts 100-189.

"Rem" means the special unit of any of the quantities expressed as dose equivalent. The dose equivalent in ~~rem~~ rems is equal to the absorbed dose in rad multiplied by the quality factor (1 rem = 0.01 Sv).

"Research and development" means (i) theoretical analysis, exploration, or experimentation; or (ii) the extension of investigative findings and theories of a scientific or technical nature into practical application for experimental and demonstrative purposes, including the experimental production and testing of models, devices, equipment, materials, and processes. Research and development does not include the internal or external administration of radiation or radioactive ~~mater~~ material to human beings.

"Residential location" means any area where structures in which people lodge or live are located, and the grounds on which such structures are located including, but not limited to, houses, apartments, condominiums, and garages.

"Residual radioactive material" means (i) waste (that the Secretary of Energy determines to be radioactive) in the form of tailings resulting from the processing of ores for the extraction of uranium and other valuable constituents of the ores and (ii) other waste (that the Secretary of Energy determines to be radioactive) at a processing site that relates to such processing, including any residual stock of unprocessed ores or low-grade materials. This term is used only with respect to materials at sites subject to remediation under Title I of the Uranium Mill Tailings Radiation Control Act of 1978, as amended.

"Residual radioactivity" means radioactivity in structures, materials, soils, groundwater, and other media at a site resulting from activities under the licensee's control. This includes radioactivity from all licensed and unlicensed sources used by the licensee, but excludes background radiation. It also includes radioactive materials remaining at the site as a result of routine or accidental releases of radioactive materials at the site and previous burials at the site, even if those burials were made in accordance with the provisions of Part IV (12VAC5-481-600 et seq.) of this chapter.

"Respiratory protective ~~equipment~~ device" means an apparatus, such as a respirator, used to reduce an individual's intake of airborne radioactive materials.

"Restricted area" means an area, access to which is limited by the licensee or registrant for the purpose of protecting individuals against undue risks from exposure to ~~sources of~~ radiation and radioactive materials. Restricted area does not include areas used as residential quarters, but separate rooms in a residential building may be set apart as a restricted area.

"Roentgen" means the special unit of exposure. One roentgen (R) equals 2.58E-4 coulombs per kilogram of air (see "Exposure" and 12VAC5-481-240).

"S-tube" means a tube through which the radioactive source travels when inside a radiographic exposure device.

"Sanitary sewerage" means a system of public sewers for carrying off waste water and refuse, but excluding sewage treatment facilities, septic tanks, and leach fields owned or operated by the licensee or registrant.

"Scan" means the complete process of collecting X-ray transmission data for the production of a tomogram. Data can be collected simultaneously during a single scan for the production of one or more tomograms.

"Scan increment" means the amount of relative displacement of the patient with respect to the CT X-ray system between successive scans measured along the direction of such displacement.

"Scan sequence" means a preselected set of two or more scans performed consecutively under preselected CT conditions of operation.

"Scan time" means the period of time between the beginning and end of X-ray transmission data accumulation for a single scan.

"Scattered radiation" means ionizing radiation emitted by interaction of ionizing radiation with matter, the interaction being accompanied by a change in direction of the radiation. Scattered primary radiation means that scattered radiation which has been deviated in direction only by materials irradiated by the useful beam.

"Sealed source" means any ~~container of radioactive material that has been constructed in such a manner as~~ radioactive material that is encased in a capsule designed to prevent ~~the~~ leakage or escape of any radioactive material.

"Sealed Source and Device Registry (SSD)" means the national registry that contains the registration certificates, maintained by the ~~Nuclear Regulatory Commission (NRC)~~ NRC, that summarize the radiation safety information for sealed sources and devices, and describes the licensing and use conditions approved for the product.

"Secondary dose monitoring system" means a system which will terminate irradiation in the event of failure of the primary dose monitoring system.

"Secondary protective barrier" (See "Protective barrier").

"Seismic area" means any area where the probability of a horizontal acceleration in rock of more than 0.3 times the acceleration of gravity in 250 years is greater than 10%, as designated by the United States Geological Survey.

"Self-contained breathing apparatus (SCBA)" means an atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user.

"Shadow tray" means a device attached to the radiation head to support auxiliary beam blocking material.

"Shallow dose equivalent (H_s)," which applies to the external exposure of the skin or an extremity, means the dose equivalent at a tissue depth of 0.007 centimeter (7 mg/cm2) ~~averaged over an area of one square centimeter~~.

"Shielded position" means the location within the radiographic exposure device or storage container which, by manufacturer's design, is the proper location for storage of the sealed source.

"Shielded-room radiography" means industrial radiography conducted in a room shielded so that radiation levels at every location on the exterior meet the limitations specified in 12VAC5-481-640.

"Shutter" means a device attached to the tube housing assembly which can intercept the entire cross sectional area of the useful beam and which has a lead equivalency not less than that of the tube housing assembly.

"SI" means the abbreviation for the International System of Units.

"SID" (See "Source-image receptor distance").

"Sievert" (Sv) means the SI unit of any of the quantities expressed as dose equivalent. The dose equivalent in sievert is equal to the absorbed dose in gray multiplied by the quality factor (1 Sv = 100 rem).

"Simulator (radiation therapy simulation system)" means any X-ray system intended for localizing the volume to be exposed during radiation therapy and reproducing the position and size of the therapeutic irradiation field.

"Single tomogram system" means a CT X-ray system that obtains X-ray transmission data during a scan to produce a single tomogram.

"Site area emergency" means events may occur, are in progress, or have occurred that could lead to a significant release of radioactive material and that could require a response by offsite response organizations to protect persons offsite.

"Site boundary" means that line beyond which the land or property is not owned, leased, or otherwise controlled by the licensee.

"Site closure and stabilization" means those actions that are taken upon completion of operations that prepare the disposal site for custodial care and that assure that the disposal site will remain stable and will not need ongoing active maintenance.

"Source" means the focal spot of the X-ray tube.

"Source assembly" means an assembly that consists of the sealed source and a connector that attaches the source to the control cable. The source assembly may include a ballstop to secure the source in the shielded position.

"Source changer" means a device designed and used for replacement of sealed sources in radiographic exposure devices, including those source changers also used for transporting and storage of sealed sources.

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

"Source-image receptor distance" means the distance from the source to the center of the input surface of the image receptor.

"Source material" means:

1. Uranium or thorium, or any combination thereof, in any physical or chemical form; or

2. Ores that contain by weight one-twentieth of 1.0% (0.05%) or more of uranium, thorium or any combination of uranium and thorium. Source material does not include special nuclear material.

~~"Source material milling" means any activity that results in the production of byproduct material as defined by definition (2) of "byproduct material."~~

"Source of radiation" means any radioactive material or any device or equipment emitting, or capable of producing, radiation.

"Source-skin distance (SSD)" ~~(see "Target skin distance")~~ means the distance between the source and the skin entrance plane of the patient.

"Source traceability" means the ability to show that a radioactive source has been calibrated either by the national standards laboratory of the National Institute of Standards and Technology, or by a laboratory that participates in a continuing measurement quality assurance program with National Institute of Standards and Technology or other equivalent national or international program.

"Special form radioactive material" means radioactive material that satisfies the following conditions:

1. It is either a single solid piece or is contained in a sealed capsule that can be opened only by destroying the capsule;

2. The piece or capsule has at least one dimension not less than five millimeters (0.2 in.); and

3. It satisfies the test requirements specified by the ~~Nuclear Regulatory Commission~~ NRC. A special form encapsulation designed in accordance with the ~~Nuclear Regulatory Commission~~ NRC requirements in effect on June 30, 1983, and constructed prior to July 1, 1985, may continue to be used. A special form encapsulation either designed or constructed after April 1, 1998, must meet requirements of this definition applicable at the time of its design or construction.

"Special nuclear material" means:

1. Plutonium, uranium-233, uranium enriched in the isotope 233 or in the isotope 235, and any other material the ~~Nuclear Regulatory Commission~~ NRC, pursuant to the provisions of section 51 of the Atomic Energy Act of 1954, as amended, determines to be special nuclear material, but does not include source material; or

2. Any material artificially enriched by any of the foregoing but does not include source material.

"Special nuclear material in quantities not sufficient to form a critical mass" means uranium enriched in the isotope U-235 in quantities not exceeding 350 grams of contained U-235; uranium-233 in quantities not exceeding 200 grams; plutonium in quantities not exceeding 200 grams; or any combination of them in accordance with the following formula: For each kind of special nuclear material, determine the ratio between the quantity of that special nuclear material and the quantity specified above for the same kind of special nuclear material. The sum of such ratios for all of the kinds of special nuclear material in combination shall not exceed 1. For example, the following quantities in combination would not exceed the limitation and are within the formula:

$$\frac{175(\text{grams contained U-233})}{350}+\frac{50(\text{grams U-233})}{200}+\frac{50(\text{grams Pu})}{200}=1$$

"Specific activity" of a radionuclide means the radioactivity of a radionuclide per unit mass of that nuclide. The specific activity of a material in which the radionuclide is essentially uniformly distributed is the radioactivity per unit mass of the material.

"Spot film" means a radiograph that is made during a fluoroscopic examination to permanently record conditions that exist during that fluoroscopic procedure.

"Spot-film device" means a device intended to transport and/or position a radiographic image receptor between the X-ray source and fluoroscopic image receptor. It includes a device intended to hold a cassette over the input end of an image intensifier for the purpose of making a radiograph.

~~"SSD" means the distance between the source and the skin entrance plane of the patient.~~

"Stability" means structural stability.

"State inspector" means an employee of the Virginia Department of Health designated to perform those duties or functions assigned the Radiological Health Program.

"Stationary beam radiation therapy" means radiation therapy without displacement of one or more mechanical axes relative to the patient during irradiation.

"Stationary X-ray equipment" (See "X-ray equipment").

"Stochastic effect" means a health effect that occurs randomly and for which the probability of the effect occurring, rather than its severity, is assumed to be a linear function of dose without threshold. Hereditary effects and cancer incidence are examples of stochastic effects. For purposes of these regulations, "probabilistic effect" is an equivalent term.

"Storage" means a condition in which a device or source is not being used for an extended period of time, and has been made inoperable.

"Storage area" means any location, facility, or vehicle that is used to store and secure a radiographic exposure device, a radiation machine, or a storage container when it is not used for radiographic operations. Storage areas are locked or have a physical barrier to prevent accidental exposure, tampering, or unauthorized removal of the device, machine, or container.

"Storage container" means a device in which sealed sources or radiation machines are secured and stored.

"Stray radiation" means the sum of leakage and scattered radiation.

"Subsurface tracer study" means the release of a substance tagged with radioactive material for the purpose of tracing the movement or position of the tagged substance in the well-bore or adjacent formation.

"Supplied-air respirator (SAR) or airline respirator" means an atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user.

"Surface contaminated object" (SCO) means a solid object that is not itself classed as radioactive material, but that has radioactive material distributed on any of its surfaces. An SCO must be in one of two groups with surface activity not exceeding the following limits:

1. SCO-I: A solid object on which:

a. The nonfixed contamination on the accessible surface averaged over 300 cm², or the area of the surface if less than 300 cm², does not exceed four becquerel per cm² (1 E-04 μCi/cm²) for beta and gamma and low toxicity alpha emitters, or 0.4 becquerel per cm² (1 E-05 μCi/cm²) for all other alpha emitters;

b. The fixed contamination on the accessible surface averaged over 300 cm², or the area of the surface if less than 300 cm², does not exceed 4 E+04 becquerel per cm² (1.0 μCi/cm²) for beta and gamma and low toxicity alpha emitters, or 4 E+03 becquerel per cm² (0.1 μCi/cm²) for all other alpha emitters; and

c. The nonfixed contamination plus the fixed contamination on the inaccessible surface averaged over 300 cm², or the area of the surface if less than 300 cm², does not exceed 4 E+04 becquerel per cm² (1 μCi/cm²) for beta and gamma and low toxicity alpha emitters, or 4 E+03 Becquerel per cm² (0.1 μCi/cm²) for all other alpha emitters.

2. SCO-II: A solid object on which the limits for SCO-I are exceeded and on which:

a. The nonfixed contamination on the accessible surface averaged over 300 cm², or the area of the surface if less than 300 cm², does not exceed 400 becquerel per cm² (1 E-02 μCi/cm²) for beta and gamma and low toxicity alpha emitters or 40 becquerel per cm² (1 E-03 μCi/cm²) for all other alpha emitters;

b. The fixed contamination on the accessible surface averaged over 300 cm², or the area of the surface if less than 300 cm², does not exceed 8 E+05 becquerel per cm² (20 μCi/cm²) for beta and gamma and low toxicity alpha emitters, or 8 E+04 becquerel per cm² (2 μCi/cm²) for all other alpha emitters; and

c. The nonfixed contamination plus the fixed contamination on the inaccessible surface averaged over 300 cm², or the area of the surface if less than 300 cm², does not exceed 8 E+05 becquerel per cm² (20 μCi/cm²) for beta and gamma and low toxicity alpha emitters, or 8 E+04 becquerel per cm² (2 μCi/cm²) for all other alpha emitters.

"Surveillance" means monitoring and observation of the disposal site for purposes of visual detection of need for maintenance, custodial care, evidence of intrusion, and compliance with other license and regulatory requirements.

"Survey" means ~~a test or procedure done by a private or state inspector to determine if the equipment or procedures comply with the requirements of these regulations. Documentation, at a minimum, shall consist of completing forms approved by the agency in their entirety if such forms exist~~ an evaluation of the radiological conditions and potential hazards incident to the production, use, transfer, release, disposal, or presence of radioactive material or other sources of radiation. When appropriate, such an evaluation includes a physical survey of the location of radioactive material and measurements or calculations of levels of radiation, or concentrations or quantities of radioactive material present.

"Target" means that part of an X-ray tube or accelerator onto which a beam of accelerated particles is directed to produce ionizing radiation or other particles.

"Technologically Enhanced Naturally Occurring Radioactive Material (TENORM)" means, as used in Part XVI (12VAC5-481-3460 et seq.) of this chapter, naturally occurring radionuclides whose concentrations are increased by or as a result of past or present human practices. TENORM does not include background radiation or the natural radioactivity of rocks or soils. TENORM does not include uranium or thorium in "source material" as defined in the AEA and ~~US~~ NRC regulations.

"Technique factors" means the following conditions of operation:

1. For capacitor energy storage equipment, peak tube potential in kV and quantity of charge in mAs;

2. For field emission equipment rated for pulsed operation, peak tube potential in kV, and number of X-ray pulses;

3. For CT X-ray systems designed for pulsed operation, peak tube potential in kV, scan time in seconds, and either tube current in Ma, X-ray pulse width in seconds, and the number of X-ray pulses per scan, or the product of tube current, X-ray pulse width, and the number of X-ray pulses in mAs;

4. For CT X-ray systems not designed for pulsed operation, peak tube potential in kV, and either tube current in Ma and scan time in seconds, or the product of tube current and exposure time in mAs and the scan time when the scan time and exposure time are equivalent; and

5. For all other equipment, peak tube potential in kV, and either tube current in Ma and exposure time in seconds, or the product of tube current and exposure time in mAs.

"Teletherapy physicist" means an individual identified as a qualified teletherapy physicist on an agency license.

"Teletherapy" means therapeutic irradiation in which the source of radiation is at a distance from the body.

"Temporary job site" means any location where industrial radiography, wireline service, well-logging, portable gauge or XRF use is performed ~~other than the location(s) listed in a specific license or certificate of registration. It also means a location where radioactive materials are present for the purpose of performing wireline service operations or subsurface tracer studies~~ and where licensed material may be stored other than those location(s) of use authorized on the license.

"Tenth-value layer (TVL)" means the thickness of a specified material that attenuates X-radiation or gamma radiation to an extent such that the air kerma rate, exposure rate, or absorbed dose rate is reduced to one-tenth of the value measured without the material at the same point.

"Termination of irradiation" means the stopping of irradiation in a fashion that will not permit continuance of irradiation without the resetting of operating conditions at the control panel.

"Test" means the process of verifying compliance with an applicable regulation.

"Therapeutic radiation machine" means X-ray or electron-producing equipment designed and used for external beam radiation therapy.

"These regulations" mean all parts of these regulations.

"Tight-fitting facepiece" means a respiratory inlet covering that forms a complete seal with the face.

"Tomogram" means the depiction of the X-ray attenuation properties of a section through the body.

"Tomographic plane" means that geometric plane which is identified as corresponding to the output tomogram.

"Tomographic section" means the volume of an object whose X-ray attenuation properties are imaged in a tomogram.

"Total effective dose equivalent" (TEDE) means the sum of the ~~deep~~ effective dose equivalent for external exposures and the committed effective dose equivalent for internal exposures.

"Total organ dose equivalent" (TODE) means the sum of the deep dose equivalent and the committed dose equivalent to the organ receiving the highest dose as described in 12VAC5-481-1040.

"Traceable to a National Standard" (See "Instrument traceability" or "Source traceability").

"Transfer" means, as used in Part XVI (12VAC5-481-3460 et seq.) of this chapter, the physical relocation of NORM containing materials not directly associated with commercial distribution within a business's operation or between general or specific licensees. This term does not include a change in legal title to NORM containing materials that does not involve physical movement of those materials.

"Transport container" means a package that is designed to provide radiation safety and security when sealed sources are transported and which meets all applicable requirements of the United States Department of Transportation.

"Transport index (TI)" means the dimensionless number, rounded up to the next tenth, placed on the label of a package to designate the degree of control to be exercised by the carrier during transportation. The transport index is the number ~~expressing the~~ determined by multiplying the maximum radiation level in millisievert (mSv) per hour at one meter (3.3 feet) from the external surface of the package ~~in millisievert (mSv) per hour multiplied~~ by 100~~, which is thus~~ (equivalent to the maximum radiation level in millirem per hour at one meter (3.3 ft)).

"Treatment site" means the correct anatomical description of the area intended to receive a radiation dose, as described in a written directive.

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

"Tube" means an X-ray tube, unless otherwise specified.

"Tube housing assembly" means the tube housing with tube installed. It includes high-voltage and/or filament transformers and other appropriate elements when such are contained within the tube housing.

"Tube rating chart" means the set of curves which specify the rated limits of operation of the tube in terms of the technique factors.

"Type A quantity" means a quantity of radioactive material, the aggregate radioactivity of which does not exceed A_1 for special form radioactive material or A_2 for normal form radioactive material, where A_1 and A_2 are given in ~~Appendix L.~~ Table A-1 of 12VAC5-481-3770 or may be determined by procedures described in ~~Appendix L~~ Table A-1 of 12VAC5-481-3770.

~~"Type B package" means a Type B packaging together with its radioactive contents. A Type B package design is designated as B(U) or B(M). B(U) refers to the need for unilateral approval of international shipments; B(M) refers to the need for multilateral approval. There is no distinction made in how packages with these designations may be used~~

~~in domestic transportation. To determine their distinction for international transportation, refer to 49 CFR Part 173. A Type B package approved prior to September 6, 1983, was designated only as Type B. Limitations on its use are specified in 12VAC5-481-3010.~~

~~"Type B packaging" means a packaging designed to retain the integrity of containment and shielding when subjected to the normal conditions of transport and hypothetical accident test conditions set forth in 10 CFR Part 71.~~

"Type B quantity" means a quantity of radioactive material greater than a Type A quantity.

"Underwater irradiator" means an irradiator in which the sources always remain shielded under water and humans do not have access to the sealed sources or the space subject to irradiation without entering the pool.

"Underwater radiography" means radiographic operations performed when the radiographic exposure device or radiation machine and/or related equipment are beneath the surface of the water.

~~"Underwater irradiator" means an irradiator in which the sources always remain shielded under water and humans do not have access to the sealed sources or the space subject to irradiation without entering the pool.~~

"Unirradiated uranium" means uranium containing not more than 2×10^3 Bq of plutonium per gram of uranium-235, not more than 9×10^6 Bq of fission products per gram of uranium-235, and not more than 5×10^{-3} g of uranium-236 per gram of uranium-235.

"Unrefined and unprocessed ore" means ore in its natural form prior to any processing, such as grinding, roasting, beneficiating, or refining.

"Unrestricted area" means an area, access to which is neither limited nor controlled by the licensee or registrant. For purposes of these regulations, "uncontrolled area" is an equivalent term.

"Uranium—natural, depleted, enriched"

1. "Natural uranium" means uranium ~~isotopes~~ with the naturally occurring distribution of uranium isotopes, which is approximately 0.711 weight percent uranium-235, and the remainder by weight essentially uranium-238.

2. "Depleted uranium" means uranium containing less uranium-235 than the naturally occurring distribution of uranium isotopes.

3. "Enriched uranium" means uranium containing more uranium-235 than the naturally occurring distribution of uranium isotopes.

"Uranium sinker bar" means a weight containing depleted uranium used to pull a logging tool down toward the bottom of a well.

"Useful beam" means the radiation emanating from the tube housing port or the radiation head and passing through the aperture of the beam limiting device when the exposure controls are in a mode to cause the system to produce radiation.

"User seal check (fit check)" means an action conducted by the respirator user to determine if the respirator is properly seated to the face. Examples include negative pressure check, positive pressure check, irritant smoke check, or isoamyl acetate check.

"Variable-aperture beam-limiting device" means a beam-limiting device which has capacity for stepless adjustment of the X-ray field size at a given SID.

"Very high radiation area" means an area, accessible to individuals, in which radiation levels from radiation sources external to the body could result in an individual receiving an absorbed dose in excess of five Gy (500 rad) in one hour at one meter from a source of radiation or one meter from any surface that the radiation penetrates.

"Virtual source" means a point from which radiation appears to originate.

"Visible area" means that portion of the input surface of the image receptor over which incident X-ray photons are producing a visible image.

"Visiting authorized user" means an authorized user who is not identified on the license of the licensee being visited.

"Waste" means ~~those low level radioactive wastes that are acceptable for disposal in a land disposal facility. For the purposes of this definition, low level waste has the same meaning as in the Low Level Radioactive Waste Policy Act, Pub. L. 96-573, as amended by Pub. L. 99-240, effective January 15, 1986; that is, radioactive waste (i) not classified as high level radioactive waste, spent nuclear fuel, or byproduct material as defined in Section 11e.(2) of the Atomic Energy Act (uranium or thorium tailings and waste) and (ii) classified as low level radioactive waste consistent with existing law and in accordance with (a) by the Nuclear Regulatory Commission~~ those low-level radioactive wastes containing source, special nuclear, or byproduct material that are acceptable for disposal in a land disposal facility. For the purposes of this definition, low-level radioactive waste means radioactive waste not classified as high-level radioactive waste, transuranic waste, spent nuclear fuel, or byproduct material as defined in subdivisions 2, 3, and 4 of the definition of byproduct material.

"Waste handling licensees" mean persons licensed to receive and store radioactive wastes prior to disposal and/or persons licensed to dispose of radioactive waste.

"Wedge filter" means a filter that effects continuous change in transmission over all or a part of the useful beam.

"Week" means seven consecutive days starting on Sunday.

"Weighting factor (w_T)" for an organ or tissue (T) means the proportion of the risk of stochastic effects resulting from irradiation of that organ or tissue to the total risk of stochastic effects when the whole body is irradiated uniformly. For calculating the effective dose equivalent, the values of w_T are:

Organ Dose Weighting Factors

Organ or Tissue	w_T
Gonads	0.25
Breast	0.15
Red bone marrow	0.12
Lung	0.12
Thyroid	0.03
Bone surfaces	0.03
Remainder	0.30[a/]
Whole Body	1.00[b/]

[a/] 0.30 results from 0.06 for each of five "remainder" organs, excluding the skin and the lens of the eye, that receive the highest doses.

[b/] For the purpose of weighting the external whole body dose for adding it to the internal dose, a single weighting factor, $w_T = 1.0$, has been specified. The use of other weighting factors for external exposure will be approved on a case-by-case basis until such time as specific guidance is issued.

"Well-bore" means a drilled hole in which wireline service operations or subsurface tracer studies are performed.

"Well-logging" means all operations involving the lowering and raising of measuring devices or tools that may contain sources of radiation into well-bores or cavities for the purpose of obtaining information about the well or adjacent formations.

"Whole body" means, for purposes of external exposure, head, trunk including male gonads, arms above the elbow, or legs above the knee.

"Wireline" means a cable containing one or more electrical conductors that is used to lower and raise logging tools in the well-bore.

"Wireline service operation" means any evaluation or mechanical service that is performed in the well-bore using devices on a wireline.

"Worker" means an individual engaged in work under a license or registration issued by the agency and controlled by a licensee or registrant but does not include the licensee or registrant.

"Working level (WL)" means any combination of short-lived radon daughters in one liter of air that will result in the ultimate emission of 1.3E+5 MeV of potential alpha particle energy. The short-lived radon daughters of radon-222 are polonium-218, lead-214, bismuth-214, and polonium-214; and those of radon-220 are polonium-216, lead-212, bismuth-212, and polonium-212.

"Working level month" (WLM) means an exposure to one working level for 170 hours. Two thousand working hours per year divided by 12 months per year is approximately equal to 170 hours per month.

"Written directive" means an order in writing for a specific patient, dated and signed by an authorized user prior to the administration of a radiopharmaceutical or radiation, except as specified in subdivision 6 below, containing the following information:

1. For any administration of quantities greater than 1.11 megabecquerels (30 mCi) of sodium iodide I-125 or I-131: the radionuclide, and dosage; or

2. For a therapeutic administration of a radiopharmaceutical other than sodium iodide I-125 or I-131: the radiopharmaceutical, dosage, and route of administration; or

3. For gamma stereotactic radiosurgery: target coordinates, collimator size, plug pattern, and total dose; or

4. For teletherapy: the total dose, dose per fraction, treatment site, and overall treatment period; or

5. For high-dose-rate remote afterloading brachytherapy: the radionuclide, treatment site, and total dose; or

6. For all other brachytherapy,

a. Prior to implantation: the radionuclide, number of sources, and source strengths; and

b. After implantation but prior to completion of the procedure: the radionuclide, treatment site, and total source strength and exposure time (or, equivalently, the total dose).

"X-ray exposure control" means a device, switch, button or other similar means by which an operator initiates and/or terminates the radiation exposure. The X-ray exposure control may include such associated equipment as timers and back-up timers.

"X-ray equipment" means an X-ray system, subsystem, or component thereof. Types of X-ray equipment are as follows:

1. "Mobile X-ray equipment" means X-ray equipment mounted on a permanent base with wheels and/or casters for moving while completely assembled.

2. "Portable X-ray equipment" means X-ray equipment designed to be hand-carried.

3. "Stationary X-ray equipment" means X-ray equipment that is installed in a fixed location.

"X-ray field" means that area of the intersection of the useful beam and any one of the sets of planes parallel to and including the plane of the image receptor, whose perimeter is the locus of points at which the exposure rate is one-fourth of the maximum in the intersection.

"X-ray high-voltage generator" means a device which transforms electrical energy from the potential supplied by the X-ray control to the tube operating potential. The device may also include means for transforming alternating current to direct current, filament transformers for the X-ray tube(s), high-voltage switches, electrical protective devices, and other appropriate elements.

"X-ray system" means an assemblage of components for the controlled production of X-rays. It includes minimally an X-ray high-voltage generator, an X-ray control, a tube housing assembly, a beam-limiting device, and the necessary supporting structures. Additional components that function with the system are considered integral parts of the system.

"X-ray table" means a patient support device with its patient support structure (tabletop) interposed between the patient and the image receptor during radiography and/or fluoroscopy. This includes, but is not limited to, any stretcher equipped with a radiolucent panel and any table equipped with a cassette tray (or bucky), cassette tunnel, image intensifier, or spot-film device beneath the tabletop.

"X-ray tube" means any electron tube that is designed for the conversion of electrical energy into X-ray energy.

"Year" means the period of time beginning in January used to determine compliance with the provisions of these regulations. The licensee or registrant may change the starting date of the year used to determine compliance by the licensee or registrant provided that the change is made at the beginning of the year. If a licensee or registrant changes in a year, the licensee or registrant shall assure that no day is omitted or duplicated in consecutive years.

12VAC5-481-20. Scope.

Except as otherwise specifically provided, these regulations apply to all persons who receive, possess, use, transfer, own, or acquire any source of radiation; provided, however, that nothing in these regulations shall apply to any person to the extent such person is subject to regulation by the ~~Nuclear Regulatory Commission~~ NRC. Attention is directed to the fact that regulation by the state of source material, byproduct material, and special nuclear material in quantities not sufficient to form a critical mass is subject to the provisions of the agreement between the state and the ~~Nuclear Regulatory Commission~~ NRC and to 10 CFR Part 150 of the commission's regulations.

To reconcile differences between this chapter and the incorporated sections of federal regulations and to effectuate their joint enforcement, the following words and phrases shall be substituted for the language of the federal regulations:

1. A reference to "NRC" or "Commission" means agency.

2. A reference to "NRC or agreement state" means agency, NRC or another agreement state.

3. The definition of "sealed source" includes NARM.

4. A reference to "byproduct material" includes NARM.

5. Notifications, reports and correspondence referenced in the incorporated parts of 10 CFR shall be directed to the agency and, for NRC licenses, to the NRC until agreement state status is in effect.

12VAC5-481-30. ~~[Reserved]~~ Deliberate misconduct.

A. No person may do any of the following:

1. Engage in deliberate misconduct that causes or would have caused, if not detected, a licensee, registrant or applicant under this chapter to be in violation of any rule or order of the agency; or any term, condition or limitation of any license or registration issued by the agency under this chapter.

2. Deliberately submit to the agency, a licensee, registrant or applicant under this chapter; or a contractor or subcontractor of a licensee, registrant or applicant under this chapter; any information that the person knows to be incomplete or inaccurate.

B. Deliberate misconduct by a person means an intentional act or omission that the person knows:

1. Would cause a licensee, certificate of registration holder or applicant to be in violation of any rule, regulation, or order; or any term, condition, or limitation, of any license issued by the agency; or

2. Constitutes a violation of a requirement, procedure, instruction, contract, purchase order, or policy of a licensee, certificate of registration holder, applicant, contractor, or subcontractor.

12VAC5-481-90. Exemptions from regulatory requirements.

A. The agency may, upon application or upon its own initiative, grant such exemptions or exceptions from the requirements of these regulations as it determines are authorized by law and will not result in undue hazard to public health and safety or property.

B. Any Department of Energy contractor or subcontractor and any ~~Nuclear Regulatory Commission~~ NRC contractor or subcontractor of the following categories operating within this state is exempt from these regulations to the extent that such contractor or subcontractor under his contract receives, possesses, uses, transfers, or acquires sources of radiation:

1. Prime contractors performing work for the Department of Energy at United States government-owned or controlled sites, including the transportation of sources of radiation to or from such sites and the performance of contract services during temporary interruptions of such transportation;

2. Prime contractors of the Department of Energy performing research in, or development, manufacture, storage, testing, or transportation of, atomic weapons or components thereof;

3. Prime contractors of the Department of Energy using or operating nuclear reactors or other nuclear devices in a United States Government-owned vehicle or vessel; and

4. Any other prime contractor or subcontractor of the Department of Energy or of the ~~Nuclear Regulatory Commission~~ NRC when the state and the ~~Nuclear Regulatory Commission~~ NRC jointly determine:

a. That the exemption of the prime contractor or subcontractor is authorized by law; and

b. That, under the terms of the contract or subcontract, there is adequate assurance that the work thereunder can be accomplished without undue risk to the public health and safety.

12VAC5-481-100. Records.

A. Each licensee and registrant shall maintain records showing the receipt, transfer, and disposal of all sources of radiation as follows:

1. As long as the material is possessed and for three years following transfer or disposition of the radioactive material.

2. Until the agency terminates the license for the licensee who transferred the material.

3. Until the agency terminates the license for the licensee who disposes the material.

B. If radioactive material is combined or mixed with other licensed material and subsequently treated in a manner that makes direct correlation of a receipt record with a transfer, export, or disposition record impossible, the licensee may use evaluative techniques (such as first-in-first-out) to make the records that are required by this section account for 100% of the material received.

C. Additional record requirements are specified elsewhere in these regulations. If the record retention period is not specified, the record shall be maintained for a period of three years.

12VAC5-481-110. Inspections and enforcement.

A. Each licensee and registrant shall afford the agency at all reasonable times opportunity to inspect sources of radiation and the premises and facilities wherein such sources of radiation are used or stored.

B. Each licensee and registrant shall make available to the agency for inspection, upon reasonable notice, records maintained pursuant to these regulations.

C. Enforcement~~: The following provisions of Article 4 (§32.1-24) of Chapter 1 of Title 32.1 of the Code of Virginia, shall apply:~~.

~~1. Right of entry to inspect, etc.: warrants. Upon presentation of appropriate credentials and upon consent of the owner or custodian, the commissioner or his designee shall have the right to enter at any reasonable time onto any property to inspect, investigate, evaluate, conduct tests or take samples for testing as he reasonably deems necessary in order to determine whether the provisions of this chapter, any order of the board or commissioner or any conditions in a permit, license or certificate issued by the board or commissioner are being complied with. If the commissioner or his designee is denied entry, he may apply to an appropriate circuit court for an inspection warrant authorizing such investigation, evaluation, inspection, testing or taking of samples for testing as provided in Chapter 24 (§19.2-393) of Title 19.2 §19.2-393 of the Code of Virginia.~~

~~2. Orders. The board is authorized to issue orders to require any person to comply with the provisions of any law administered by the commissioner or the agency or any regulations promulgated by the board or to comply with any case decision, as defined in §2.2-4001 of the Code of Virginia, of the board or commissioner.~~

~~3. Penalties, injunctions, civil penalties and charges for violations.~~

~~a. Any person willfully violating or refusing, failing or neglecting to comply with any regulation or order of the board or commissioner or any provision of this title shall be guilty of a Class 1 misdemeanor unless a different penalty is specified.~~

~~b. Any person violating or failing, neglecting, or refusing to obey any lawful regulation or order of the board or commissioner or any provision of this title, may be compelled in a proceeding instituted in an appropriate court by the board or commissioner to obey such regulations, order or provision of this title and to comply therewith by injunction, mandamus, or other appropriate remedy.~~

~~c. Without limiting the remedies that may be obtained in subdivision 2 of this section, any person violating or failing, neglecting or refusing to obey any injunction, mandamus or other remedy obtained pursuant to subdivision 2 of this section shall be subject, in the discretion of the Court, to a civil penalty not to exceed~~

~~10,000~~ 25,000 ~~dollars for each violation. Each day of violation shall constitute a separate offense.~~

~~d. With the consent of any person who has violated or failed, neglected or refused to obey any regulation or order of the board or commissioner or any provision of this title, the board may provide, in an order issued by the board against such person, for the payment of civil charges for past violations in specific sums, not to exceed the limit specified in subdivision 3 of this section. Such civil charges shall be instead of any appropriate civil penalty which could be imposed under subdivision 3 of this section.~~

1. Whenever the department finds, following inspection and examination, that a source of radiation as constructed, operated or maintained results in a violation of this article or of any rules promulgated under this article, the department shall:

a. Notify the person in control of the source of radiation as to the nature of the violation; and

b. Specify a time frame for termination or abatement of the violation, including a deadline by which the source of the violation shall be reconstructed, operated, or maintained in compliance with this article and any regulations promulgated pursuant to this article.

2. Upon failure to comply within the time frame specified by the department for termination or abatement of the violation, the department may revoke the license, and pursue penalties or enforcement in accordance with §32.1-27 of the Code of Virginia.

3. Whenever, in the judgment of the department, any person has engaged in or is about to engage in any acts or practices that constitute or will constitute an emergency, hazard to health and safety, or a violation of any provision of this article, or any rule, regulation or order issued thereunder, and at the request of the commissioner, the Attorney General may make application to the appropriate court for an order enjoining such acts or practices, or for an order directing compliance, and upon a showing by the department that such person has engaged or is about to engage in any such acts or practices, a permanent or temporary injunction, restraining order, or other order may be granted.

4. In addition to the provisions of §32.1-27 of the Code of Virginia, any person who violates any provisions of this article or any order or regulation adopted pursuant thereto shall, upon such finding by a court of competent jurisdiction, be assessed a civil penalty of not more than $10,000 for each day of such violation. All penalties under this section shall be recovered in a civil action brought by the Attorney General in the name of the Commonwealth. Civil penalties collected pursuant to this section shall be paid into the state treasury and credited to the Radioactive Material Perpetual Care Trust Fund created pursuant to §32.1-232 of the Code of Virginia.

5. In addition to the provisions of §32.1-25 of the Code of Virginia, the department shall have the power to enter at all reasonable times, or in cases of an emergency, upon any private or public property for the purpose of determining whether or not there is compliance with or violation of the provisions of this article and rules and regulations issued thereunder, except that entry into areas under the jurisdiction of the federal government shall be effected only with the concurrence of the federal government or its duly designated representative.

12VAC5-481-130. Impounding.

Sources of radiation shall be subject to impounding pursuant to ~~Article 8 (§32.1-227 et seq.) of Chapter 6~~ §32.1-238 of the Code of Virginia.

12VAC5-481-150. Communications.

All communications and reports concerning this chapter, and applications filed thereunder, should be addressed to the agency at the following address: Virginia Department of Health, ~~Radiological Health~~ Radioactive Materials Program, 109 Governor Street, Room 730, ~~P.O. Box 2448,~~ Richmond, VA ~~23218~~ 23219.

12VAC5-481-200. ~~Violations.~~ (Repealed.)

~~An injunction or other court order may be obtained prohibiting any violation of any provision of the Act or any regulation or order issued thereunder. Any person who violates any provision of the Act or any regulation or order issued thereunder may be guilty of a crime and, upon conviction, may be punished by fine or imprisonment or both, as provided by law. The agency may also apply the Administrative Process Act. Permits may be revoked for violations of this regulation.~~

12VAC5-481-230. Appeal.

A. Any appeal from a denial of a license or certification must be made in writing and received by the ~~department~~ agency within 30 days of the date of receipt of notice of the denial.

B. Any request for hearing on the findings on a Notice of Violation pursuant to this regulation must be made in writing and received within 30 days of receipt of the final Notice of Violation.

C. Pursuant to the Administrative Process Act (§2.2-4000 et seq. of the Code of Virginia), an aggrieved licensee or registrant may appeal a final decision of the commissioner to an appropriate circuit court.

12VAC5-481-240. Units of exposure and dose.

The following regulation, Units of radiation dose ~~(10 CFR 20.1004, January 1, 2003)~~ (10 CFR 20.1004) is applicable and identical in the Commonwealth of Virginia.

12VAC5-481-250. Units of ~~activity~~ radioactivity.

The following regulation, Units of radioactivity ~~(10 CFR 20.1005, 56 FR 61352, December 3, 1991)~~ (10 CFR 20.1005) is applicable and identical in the Commonwealth of Virginia.

Part II
Registration of Radiation Machine Facilities and Services

12VAC5-481-260. Purpose and scope.

A. This part provides for the registration of ionizing radiation machine facilities.

B. In addition to the requirements of this part, all registrants are subject to the applicable provisions of ~~the General Provisions (Part I), Standards for Protection (Part IV) and Notices, Instructions and Reports (Part X) of this chapter. In addition, some registrants are subject to provisions of the regulations for Industrial Radiography (Part V), Healing Arts (Part VI), Analytical Equipment (Part VIII) or Particle Accelerators (Part IX)~~ Part 1 (12VAC5-481-10 et. seq.), Part IV (12VAC5-481-600 et. seq.) and Part X (12VAC5-481-2250 et. seq.) of this chapter. In addition, some registrants are subject to provisions of the regulations for Part V (12VAC5-481-1170 et. seq.), Part VI (12VAC5-481-1580 et. seq.), Part VIII (12VAC5-481-2090 et. seq.) and Part IX (12VAC5-481-2140 et. seq.) of this chapter.

12VAC5-481-270. Exemptions.

A. Electronic equipment that produces radiation incidental to its operation is exempt from the registration and notification requirements of this part, provided that the dose equivalent rate averaged over an area of 10 square centimeters does not exceed 5 μSv ~~(0.5 millirem)~~ (0.5 mrem) per hour at five centimeters from any accessible surface of such equipment. The production, testing, or factory servicing of such equipment shall not be exempt.

B. Radiation machines while in transit or storage incident thereto are exempt from the requirements of this part.

C. Domestic television receivers are exempt from the requirements of this part.

12VAC5-481-340. Private inspector qualifications.

Any person desiring designation as a private inspector for diagnostic X-ray, mammographic or therapeutic X-ray and teletherapy machines must be qualified by training and experience to perform ~~surveys~~ inspections or calibrations according to the following criteria and must submit to the ~~commissioner~~ agency a statement on the appropriate form certifying his specific qualifications. In order to maintain designation as a private inspector, the individual must maintain satisfactory performance of work performed in that capacity. The ~~commissioner~~ agency shall disqualify individuals from this designation for just cause provided that a show-cause hearing has been held and the ~~commissioner~~ agency has determined that the individual has demonstrated unsatisfactory performance as a private inspector.

A. Private inspector, diagnostic X-ray (except mammography). The person must have adequate knowledge, training and experience to measure ionizing radiation, evaluate safety techniques, and advise regarding radiation protection needs to assure compliance with Virginia Rules and Regulations for Ionizing Radiation as evidenced by all of the following:

1. Initial qualifications: evidenced by one or more of the following:

a. Certification by one of the following: American Board of Radiology either in diagnostic or radiological physics, American Board of Health Physics in comprehensive practice, or the American Board of Medical Physics in diagnostic imaging physics.

b. Bachelor's degree in one of the physical sciences or engineering and three years of full-time experience in radiation safety including at least one year in diagnostic X-ray safety. Advanced degrees in related areas may be substituted for experience on an equal time basis, except that no substitution shall be allowed for the required one year of experience in diagnostic X-ray safety.

c. Those individuals listed as private inspectors immediately prior to September 20, 2006, shall be considered grandfathered.

2. Continuing qualifications:

a. Continuing education. Private inspectors must participate in continuing education programs relating to diagnostic X-ray, either by teaching or completing at least 15 continuing education units (CMEs) every three years.

b. Continuing experience. The private inspector must have ~~surveyed~~ inspected at least 10 diagnostic X-ray machines within the preceding 12 months.

3. Reestablishing qualifications. Private inspectors who fail to maintain the required continuing qualifications of this section may not perform the ~~surveys~~ inspections without the supervision of a qualified private inspector. Before independently ~~surveying~~ inspecting another facility, private inspectors must reestablish their qualifications, as follows:

a. Private inspectors who fail to meet the continuing educational requirements of this section shall obtain a sufficient number of continuing education units to bring

their total units up to five continuing education units during the preceding 12 months.

b. Private inspectors who fail to meet the continuing experience requirement of this section shall complete a satisfactory ~~survey~~ inspection of a sufficient number of facilities and machines under the direct supervision of a private inspector who meets the qualifications of this section to bring the number to the required level.

B. Private inspector, therapeutic X-ray and teletherapy machines. The person must have adequate knowledge, training, and experience to calibrate a therapeutic X-ray machine or teletherapy machine, ~~performing radiation protection surveys~~ perform inspections and to establish procedures for (and review the results of) spot-check measurements as evidenced by all of the following:

1. Initial qualifications: evidenced by one or more of the following:

a. Be certified by the American Board of Radiology in:

(1) Therapeutic radiological physics;

(2) Roentgen-ray and gamma-ray physics;

(3) X-ray and radium physics;

(4) Radiological physics;

b. Be certified by the American Board of Medical Physics in Radiation Oncology Physics;

c. Be certified by the Canadian College of Medical Physics; or

d. Hold a master's or doctor's degree in physics, biophysics, radiological physics, or health physics, and have completed one year of full time training in therapeutic radiological physics and also one year of full time work experience under the supervision of a radiation therapy physicist at a medical institution. To meet this requirement, the individual shall have performed the tasks listed in 12VAC5-481-3400 A; 12VAC5-481-3420 P; 12VAC5-481-3430 T; 12VAC5-481-3420 Q; and 12VAC5-481-3430 U under the supervision of a radiation therapy physicist during the year of work experience.

~~e.~~ Notwithstanding the provisions of 12VAC5-481-3390 D~~;~~, certification pursuant to subdivisions B 1 a, b or c of this section shall be required on or before July 1, 2007, for all persons currently qualifying as a radiation therapy physicist pursuant to subdivision B 1 d of this section.

2. Continuing qualifications.

a. Continuing education: Private inspectors must participate in continuing education programs relating to therapeutic X-ray and teletherapy machines, either by teaching or completing at least 15 continuing education units (CEUs) every three years.

b. Continuing experience: The private inspector must have ~~surveyed~~ inspected at least one therapeutic X-ray or teletherapy facilities and at least one therapeutic X-ray or teletherapy machine within the preceding 12 months.

3. Reestablishing qualifications. Private inspectors who fail to maintain the required continuing qualifications of this section may not perform ~~the surveys~~ an inspection without the supervision of a qualified private inspector. Before independently ~~surveying~~ inspecting another facility, private inspectors must reestablish their qualifications, as follows:

a. Private inspectors who fail to meet the continuing educational requirements of this section shall obtain a sufficient number of continuing education units to bring their total units up to five continuing education units during the preceding 12 months.

b. Private inspectors who fail to meet the continuing experience requirement of this section shall complete a satisfactory ~~survey~~ inspection of a sufficient number of facilities and machines under the direct supervision of a private inspector who meets the qualifications of this section to bring the number to the required level.

C. Private inspector, mammography. The person must have adequate knowledge, training, and experience to inspect mammography X-ray machines and facilities. All mammography private inspector conducting ~~surveys~~ inspections of mammography facilities and providing oversight of the facility quality assurance program must meet one of the following tracks, either through the initial master's degree of higher route or the alternative initial bachelor's degree route:

1. Initial qualifications:

Master Route:

a. Be certified by the American Board of Radiology (ABR) or the American Board of Medical Physics (ABMP) in:

(1) Diagnostic radiological physics;

(2) Radiological physics; or

(3) Diagnostic imaging physics;

b. A master's degree or higher in a physical science with at least 20 semester hours or equivalent of graduate or undergraduate physics; and

c. Twenty contact hours of mammography facility training; and

d. The experience of conducting ~~surveys~~ inspections of at least one mammography facility and a total of at least 10 mammography units.

Bachelor Route (must have been qualified before April 28, 1999):

a. A bachelor's degree in a physical science with at least 10 semester hours or equivalent of college level physics;

b. Forty contact hours of documented specialized training in conducting ~~surveys~~ inspections of mammography facilities; and

c. The experience of conducting ~~surveys~~ inspections of at least one mammography facility and a total of at least 20 mammography units. The training and experience requirements must be met after fulfilling the degree requirement.

2. Continuing qualifications.

a. Continuing education. At all times after the third anniversary of completion of the initial requirements of this section, the private inspector shall have taught or completed at least 15 continuing education units in mammography during the preceding three years.

b. Continuing experience. At all times after the first anniversary of the completion of the initial requirements of this section, the private inspector shall have ~~surveyed~~ inspected at least two mammography facilities and six machines in 24 months.

c. Before a private inspector may begin independently performing mammographic examinations using a new modality, that is, a modality other than one for which the physicist received training to qualify under this section, the inspector must receive at least eight hours of training in ~~surveying~~ inspecting units with the new modality.

3. Reestablishing qualifications. Private inspectors who fail to maintain the required continuing qualifications of this section may not perform the mammography ~~surveys~~ inspections without the supervision of a qualified private inspector. Before independently ~~surveying~~ inspecting another facility, private inspectors must reestablish their qualifications as follows:

a. Private inspectors who fail to meet the continuing educational requirements of this section shall obtain a sufficient number of continuing education units to bring their total units up to the required 15 in the previous three years.

b. Private inspectors who fail to meet the continuing experience requirement of this section shall complete a satisfactory ~~survey~~ inspection of three mammography facilities under the direct supervision of a private inspector who meets the qualifications of this section.

12VAC5-481-370. Certification of X-ray systems.

A. Every owner or operator of an X-ray machine shall:

1. Have the machine certified by the agency within 60 days of the date of installation and thereafter according to the inspection ~~survey~~ schedule in Part VI (12VAC5-481-1580 et seq.) of this chapter; and

2. Have the machine inspected whenever the machine is moved to a new location or according to the schedule in Part VI (12VAC5-481-1580 et seq.) of this chapter, whichever occurs first, by a private or state inspector; and

3. Submit to the agency one copy of each ~~radiation survey~~ inspection or calibration report for which records are required to be maintained pursuant to Part VI (12VAC5-481-1580 et seq.) of this chapter ~~and if~~. If the ~~survey~~ inspection was performed by a state inspector and the ~~survey~~ inspection was not initiated by the agency pay the appropriate fee as established by the ~~Board of Health~~ board.

B. Certification may be denied if any noncompliances are not corrected within 45 days from the date of inspection.

C. The agency shall issue a certificate when the data indicates the machine meets the board's standards. A copy of the certificate shall be displayed by the registrant in a conspicuous place in close proximity to the X-ray machine.

D. Certification may be denied if the machine does not meet the standards set forth in these regulations. If the certification is denied, the machine shall not be used for treatment, diagnosis, or evaluation of patients, whether human or animal, until the standards of the board have been met.

E. Final disposition of the machine, including electrical disconnection or storage, will be made within 90 days of agency review.

F. For facilities providing mammography services, the agency may conduct scheduled and random unannounced inspections, to ensure compliance with laws, regulations, or conditions specified by the board.

Part III
Licensing of Radioactive Material

Article 1
Purpose and Scope

12VAC5-481-380. Purpose and scope.

A. This part, and Parts V (12VAC5-481-1170 et seq.), VII (12VAC5-481-1660 et seq.), XI (12VAC5-481-2330 et seq.), ~~and~~ XIII (12VAC5-481-2950 et seq.), XIV (12VAC5-481-3140 et seq.) and XVI (12VAC5-481-3460 et seq.) of this chapter, provide for the licensing of radioactive material. No person shall receive, possess, use, transfer, own, or acquire radioactive material except as authorized pursuant to this part or Parts V (12VAC5-481-1170 et seq.), VII (12VAC5-481-1660 et seq.), XI (12VAC5-481-2330 et seq.), ~~and~~ XII (12VAC5-481-2660 et seq.), XIII (12VAC5-481-2950 et

seq.), XIV (12VAC5-481-3140 et seq.) and XVI (12VAC5-481-3460 et seq.) of this chapter, or as otherwise provided in these parts.

B. In addition to the requirements of this part, all licensees are subject to the requirements of Parts I (12VAC5-481-10 et seq.), IV (12VAC5-481-600 et seq.), X (12VAC5-481-2250 et seq.), and XIII (12VAC5-481-2950 et seq.) of this chapter. Furthermore, licensees engaged in industrial radiographic operations are subject to the requirements of Part V (12VAC5-481-1170 et seq.) of this chapter, licensees using radionuclides in the healing arts are subject to the requirements of Part ~~VI (12VAC5-481-1580 et seq.)~~ VII (12VAC5-481-1660 et seq.) of this chapter, licensees engaged in ~~land disposal of radioactive material are subject to the requirements of Part XI (12VAC5-481-2330 et seq.)~~ irradiator operations are subject to the requirements of Part XII (12VAC5-481-2660 et seq.) of this chapter, and licensees engaged in wireline and subsurface tracer studies are subject to the requirements of Part XIV (12VAC5-481-3140 et seq.) of this chapter.

Article 2
Exemptions from the Regulatory Requirements

12VAC5-481-390. Source material.

The following regulations, Carriers (10 CFR 40.12) and Unimportant quantities of source material ~~(10 CFR 40.13, 26 FR 284, January 14, 1961) and Definitions (10 CFR 40.4, 26 FR 284, January 14, 1961)~~ (10 CFR 40.13) are applicable in the Commonwealth of Virginia.

12VAC5-481-400. Radioactive material other than source material.

A. Exempt concentrations. The following ~~regulations~~ regulation, Exempt concentrations ~~(10 CFR 30.14, 58 FR 7736, February 9, 1993) and Definitions (10 CFR 30.4, 65 FR 54950, September 12, 2000) are~~ (10 CFR 30.14) is applicable in the Commonwealth of Virginia and include the regulation of natural occurring and accelerator produced radioactive materials (NARM).

B. Exempt quantities. The following ~~regulations~~ regulation, Exempt quantities ~~(10 CFR 30.18, 58 FR 7736, February 9, 1993) and Definitions (10 CFR 30.4, 65 FR 54950, September 12, 2000) are~~ (10 CFR 30.18) is applicable in the Commonwealth of Virginia and include the regulation of ~~natural occurring and accelerator produced radioactive materials~~ NARM. The exemption stated in paragraph (b) of 10 CFR 30.18 does not apply for radium-226.

C. Exempt items. ~~1.~~ The following ~~regulations~~ regulation, ~~Exempt quantities (10 CFR 30.15, 58 FR 7736, February 9, 1993) and Definitions (10 CFR 30.4, 65 FR 54950, September 12, 2000) are~~ Certain items containing byproduct material (10 CFR 30.15) is applicable in the Commonwealth of Virginia and include the regulation of ~~natural occurring and accelerator produced radioactive materials~~ NARM. The following item is specifically included: ~~one microcurie (37 kBq)~~ 37 kBq (1μCi) of radium-226 per timepiece in timepieces acquired prior to September 1, 1980.

~~2.~~ D. Self-luminous products containing radioactive material. The following ~~regulations~~ regulation, Self-luminous products containing tritium, krypton-85, or promethium-147 ~~(10 CFR 30.19, 58 FR 7736, February 9, 1993) and Definitions (10 CFR 30.4, 65 FR 54950, September 12, 2000) are~~ (10 CFR 30.19) is applicable in the Commonwealth of Virginia and ~~include~~ includes the regulation of ~~natural occurring and accelerator produced radioactive materials~~ NARM. In addition, any person is exempt from these regulations to the extent that such person receives, possesses, uses, transfers, or owns articles containing less than ~~0.1 microcurie (3.7 kBq)~~ 3.7 kBq (0.1 μCi) of radium-226 that were acquired prior to September 1, 1980.

~~3.~~ E. Gas and aerosol detectors containing radioactive material.

~~a.~~ 1. The following ~~regulations~~ regulation, Gas and aerosol detectors containing byproduct material ~~(10 CFR 30.20, 58 FR 7736, February 9, 1993) and Definitions (10 CFR 30.4, 65 FR 54950, September 12, 2000) are~~ (10CFR 30.20) is applicable in the Commonwealth of Virginia and include the regulation of ~~natural occurring and accelerator produced radioactive materials~~ NARM.

~~b.~~ 2. Gas and aerosol detectors previously manufactured and distributed to general licensees in accordance with a specific license issued by an agreement state shall be considered exempt under subdivision ~~3 a~~ 1 of this subsection, provided that the device is labeled in accordance with the specific license authorizing distribution of the generally licensed device, and provided further that they meet the requirements of 12VAC5-481-480 C.

~~c.~~ 3. Gas and aerosol detectors containing NARM previously manufactured and distributed in accordance with a specific license issued by a licensing state shall be considered exempt under subdivision ~~3 a~~ 1 of this subsection, provided that the device is labeled in accordance with the specific license authorizing distribution, and provided further that they meet the requirements of 12VAC5-481-480 C.

~~4.~~ F. Resins containing Scandium-46 and designed for sand consolidation in oil wells.

The following regulations, Resins containing Scandium-46 and designed for sand consolidation in oil wells ~~(10 CFR 30.16, 58 FR 7736, February 9, 1993) and Definitions (10 CFR 30.4, 65 FR 54950, September 12, 2000) are~~ (10 CFR 30.16) is applicable in the Commonwealth of Virginia.

G. Radioactive drug: Capsules containing carbon-14 urea for "in-vivo" diagnostic use for humans. The following regulation, Capsules containing carbon-14 urea for "in-vivo" diagnostic use for humans (10 CFR 30.21) is applicable in the Commonwealth of Virginia.

H. Special nuclear material. The following regulations, Carriers (10 CFR 70.12) and Department of Defense (10 CFR 70.13) are applicable in the Commonwealth of Virginia.

Article 3
Licenses

12VAC5-481-410. Types of licenses.

The following regulations, Types of licenses ~~(10 CFR 30.31, 65 FR 79187, December 18, 2000) and Definitions (10 CFR 30.4, 65 FR 54950, September 12, 2000)~~ (10 CFR 30.31, 10 CFR 40.20(a) and 10 CFR 70.18) are applicable in the Commonwealth of Virginia, and include the regulation of ~~natural occurring and accelerator produced radioactive materials~~ NARM.

12VAC5-481-420. General licenses -- source material.

A. Small quantities of source material. The following ~~regulations~~ regulation, Small quantities of source material ~~(10 CFR 40.22, 45 FR 55420, August 20, 1980) and Definitions (10 CFR 40.4, 26 FR 284, January 14, 1961) are~~ (10 CFR 40.22) is applicable in the Commonwealth of Virginia.

B. General license to receive title to source or byproduct material. The following ~~regulations~~ regulation, General license to receive title to source or byproduct material ~~(10 CFR 40.21, 45 FR 65531, October 3, 1980) and Definitions (10 CFR 40.4, 26 FR 284, January 14, 1961) are~~ (10 CFR 40.21) is applicable in the Commonwealth of Virginia.

C. Depleted uranium in industrial products and devices. The following ~~regulations~~ regulation, General license for use of certain industrial products or devices ~~(10 CFR 40.25, 60 FR 24551, May 9, 1995) and Definitions (10 CFR 40.4, 26 FR 284, January 14, 1961) are~~ (10 CFR 40.25) is applicable in the Commonwealth of Virginia.

12VAC5-481-430. General licenses -- radioactive material other than source material.

A. Certain devices and equipment. The following regulations, Certain devices and equipment ~~(10 CFR 31.3, 35 FR 3982, March 3, 1970)~~ (10 CFR 31.3) and Terms and Conditions ~~(10 CFR 31.2, 65 FR 79187, December 18, 2000)~~ (10 CFR 31.2) are applicable in the Commonwealth of Virginia.

B. Certain detecting, measuring, gauging or controlling devices and certain devices for producing light or an ionized atmosphere. The following regulations, ~~Certain devices and equipment (10 CFR 31.5, 68 FR 58804, October 10, 2003)~~ Certain detecting, measuring, gauging, or controlling devices and certain devices for producing light or an ionized atmosphere (10 CFR 31.5) and Terms and Conditions ~~(10 CFR 31.2, 65 FR 79187, December 18, 2000)~~ (10 CFR 31.2) are applicable in the Commonwealth of Virginia. In addition, any person who owns, receives, acquires, possesses, uses, or transfers radioactive material in a device pursuant to the general license in this subsection, shall comply with the provisions of 12VAC5-481-1090 and 12VAC5-481-1100 for reporting radiation incidents, theft, or loss of licensed material, but shall be exempt from the other requirements of Parts IV (12VAC5-481-600 et seq.) and X (12VAC5-481-2250 et seq.) of this chapter. The registration required by 10 CFR 31.5(c)(13)(i) shall be made to the agency. A registration invoice will be provided by the agency. The registration fee will be $50 per device.

C. The general license provided in 12VAC5-481-420 B is subject to the provisions of 12VAC5-481-100 through 12VAC5-481-210, 12VAC5-481-500, 12VAC5-481-570, 12VAC5-481-580 and Part XIII (12VAC5-481-2950 et seq.) of this chapter.

D. Luminous safety devices for use in aircraft. The following regulations, Luminous safety devices for use in aircraft ~~(10 CFR 31.7, 58 FR 67659, December 22, 1993)~~ (10 CFR 31.7) and Terms and Conditions ~~(10 CFR 31.2, 65 FR 79187, December 18, 2000)~~ (10 CFR 31.2) are applicable in the Commonwealth of Virginia. In addition, this general license is subject to the provisions of 12VAC5-481-100 through 12VAC5-481-210, 12VAC5-481-500, 12VAC5-481-570, 12VAC5-481-580, and Part XIII (12VAC5-481-2950 et seq.) of this chapter.

E. ~~Ownership of radioactive~~ General license to own byproduct material. The following regulations, ~~Ownership of radioactive material (10 CFR 31.9, 30 FR 8189, June 26, 1965) and~~ General license to own byproduct material (10 CFR 31.9), Terms and Conditions ~~(10 CFR 31.2, 65 FR 79187, December 18, 2000)~~ (10 CFR 31.2) and General license to own special nuclear material (10 CFR 70.20) are applicable in the Commonwealth of Virginia and includes ~~natural occurring and accelerator produced radioactive materials~~ NARM.

F. Calibration and reference sources.

1. The following regulations, Americium-241 in the form of calibration ~~and~~ or reference sources ~~(10 CFR 31.8, 56 FR 40767, August 16, 1991) and~~ (10 CFR 31.8), Terms and Conditions ~~(10 CFR 31.2, 65 FR 79187, December 18, 2000)~~ (10 CFR 31.2) and General license for calibration or reference sources (10 CFR 70.19) are applicable in the Commonwealth of Virginia and ~~includes natural occurring and accelerator produced radioactive materials~~ include NARM.

2. A general license is hereby issued to own, receive, possess, use, and transfer plutonium in the form of

calibration or reference sources in accordance with the provisions of subdivisions 4 and 5 of this subsection to any person who holds a specific license issued by the agency that authorizes him to receive, possess, use, and transfer radioactive material.

3. A general license is hereby issued to own, receive, possess, use, and transfer radium-226 in the form of calibration or reference sources in accordance with the provisions of subdivisions 4 and 5 of this subsection to any person who holds a specific license issued by the agency which authorizes him to receive, possess, use, and transfer radioactive material.

4. The general licenses in subdivisions 1 through 3 of this subsection apply only to calibration or reference sources that have been manufactured in accordance with the specifications contained in a specific license issued to the manufacturer or importer of the sources by the ~~Nuclear Regulatory Commission~~ NRC pursuant to 10 CFR 32.57 or 10 CFR 70.39, or that have been manufactured in accordance with the specifications contained in a specific license issued to the manufacturer by the agency, any agreement state or licensing state pursuant to licensing requirements equivalent to those contained in 10 CFR 32.57 or 10 CFR Part 70.39.

5. The general licenses provided in ~~subsection G~~ subdivisions 1 through 3 of this ~~section~~ subsection are subject to the provisions of 12VAC5-481-100 through 12VAC5-481-210, 12VAC5-481-500, 12VAC5-481-570, 12VAC5-481-580 and Parts IV (12VAC5-481-600 et seq.); X (12VAC5-481-2250 et seq.); and XIII (12VAC5-481-2950 et seq.) of this chapter. In addition, persons who own, receive, acquire, possess, use, or transfer one or more calibration or reference sources pursuant to these general licenses:

a. Shall not possess at any one time, at any one location of storage or use, more than ~~five microcuries (185 kBq)~~ 185 kBq (5 µCi) of americium-241, ~~five microcuries (185 kBq)~~ 185 kBq (5 µCi) of plutonium, or ~~five microcuries (185 kBq)~~ 185 kBq (5 µCi) of radium-226 in such sources;

b. Shall not receive, possess, use, or transfer such source unless the source, or the storage container, bears a label that includes one of the following statements, as appropriate, or a substantially similar statement that contains the information called for in one of the following statements, as appropriate:

(1) The receipt, possession, use and transfer of this source, _____

Model _____, Serial No. _____, are subject to a general license and the regulations of the Nuclear Regulatory Commission or of a state with which the Nuclear Regulatory Commission has entered into an agreement for the exercise of regulatory authority. Do not remove this label.

CAUTION—RADIOACTIVE MATERIAL

THIS SOURCE CONTAINS (AMERICIUM-241).

(PLUTONIUM) (Showing only the name of the appropriate material.)

DO NOT TOUCH RADIOACTIVE PORTION OF THIS SOURCE.

_____Name of manufacturer or importer

(2) The receipt, possession, use and transfer of this source, Model _____, Serial No. _____, are subject to a general license and the regulations of a licensing state. Do not remove this label.

CAUTION—RADIOACTIVE MATERIAL

THIS SOURCE CONTAINS RADIUM-226.

DO NOT TOUCH RADIOACTIVE PORTION OF THIS SOURCE.

_____Name of manufacturer or importer

c. Shall not transfer, abandon, or dispose of such source except by transfer to a person authorized by a license from the agency, the ~~Nuclear Regulatory Commission~~ NRC, ~~an~~ or another agreement state ~~or a licensing state~~ to receive the source;

d. Shall store such source, except when the source is being used, in a closed container adequately designed and constructed to contain americium-241, plutonium, or radium-226 that might otherwise escape during storage; and

e. Shall not use such source for any purpose other than the calibration of radiation detectors or the standardization of other sources.

~~11.~~ 6. These general licenses do not authorize the manufacture of calibration or reference sources containing americium-241, plutonium, or radium-226.

G. General license for use of radioactive material for certain in vitro clinical or laboratory testing.

The following regulations, General license for use of byproduct material for certain in vitro clinical or laboratory testing ~~(10 CFR 31.11, 68 FR 58804, October 10, 2003)~~ (10 CFR 31.11) and Terms and Conditions ~~(10 CFR 31.2, 65 FR 79187, December 18, 2000)~~ (10 CFR 31.2) are applicable in the Commonwealth of Virginia and ~~includes natural occurring and accelerator produced radioactive materials~~ include NARM. ~~The agency form equivalent to the Form NRC-483 is~~

~~designated RH-F 14, "Certificate In Vitro Testing with Radioactive Material Under General License."~~

H. Ice detection devices. The following regulations, General license for use strontium-90 in ice detection devices ~~(10 CFR 31.10, 58 FR 67659, December 22, 1993)~~ (10 CFR 31.10) and Terms and Conditions ~~(10 CFR 31.2 65 FR 79187, December 18, 2000)~~ (10 CFR 31.2) are applicable in the Commonwealth of Virginia. ~~This general license is subject to the provisions of 12VAC5-481-100 through 12VAC5-481-210, 12VAC5-481-500, 12VAC5-481-570, 12VAC5-481-580 and Part XIII (12VAC5-481-2950 et seq.) of this chapter.~~

I. Certain items and self-luminous products containing radium-226. The following regulations, General license for certain items and self-luminous products containing radium-226 (10 CFR 31.12) and Terms and Conditions (10 CFR 31.2) are applicable in the Commonwealth of Virginia.

Article 4
Specific Licenses

12VAC5-481-440. Filing application for specific licenses.

A. Applications for specific licenses shall be filed on a form prescribed by the agency.

B. The agency may at any time after the filing of the original application, and before the expiration of the license, require further statements in order to enable the agency to determine whether the application should be granted or denied or whether a license should be modified or revoked.

C. Each application shall be signed by the applicant or licensee or a person duly authorized to act for and on his behalf.

D. An application for a license may include a request for a license authorizing one or more activities.

~~E. In his application, the applicant may incorporate by reference information contained in previous applications, statements, or reports filed with the agency provided such references are clear and specific.~~

~~F.~~ E. Applications and documents submitted to the agency may be made available for public inspection ~~except that the agency may withhold any document or part thereof from public inspection if disclosure of its content is not required in the public interest and would adversely affect the interest of a person concerned~~ in accordance with the Virginia Freedom of Information Act (§2.2-3700 et seq. of the Code of Virginia). The agency may withhold records in accordance with specific exemptions in the Virginia Freedom of Information Act or as otherwise specified by law.

F. An application for a specific license to use radioactive material in the form of a sealed source or in a device that contains the sealed source must either:

1. Identify the source or device by manufacturer and model number as registered with the NRC under 10 CFR 32.210 or an agreement state under equivalent regulations;

2. Contain the information in 10 CFR 32.210(c); or

3. For sources or devices containing NARM manufactured prior to November 30, 2007, that are not registered with the NRC under 10 CFR 32.210 or with an agreement state, and for which the applicant is unable to provide all categories of information specified in 10 CFR 32.210(c), the applicant must provide:

a. All available information identified in 10 CFR 32.210(c) concerning the source, and, if applicable, the device; and

b. Sufficient additional information to demonstrate that there is reasonable assurance that the radiation safety properties of the source or device are adequate to protect health and minimize danger to life and property. Such information must include a description of the source or device, a description of radiation safety features, the intended use and associated operating experience, and the results of a recent leak test.

G. Each application to possess radioactive material in unsealed form, on a foil or plated source, or sealed in glass in excess of the quantities in 12VAC5-481-3740 shall contain one of the following:

1. An evaluation showing that the projected dose to a person offsite due to a release of radioactive material would not exceed 0.01 Sv (1 rem) total effective dose equivalent or 0.05 Sv (5 rem) to the thyroid; or

2. An emergency plan, reviewed and commented on by offsite response organizations expected to respond in the event of an accident that contains the following information:

a. Facility description. A brief description of the licensee or applicant's facility and surroundings.

b. Types of accidents. An identification of each type of radioactive materials accident for which actions by licensee staff or offsite response organizations will be needed to protect members of the public.

c. Classification of accidents. A method for classifying and declaring an accident as alert or site area emergency.

d. Detection of accidents. Identification of the means for detecting each type of alert or site area emergency in a timely manner.

e. Mitigation of consequences. A brief description of the means and equipment that are available for mitigating the consequences of each type of accident, including those provided to protect workers onsite, and a description of the program for maintaining the equipment.

f. Assessment of releases. A brief description of the methods and equipment available to assess releases of radioactive material.

g. Responsibilities. A brief description of the responsibilities of the licensee or applicant's personnel who will respond if an accident occurs, including identification of personnel responsible for promptly notifying offsite response organizations, including the agency.

h. Plan maintenance. A brief description of the positions assigned and methods to develop, maintain and update the plan.

i. A list of offsite response organizations, description of their responsibilities and anticipated actions, and copy of formal commitments, if any.

j. Notification and coordination. A brief description of the means to promptly notify the offsite response organizations and request offsite assistance including medical assistance for the treatment of contaminated injured onsite workers. The notification and coordination must include alternate provisions in case key personnel, parts of the facility, or some equipment are unavailable. The licensee shall also commit to notify the agency immediately after notification of the appropriate offsite response organizations and not later than one hour after the licensee declares an emergency.

k. Information to be communicated. A brief description of the types of information on facility status, radioactive releases and recommended protective actions, if necessary, to be given to offsite response organizations and the agency. A licensee shall allow the offsite response organizations expected to respond in case of an accident 60 days to comment on the licensees emergency plan before submitting it to the agency. A licensee shall provide any comments received within the 60 days to the agency with the emergency plan.

l. Training. A brief description of the frequency, performance objectives and plan for training that the licensee or applicant will provide workers on how to respond to an emergency, including any special instructions and orientation tours that the licensee or applicant will offer to fire, police, medical and other emergency personnel. The training shall familiarize personnel with site-specific hazards and emergency procedures. The training shall also prepare site personnel for their responsibilities in the event of accident scenarios postulated as most probable for the specific site, including the use of drills, exercises and team training for such scenarios.

m. Drills and exercises. Provisions for conducting quarterly communications checks with offsite response organizations and biennial onsite exercises to test response to simulated emergencies. The licensee or applicant shall invite offsite response organizations to participate in biennial exercises. The exercises shall use accident scenarios postulated as the most probable for the specific site and the scenarios may not be known to most exercise participants. Critiques of exercises must evaluate the appropriateness of the plan, emergency procedures, facilities, equipment, training of personnel and overall effectiveness of the response. Deficiencies found by the critiques must be corrected.

n. Safe condition. A brief description of the means of restoring the facility and surroundings to a safe condition after an accident.

o. Hazardous chemicals. A certification that the applicant has met its responsibilities under the Emergency Planning and Community Right-To-Know Act of 1986, Title III, P.L. 99-499, if applicable to the applicant's activities at the proposed place of use of the radioactive material.

H. An application from a medical facility or educational institution to produce PET radioactive drugs for noncommercial transfer to licensees in its consortium authorized for medical use under Part VII (12VAC5-481-1660 et seq.) of this chapter shall include:

1. A request for authorization for the production of PET radionuclides or evidence of an existing license issued under Part III (12VAC5-481-380 et. seq.) of this chapter for a PET radionuclide production facility within its consortium from which it receives PET radionuclides.

2. Evidence that the applicant is qualified to produce radioactive drugs for medical use by meeting one of the criteria in 12VAC5-481-480 I.

3. Identification of individual(s) authorized to prepare the PET radioactive drugs if the applicant is a pharmacy, and documentation that each individual meets the requirements of an ANP as specified in 12VAC5-481-480 I 2.

4. Information identified in 12VAC5-481-480 I 1 c on the PET drugs to be noncommercially transferred to members of its consortium.

I. Manufacture, preparation, or transfer for commercial distribution of drugs containing radioactive material for medical use under Part VII (12VAC5-481-1660 et seq.).

1. An application for a specific license to manufacture, prepare, or transfer for commercial distribution drugs containing radioactive material for use by persons authorized pursuant to Part VII (12VAC5-481-1660 et seq.) will be approved if:

a. The applicant satisfies the general requirements specified in 12VAC5-481-450;

b. The applicant submits evidence that the applicant is at least one of the following:

(1) Registered or licensed with the U.S. Food and Drug Administration (FDA) as a drug manufacturer;

(2) Registered or licensed with a state agency as a drug manufacturer;

(3) Licensed as a pharmacy by the Virginia Board of Pharmacy;

(4) Operating as a nuclear pharmacy within a federal medical institution; or

(5) A PET drug production facility registered with a state agency.

c. The applicant submits information on the radionuclide; the chemical and physical form; the maximum activity per vial, syringe, generator, or other container of the radioactive drug; and the shielding provided by the packaging to show it is appropriate for the safe handling and storage of the radioactive drugs by medical use licensees; and

d. The applicant satisfies the following labeling requirements:

(1) A label is affixed to each transport radiation shield, whether it is constructed of lead, glass, plastic, or other material, of a radioactive drug to be transferred for commercial distribution. The label must include the radiation symbol and the words "CAUTION, RADIOACTIVE MATERIAL" or "DANGER, RADIOACTIVE MATERIAL"; the name of the radioactive drug or its abbreviation; and the quantity of radioactivity at a specified date and time. For radioactive drugs with a half life greater than 100 days, the time may be omitted.

(2) A label is affixed to each syringe, vial, or other container used to hold a radioactive drug to be transferred for commercial distribution. The label must include the radiation symbol and the words "CAUTION, RADIOACTIVE MATERIAL" or "DANGER, RADIOACTIVE MATERIAL" and an identifier that ensures that the syringe, vial, or other container can be correlated with the information on the transport radiation shield label.

2. A licensee authorized to manufacture, prepare or transfer for commercial distribution radioactive drugs shall ensure that any individual preparing the drugs is one of the following:

a. An authorized nuclear pharmacist (ANP) as defined in 12VAC5-481-10;

b. An individual that meets the requirements specified in 12VAC5-481-1770 and 12VAC5-481-1790, and the licensee has received an approved license amendment identifying this individual as an ANP;

c. A pharmacist, as defined in 12VAC5-481-10, designated as an ANP if:

(1) The individual was a nuclear pharmacist preparing only radioactive drugs containing accelerator-produced radioactive material; and

(2) The individual practiced at a pharmacy at a government agency or federally recognized Indian Tribe before November 30, 2007, or at all other pharmacies before August 8, 2009, or an earlier date as noticed by the NRC; or

d. An individual under the supervision of an ANP as specified in 12VAC5-481-1710.

3. Shall provide to the agency no later than 30 days after the date that the licensee allows, under subdivision 2 a or c of this subsection, the individual to work as an ANP:

a. The individual's certification by a specialty board whose certification process has been recognized by the NRC with the written attestation signed by a preceptor as required by 12VAC5-481-1770;

b. An NRC or another agreement state license;

c. NRC master materials licensee permit;

d. The permit issued by a licensee or NRC master materials permittee of broad scope or the authorization from a commercial nuclear pharmacy authorized to list its own authorized nuclear pharmacist; or

e. Documentation that only accelerator-produced radioactive materials were used in the practice of nuclear pharmacy at a government agency or federally recognized Indian Tribe before November 30, 2007, or at all other locations of use before August 8, 2009, or an earlier date as noticed by the NRC; and

f. The Virginia Board of Pharmacy's license.

4. A licensee shall possess and use instrumentation to measure the radioactivity of radioactive drugs. The licensee shall have procedures for use of the instrumentation. The licensee shall measure, by direct measurement or by combination of measurements and calculations, the amount of radioactivity in dosages of alpha, beta, or photon-emitting radioactive drugs prior to transfer for commercial distribution. In addition, the licensee shall:

a. Perform tests before initial use, periodically, and following repair, on each instrument for accuracy, linearity, and geometry dependence, as appropriate for the use of the instrument; and make adjustments when necessary; and

b. Check each instrument for constancy and proper operation at the beginning of each day of use.

5. Nothing in this subsection relieves the licensee from complying with applicable FDA, other federal, and state requirements governing radioactive drugs.

6. Each licensee preparing technetium-99m radiopharmaceuticals from molybdenum-99/technetium-99m generators or rubidium-82 from strontium-82/ryubidium-82 generators shall test the generator eluates for molybdenum-99 breakthrough or strontium-82 and strontium-85 contamination in accordance with 12VAC5-481-1930. The licensee shall record the results of each test and retain each record for three years after the record is made.

12VAC5-481-450. General requirements for the issuance of specific licenses.

A. A license application will be approved if the agency determines that:

1. The applicant is qualified by reason of training and experience to use the material in question for the purpose requested in accordance with these regulations in such a manner as to minimize danger to public health and safety or property;

2. The applicant's proposed equipment, facilities, and procedures are adequate to minimize danger to public health and safety or property;

3. The issuance of the license will not be inimical to the health and safety of the public; ~~and~~

4. The applicant has described in the application how facility design and procedures for operation will minimize, to the extent practicable, contamination of the facility and the environment, facilitate eventual decommissioning, and minimize, to the extent practicable, the generation of radioactive waste; and

~~4.~~ 5. The applicant satisfies any applicable special requirements in 12VAC5-481-460, 12VAC5-481-470, 12VAC5-481-480, Part V (12VAC5-481-1170 et seq.), Part VII (12VAC5-481-1660 et seq.), Part XI (12VAC5-481-2330 et seq.), ~~or~~ Part XII (12VAC5-481-2660 et seq.), Part XIV (12VAC5-481-3140 et seq.) or Part XVI (12VAC5-281-3460 et seq.) of this chapter.

B. Environmental report, commencement of construction. In the case of an application for a license to receive and possess radioactive material for commercial waste disposal by land burial, or for the conduct of any other activity that the agency determines will significantly affect the quality of the environment, the agency, before commencement of construction of the plant or facility in which the activity will be conducted, has concluded, after weighing the environmental, economic, technical and other benefits against environmental costs and considering available alternatives, that the action called for is the issuance of the proposed license, with any appropriate conditions to protect environmental values. Commencement of construction prior to such conclusion shall be grounds for denial of a license to receive and possess radioactive material in such plant or facility. As used in this subsection the term "commencement of construction" means any clearing of land, excavation, or other substantial action that would adversely affect the environment of a site. The term does not mean site exploration, necessary roads for site exploration, borings to determine foundation conditions, or other preconstruction monitoring or testing to establish background information related to the suitability of the site or the protection of environmental values.

~~C. Financial surety arrangements for site reclamation.~~

~~1. Pursuant to §32.1-231 of the Code of Virginia, and as otherwise provided, financial surety arrangements for site reclamation that may consist of surety bonds, cash deposits, certificates of deposit, deposits of government securities, letters or lines of credit, or any combination of the above for the categories of licensees listed in subdivision 4 of this subsection shall be established to ensure the protection of the public health and safety in the event of abandonment, default, or other inability of the licensee to meet the requirements of the Act and this chapter.~~

~~a. The amount of funds to be ensured by such surety arrangements shall be based on agency-approved cost estimates.~~

~~b. Self-insurance, or any arrangement that essentially constitutes self-insurance, will not satisfy the surety requirement since this provides no additional assurance other than that which already exists through license requirements.~~

~~2. The arrangements required in subdivision 1 of this subsection shall be established prior to issuance of the license to assure that sufficient funds will be available to carry out the decontamination and decommissioning of the facility.~~

~~3. Amendments to licenses in effect on September 20, 2006, may be issued providing that the required surety arrangements are established within 90 days after September 20, 2006.~~

~~4. The following specific licensees are required to make financial surety arrangements:~~

~~a. Major processors;~~

~~b. Waste handling licensees;~~

~~c. Former United States Atomic Energy Commission or Nuclear Regulatory Commission licensed facilities; and~~

~~d. All others except persons exempt pursuant to subdivision 5 of this subsection.~~

~~5. The following persons are exempt from the requirements of subdivision 1 of this subsection:~~

~~a. All state, local, or other government agencies, unless they are subject to subdivision 4 b of this subsection;~~

~~b. Persons authorized to possess no more than 1,000 times the quantity specified in Appendix C or combination of radioactive material listed therein as given in Appendix C, Note 1;~~

~~c. Persons authorized to possess hydrogen-3 contained as hydrogen gas in a sealed source; or~~

~~d. Persons authorized to possess radioactive noble gases in sealed sources with no radioactive daughter product with half-life greater than 30 days.~~

C. Financial assurance and records for decommissioning.

1. A person applying for a specific license authorizing the possession and use of unsealed radioactive material shall submit a decommissioning funding plan as described in subdivision 6 of this subsection with the license application for any of the following types of materials:

a. Unsealed radioactive material with a half-life greater than 120 days and in quantities greater than 10^5 times the applicable quantities listed in 12VAC5-481-3750.

b. Unsealed radioactive material involving a combination of isotopes with R divided by 10^5 being greater than one, where R is defined as the sum of the ratios of the quantity of each isotope to the applicable value in 12VAC5-481-3750.

2. A person applying for a specific license authorizing the possession and use of radioactive material not covered by subdivision 1 of this subsection with a half-life greater than 120 days and in quantities specified in subdivision 5 of this subsection shall do either of the following:

a. Submit a decommissioning funding plan as described in subdivision 6 of this subsection.

b. Submit a written certification, signed by the chief financial officer or other individual designated by management to represent the licensee, that financial assurance has been provided in the amount prescribed in subdivision 5 of this subsection using one of the methods described in subdivision 6 of this subsection and a signed original of the financial instrument obtained to satisfy the requirements of subdivision 7 of this subsection. The written certification may state that the appropriate assurance will be obtained after the application has been approved and the license issued by the agency but before receipt of radioactive material by the applicant. If the applicant defers execution of the financial instrument until after the license has been issued, the applicant shall submit to the agency a signed original of the financial instrument obtained before receipt of licensed material.

3. The following are exempt from the requirements of this subsection:

a. A state, local or other government agency, except for a government agency licensed to handle or process radioactive waste.

b. A person authorized to possess only radioactive materials with a half-life of 65 days or less.

c. Other persons exempted by the agency based on a review of the license application.

4. Implementation.

a. A person who possesses a specific license authorizing the possession and use of radioactive material issued on or after the effective date as stated in 12VAC5-481-160 that is of a type described in subdivision 1 of this subsection, shall provide financial assurance for decommissioning under this section.

b. A person who possesses a specific license issued before the effective date as stated in 12VAC5-481-160 shall do one of the following:

(1) For a license authorizing the use of radioactive material meeting the criteria of subdivision 1 of this subsection, submit a decommissioning funding plan as described in subdivision 6 of this subsection and a certification of financial assurance for at least $1,125,000, under the criteria in subdivision 5 of this subsection, with any application for license renewal.

(2) For a license authorizing the use of radioactive material meeting the criteria of subdivision 2 of this subsection, submit a decommissioning funding plan as described in subdivision 6 of this subsection or a certification of financial assurance for decommissioning according to the criteria of subdivision 5 of this subsection with any application for license renewal.

c. The term of the financial assurance shall be from the issuance or renewal of the license until the agency terminates the license.

d. A licensee's financial assurance arrangements may be reviewed annually by the agency to recognize any increases or decreases resulting from inflation or deflation, changes in engineering plans, activities performed or any other condition affecting costs for decommissioning to ensure that sufficient funding is available to cover liability that remains until license termination.

5. Required amounts for financial assurance.

a. A licensee shall provide the following minimum amounts of financial assurance for decommissioning, unless otherwise specified by the agency:

(1) $1,125,000 if the quantity of material is greater than 10^4 but less than or equal to 10^5 times the applicable quantities of 12VAC5-481-3750 in unsealed form. For a combination of isotopes, R divided by 10^4 is greater than one but R divided by 10^5 is less than or equal to one.

(2) $225,000 if the quantity of material is greater than 10^3 but less than or equal to 10^4 times the applicable quantities of 12VAC5-481-3750 in unsealed form. For a combination of isotopes, R divided by 10^3 is greater than one but R divided by 10^4 is less than or equal to one.

(3) $113,000 if the quantity of material is greater than 10^{10} times the applicable quantities of 12VAC5-481-3750 in sealed sources or plated foils. For a combination of isotopes, R divided by 10^{10} is greater than one.

b. The agency may eliminate, reduce or raise the required amount of financial assurance under subdivision 5 a of this subsection for an individual applicant or licensee based on the cost estimate for decommissioning included in the decommissioning funding plan required under subdivision 6 a of this subsection.

6. Decommissioning funding plan.

a. A decommissioning funding plan shall include all the following information:

(1) A cost estimate for decommissioning that considers all of the following:

(a) Probable extent of contamination through the use or possession of radioactive material at the facility or site and the projected cost of removal of the contamination to a level specified by the agency. The evaluation shall encompass probable contaminating events associated with the licensee's or applicant's operation and shall be based on factors such as quantity, half-life, radiation hazard, toxicity and chemical and physical forms.

(b) The extent of possible offsite property damage caused by operation of the facility or site.

(c) The cost of removal and disposal of radiation sources that are or would be generated, stored, processed or otherwise present at the licensed facility or site.

(d) The costs involved in reclaiming the property on which the facility or site is located and all other properties contaminated by radioactive material authorized under the license.

(2) A description of the method of assuring funds for decommissioning according to subdivision 7 of this subsection.

(3) A description of the method for adjusting cost estimates and associated funding levels periodically over the life of the facility.

b. The decommissioning funding plan shall also contain the licensee's certification that financial assurance has been provided in the amount of the cost estimate for decommissioning and a signed original of the financial instrument obtained to satisfy the requirements of subdivision 7 of this subsection.

7. A licensee may use any of the following methods to provide financial assurance for decommissioning:

a. Prepayment. Prepayment is the deposit prior to operation into an account segregated from licensee assets and outside the licensee's administrative control of cash or liquid assets in an amount sufficient to pay decommissioning costs. Prepayment may be in the form of a trust, escrow account, government fund, certificate of deposit or deposit of government securities.

b. Surety method, insurance or other guarantee. Payment of future decommissioning costs shall be guaranteed by a surety method, insurance or other guarantee. A surety method may be in the form of a surety bond, letter of credit or line of credit. Self insurance, or any method that essentially constitutes self-insurance, may not be used as a method of providing financial assurance. Any surety method or insurance used to provide financial assurance for decommissioning must meet all of the following criteria:

(1) The surety method or insurance shall be open-ended or, if written for a specified term, renewed automatically unless 90 days or more prior to the renewal date, the issuer notifies the agency, the beneficiary and the licensee of its intention not to renew. The surety method or insurance shall also provide that the full face amount be paid to the beneficiary automatically prior to the expiration without proof of forfeiture if the licensee fails to provide a replacement acceptable to the agency within 30 days after receipt of notification of cancellation.

(2) The surety method or insurance shall be payable to a trust established for decommissioning costs. The agency shall approve the trustee and the trust.

(3) The surety method or insurance shall remain in effect until the agency terminates the license.

c. External sinking fund. An external sinking fund may be used in which deposits are made at least annually, coupled with a surety method or insurance, the value of which may decrease by the amount being accumulated in the sinking fund. An external sinking fund may be in the form of a trust, escrow account, government fund, certificate of deposit or deposit of government securities.

The surety or insurance provisions shall meet the requirements of subdivision 7 b of this subsection.

d. Statement of intent. A state or local government licensee exempt under subdivision 3 of this subsection shall submit a written statement of intent containing a cost estimate for decommissioning or an amount based on subdivision 5 of this subsection. The cost estimate shall indicate that funds for decommissioning will be obtained when necessary.

8. A licensee shall keep the following records of information related to decommissioning of a facility in an identified location until the site is released for unrestricted use:

a. Records of spills or other unusual occurrences involving the spread of radioactive contamination in and around the facility, equipment or site. The records may be limited to instances where contamination remains after any cleanup procedures or when there is reasonable likelihood that radioactive contaminants may have spread to inaccessible areas or into porous materials such as concrete. The records shall include any known information on identification of involved nuclides, quantities, forms and concentrations.

b. As-built drawings and modifications of structures and equipment in restricted areas where radioactive materials are used or stored, and of locations of possible inaccessible contamination such as buried pipes that may contain radioactive contaminants. If required drawings are referenced, each relevant document does not need to be indexed individually. If drawings are not available, a licensee shall substitute appropriate records of available information concerning the areas and locations of inaccessible contamination.

Note: As-built architectural and engineering drawings need to reflect the final details of the structures and equipment as they were constructed.

c. Except for areas containing only sealed sources that have not leaked or where no contamination remains after a leak, or byproduct materials with half-lives of less than 65 days, a list containing all the following:

(1) All areas currently and formerly designated as restricted areas.

(2) All areas outside of restricted areas that require documentation under subdivision 8 (c) 1 of this subsection.

(3) All areas outside of restricted areas where current and previous wastes have been buried as documented under 12VAC5-481-1060.

(4) All areas outside of restricted areas that contain radioactive material such that, if the license expired, the licensee would be required to either decontaminate the area to meet the criteria for decommissioning in 12VAC5-481-510 or apply for approval for disposal under 12VAC5-481-920.

d. Records of the cost estimate performed for the decommissioning funding plan or the amount certified for decommissioning and records of the funding method used for assuring funds.

9. A licensee shall keep the records in subdivision 8 of this subsection until the site is decommissioned and approved by the agency for unrestricted use.

10. Prior to a licensed activity being transferred to another licensee under 12VAC5-481-500 B, the original licensee shall transfer all records under subdivision 8 of this subsection to the new licensee. The new licensee shall be responsible for maintaining the records until their license is terminated by the agency.

12VAC5-481-460. ~~Special requirements for issuance of certain specific licenses for radioactive material.~~ (Repealed.)

~~A. Reserved.~~

~~B. Reserved.~~

~~C. Reserved.~~

~~D. Reserved.~~

~~E. Use of sealed sources in industrial radiography. In addition to the requirements set forth in 12VAC5-481-450, a specific license for use of sealed sources in industrial radiography will be issued if:~~

~~1. The applicant will have an adequate program for training radiographic personnel and submits to the agency a schedule or description of such program that specifies the:~~

~~a. Initial training,~~

~~b. Periodic training,~~

~~c. On-the-job training, and~~

~~d. Means to be used by the licensee to determine the radiographic personnel's knowledge and understanding of and ability to comply with agency regulations and licensing requirements, and the operating and emergency procedures of the applicant.~~

~~2. The applicant has established and submits to the agency satisfactory written operating and emergency procedures described in 12VAC5-481-1330;~~

~~3. The applicant will have an internal inspection system adequate to assure that these regulations, license provisions, and the applicant's operating and emergency procedures are followed by radiographic personnel; the inspection system shall include the performance of internal~~

~~inspections at intervals not to exceed three months and the retention of records of such inspections for two years;~~

~~4. The applicant submits to the agency a description of the overall organizational structure pertaining to the industrial radiography program, including specified delegations of authority and responsibility for operation of the program;~~

~~5. The applicant who desires to conduct his own leak tests has established adequate procedures to be followed in testing sealed sources for possible leakage and contamination and submits to the agency a description of such procedures including:~~

~~a. Instrumentation to be used,~~

~~b. Method of performing tests, and~~

~~c. Pertinent experience of the individual who will perform the test; and~~

~~6. The licensee shall conduct a program for inspection and maintenance of radiographic exposure devices and storage containers to assure proper functioning of components important to safety.~~

12VAC5-481-470. Special requirements for specific licenses of broad scope.

This section prescribes requirements for the issuance of specific licenses of broad scope for radioactive material and certain regulations governing holders of such licenses. (Authority to transfer possession or control by the manufacturer, processor, or producer of any equipment, device, commodity, or other product containing byproduct material whose subsequent possession, use, transfer, and disposal by all other persons are exempted from regulatory requirements may be obtained only from the Nuclear Regulatory Commission, Washington, D.C. 20555-0001.)

A. The different types of broad scope licenses are set forth below:

1. A "Type A specific license of broad scope" is a specific license authorizing receipt, acquisition, ownership, possession, use and transfer of any chemical or physical form of the radioactive material specified in the license, but not exceeding quantities specified in the license, for any authorized purpose. The quantities specified are usually in the multicurie range.

2. A "Type B specific license of broad scope" is a specific license authorizing receipt, acquisition, ownership, possession, use and transfer of any chemical or physical form of radioactive material specified in ~~Appendix D~~ 12VAC5-481-3760, for any authorized purpose. The possession limit for a Type B license of broad scope, if only one radionuclide is possessed thereunder, is the quantity specified for that radionuclide in ~~Appendix D~~ 12VAC5-481-3760, Column I. If two or more radionuclides are possessed thereunder, the possession limit for each is determined as follows: for each radionuclide, determine the ratio of the quantity possessed to the applicable quantity specified in ~~Appendix D~~ 12VAC5-481-3760, Column I, for that radionuclide. The sum of the ratios for all radionuclides possessed under the license shall not exceed unity.

3. A "Type C specific license of broad scope" is a specific license authorizing receipt, acquisition, ownership, possession, use, and transfer of any chemical or physical form of radioactive material specified in ~~Appendix D~~ 12VAC5-481-3760, for any authorized purpose. The possession limit for a Type C license of broad scope, if only one radionuclide is possessed thereunder, is the quantity specified for that radionuclide in ~~Appendix D~~ 12VAC5-481-3760, Column II. If two or more radionuclides are possessed thereunder, the possession limit is determined for each as follows: for each radionuclide, determine the ratio of the quantity possessed to the applicable quantity specified in ~~Appendix D~~ 12VAC5-481-3760, Column II, for that radionuclide. The sum of the ratios for all radionuclides possessed under the license shall not exceed unity.

B. An application for a Type A specific license of broad scope will be approved if:

1. The applicant satisfies the general requirements specified in 12VAC5-481-450;

2. The applicant has engaged in a reasonable number of activities involving the use of radioactive material; and

3. The applicant has established administrative controls and provisions relating to organization and management, procedures, recordkeeping, material control and accounting, and management review that are necessary to assure safe operations, including:

a. The establishment of a radiation safety committee composed of such persons as a radiation safety officer, a representative of management, and persons trained and experienced in the safe use of radioactive material;

b. The appointment of a radiation safety officer who is qualified by training and experience in radiation protection, and who is available for advice and assistance on radiation safety matters; and

c. The establishment of appropriate administrative procedures to assure:

(1) Control of procurement and use of radioactive material;

(2) Completion of safety evaluations of proposed uses of radioactive material that take into consideration such matters as the adequacy of facilities and equipment, training and experience of the user, and the operating or handling procedures; and

(3) Review, approval, and recording by the radiation safety committee of safety evaluations of proposed uses prepared in accordance with subdivision 3 c (2) of this subsection prior to use of the radioactive material.

C. An application for a Type B specific license of broad scope will be approved if:

1. The applicant satisfies the general requirements specified in 12VAC5-481-450; and

2. The applicant has established administrative controls and provisions relating to organization and management, procedures, recordkeeping, material control and accounting, and management review that are necessary to assure safe operations, including:

a. The appointment of a radiation safety officer who is qualified by training and experience in radiation protection, and who is available for advice and assistance on radiation safety matters, and

b. The establishment of appropriate administrative procedures to assure,

(1) Control of procurement and use of radioactive material,

(2) Completion of safety evaluations of proposed uses of radioactive material that take into consideration such matters as the adequacy of facilities and equipment, training and experience of the user, and the operating or handling procedures, and

(3) Review, approval, and recording by the radiation safety officer of safety evaluations of proposed uses prepared in accordance with subdivision 2 b (2) of this subsection prior to use of the radioactive material.

D. An application for a Type C specific license of broad scope will be approved if:

1. The applicant satisfies the general requirements specified in 12VAC5-481-450;

2. The applicant submits a statement that radioactive material will be used only by, or under the direct supervision of, individuals who have received:

a. A college degree at the bachelor level, or equivalent training and experience, in the physical or biological sciences or in engineering, and

b. At least 40 hours of training and experience in the safe handling of radioactive material, and in the characteristics of ionizing radiation, units of radiation dose and quantities, radiation detection instrumentation, and biological hazards of exposure to radiation appropriate to the type and forms of radioactive material to be used; and

3. The applicant has established administrative controls and provisions relating to procurement of radioactive material, procedures, recordkeeping, material control and accounting, and management review necessary to assure safe operations.

E. Specific licenses of broad scope are subject to the following conditions:

1. Unless specifically authorized, persons licensed pursuant to 12VAC5-481-470 shall not:

a. Conduct tracer studies in the environment involving direct release of radioactive material;

b. Receive, acquire, own, possess, use, or transfer devices containing ~~100,000 curies (3.7 PBq)~~ 3.7 PBq (100,000 Ci) or more of radioactive material in sealed sources used for irradiation of materials;

c. Conduct activities for which a specific license issued by the agency under ~~12VAC5-481-460, 12VAC5-481-480~~ Part III (12VAC5-481-380 et. seq.), Part V (12VAC5-481-1170 et. seq.) or ~~Parts~~ Part VII (12VAC5-481-1660 et seq.) ~~and XI (12VAC5-481-2330 et seq.)~~ of this chapter is required; or

d. Add or cause the addition of radioactive material to any food, beverage, cosmetic, drug, or other product designed for ingestion or inhalation by, or application to, a human being.

2. Each Type A specific license of broad scope issued under this part shall be subject to the condition that radioactive material possessed under the license may only be used by, or under the direct supervision of, individuals approved by the licensee's radiation safety committee.

3. Each Type B specific license of broad scope issued under this part shall be subject to the condition that radioactive material possessed under the license may only be used by, or under the direct supervision of, individuals approved by the licensee's radiation safety officer.

4. Each Type C specific license of broad scope issued under this part shall be subject to the condition that radioactive material possessed under the license may only be used by, or under the direct supervision of, individuals who satisfy the requirements of subsection D of this section.

12VAC5-481-480. Special requirements for a specific license to manufacture, assemble, repair, or distribute commodities, products, or devices that contain radioactive material.

A. ~~Licensing the introduction of radioactive material into products in exempt concentrations.~~ Reserved.

~~1. In addition to the requirements set forth in 12VAC5-481-450, a specific license authorizing the introduction of~~

~~radioactive material into a product or material owned by or in the possession of the licensee or another to be transferred to persons exempt under 12VAC5-481-400 A will be issued if:~~

~~a. The applicant submits a description of the product or material into which the radioactive material will be introduced, intended use of the radioactive material and the product or material into which it is introduced, method of introduction, initial concentration of the radioactive material in the product or material, control methods to assure that no more than the specified concentration is introduced into the product or material, estimated time interval between introduction and transfer of the product or material, and estimated concentration of the radioactive material in the product or material at the time of transfer; and~~

~~b. The applicant provides reasonable assurance that the concentrations of radioactive material at the time of transfer will not exceed the concentrations in Appendix C , that reconcentration of the radioactive material in concentrations exceeding those in Appendix C is not likely, that use of lower concentrations is not feasible, and that the product or material is not likely to be incorporated in any food, beverage, cosmetic, drug or other commodity or product designed for ingestion or inhalation by, or application to, a human being. Appendix C refers to Appendix C to Part 20 – Quantities of Licensed Material Requiring Labeling (10 CFR 20, Appendix C, 60 FR 20186, April 25, 1995).~~

~~2. Each person licensed under this subsection shall file an annual report with the agency that shall identify the type and quantity of each product or material into which radioactive material has been introduced during the reporting period; name and address of the person who owned or possessed the product or material, into which radioactive material has been introduced, at the time of introduction; the type and quantity of radionuclide introduced into each such product or material; and the initial concentrations of the radionuclide in the product or material at time of transfer of the radioactive material by the licensee. If no transfers of radioactive material have been made pursuant to this subsection during the reporting period, the report shall so indicate. The report shall cover the year ending June 30, and shall be filed within 30 days thereafter.~~

B. Licensing the distribution of radioactive material in exempt quantities. (Authority to transfer possession or control by the manufacturer, processor, or producer of any equipment, device, commodity, or other product containing ~~byproduct~~ radioactive material whose subsequent possession, use, transfer, and disposal by all other persons are exempted from regulatory requirements may be obtained only from the Nuclear Regulatory Commission, Washington, D.C. 20555-0001.)

~~1. An application for a specific license to distribute NARM to persons exempted from these regulations pursuant to 12VAC5-481-400 B will be approved if:~~

~~a. The radioactive material is not contained in any food, beverage, cosmetic, drug, or other commodity designed for ingestion or inhalation by, or application to, a human being;~~

~~b. The radioactive material is in the form of processed chemical elements, compounds, or mixtures, tissue samples, bioassay samples, counting standards, plated or encapsulated sources, or similar substances, identified as radioactive and to be used for its radioactive properties, but is not incorporated into any manufactured or assembled commodity, product, or device intended for commercial distribution; and~~

~~c. The applicant submits copies of prototype labels and brochures and the agency approves such labels and brochures.~~

~~2. The license issued under this subdivision 1 of this subsection is subject to the following conditions:~~

~~a. No more than 10 exempt quantities shall be sold or transferred in any single transaction. However, an exempt quantity may be composed of fractional parts of one or more of the exempt quantity provided the sum of the fractions shall not exceed unity.~~

~~b. Each exempt quantity shall be separately and individually packaged. No more than 10 such packaged exempt quantities shall be contained in any outer package for transfer to persons exempt pursuant to 12VAC5-481-400 B. The outer package shall be such that the dose rate at the external surface of the package does not exceed 0.5 millirem (μSv) per hour.~~

~~c. The immediate container of each quantity or separately packaged fractional quantity of radioactive material shall bear a durable, legible label that:~~

~~(1) Identifies the radionuclide and the quantity of radioactivity, and~~

~~(2) Bears the words "Radioactive Material."~~

~~d. In addition to the labeling information required by subdivision 2 c of this subsection, the label affixed to the immediate container, or an accompanying brochure, shall:~~

~~(1) State that the contents are exempt from licensing state requirements,~~

~~(2) Bear the words "Radioactive Material Not for Human Use Introduction into Foods, Beverages, Cosmetics, Drugs, or Medicinals, or into Products~~

~~Manufactured for Commercial Distribution is Prohibited Exempt Quantities Should Not Be Combined", and~~

~~(3) Set forth appropriate additional radiation safety precautions and instructions relating to the handling, use, storage, and disposal of the radioactive material.~~

~~3. Each person licensed under this subsection shall maintain records identifying, by name and address, each person to whom radioactive material is transferred for use under 12VAC5-481-400-B or the equivalent regulations of a licensing state, and stating the kinds and quantities of radioactive material transferred. An annual summary report stating the total quantity of each radionuclide transferred under the specific license shall be filed with the agency. Each report shall cover the year ending June 30, and shall be filed within 30 days thereafter. If no transfers of radioactive material have been made pursuant to 12VAC5-481-400-B during the reporting period, the report shall so indicate.~~

~~C. Licensing the incorporation of naturally occurring and accelerator produced radioactive material into gas and aerosol detectors. An application for a specific license authorizing the incorporation of NARM into gas and aerosol detectors to be distributed to persons exempt under 12VAC5-481-400-C-3 will be approved if the application satisfies requirements equivalent to those contained in 10 CFR 32.26. The maximum quantity of radium-226 in each device shall not exceed 0.1 microcurie (3.7 kBq).~~

~~D.~~ C. Licensing the manufacture ~~and distribution~~ or initial transfer of devices to persons generally licensed under 12VAC5-481-430 ~~D~~ B.

1. An application for a specific license to manufacture or ~~distribute~~ initially transfer devices containing radioactive material, excluding special nuclear material, to persons generally licensed under 12VAC5-481-430 ~~D~~ B or equivalent regulations of the ~~Nuclear Regulatory Commission~~ NRC, ~~an~~ or another agreement state~~, or a licensing state~~ will be approved if:

a. The applicant satisfies the general requirements of 12VAC5-481-450;

b. The applicant submits sufficient information relating to the design, manufacture, prototype testing, quality control, labels, proposed uses, installation, servicing, leak testing, operating and safety instructions, and potential hazards of the device to provide reasonable assurance that:

(1) The device can be safely operated by persons not having training in radiological protection,

(2) Under ordinary conditions of handling, storage, and use of the device, the radioactive material contained in the device will not be released or inadvertently removed from the device, and it is unlikely that any person will receive in any period of one calendar quarter a dose in excess of 10% of the limits specified ~~in the table~~ in 12VAC5-481-640, and

(3) Under accident conditions such as fire and explosion associated with handling, storage, and use of the device, it is unlikely that any person would receive an external radiation dose or dose commitment in excess of the ~~following organ doses~~ dose to the appropriate organ as specified in 12VAC5-481-3580, Column IV; and

~~Whole body; head and trunk; active blood-forming organs; gonads; or lens of eye~~	~~15 rem (150 mSv)~~
~~Hands and forearms; feet and ankles; localized areas of skin averaged over areas no larger than 1 square centimeter~~	~~200 rem (2 Sv)~~
~~Other organs~~	~~50 rem (500 mSv);~~

~~and~~

c. Each device bears a durable, legible, clearly visible label or labels approved by the agency, which contain in a clearly identified and separate statement:

(1) Instructions and precautions necessary to assure safe installation, operation, and servicing of the device; documents such as operating and service manuals may be identified in the label and used to provide this information;

(2) The requirement, or lack of requirement, for leak testing, or for testing any "on-off" mechanism and indicator, including the maximum time interval for such testing, and the identification of radioactive material by isotope, quantity of radioactivity, and date of determination of the quantity, and

(3) The information called for in one of the following statements, as appropriate, in the same or substantially similar form:

(a) The receipt, possession, use, and transfer of this device, Model _____, Serial No. _____, are subject to a general license or the equivalent and the regulations of the Nuclear Regulatory Commission or a state with which the Nuclear Regulatory Commission has entered into an agreement for the exercise of regulatory authority. This label shall be maintained on the device in a legible condition. Removal of this label is prohibited.

CAUTION—RADIOACTIVE MATERIAL

_____Name of manufacturer or ~~distributor~~ initial transferor

(b) The receipt, possession, use, and transfer of this device, Model _____, Serial No. _____, are subject to a general license or the equivalent, and the regulations of a licensing state. This label shall be maintained on the device in a legible condition. Removal of this label is prohibited. (The model, serial number, and name of the manufacturer or distributor may be omitted from this label provided the information is elsewhere specified in labeling affixed to the device.)

CAUTION—RADIOACTIVE MATERIAL

_____Name of manufacturer or ~~distributor~~ initial transferor

2. In the event the applicant desires that the device be required to be tested at intervals longer than six months, either for proper operation of the "on-off" mechanism and indicator, if any, or for leakage of radioactive material or for both, the applicant shall include in the application sufficient information to demonstrate that such longer interval is justified by performance characteristics of the device or similar devices and by design features that have a significant bearing on the probability or consequences of leakage of radioactive material from the device or failure of the "on-off" mechanism and indicator. In determining the acceptable interval for the test for leakage of radioactive material, the agency will consider information that includes, but is not limited to:

a. Primary containment or source capsule;

b. Protection of primary containment;

c. Method of sealing containment;

d. Containment construction materials;

e. Form of contained radioactive material;

f. Maximum temperature withstood during prototype tests;

g. Maximum pressure withstood during prototype tests;

h. Maximum quantity of contained radioactive material;

i. Radiotoxicity of contained radioactive material; and

j. Operating experience with identical devices or similarly designed and constructed devices.

3. In the event the applicant desires that the general licensee under 12VAC5-481-430 ~~D~~ B, or under equivalent regulations of the ~~Nuclear Regulatory Commission~~ NRC, ~~an~~ or another agreement state, ~~or a licensing state~~ be authorized to install the device, collect the sample to be analyzed by a specific licensee for leakage of radioactive material, service the device, test the "on-off" mechanism and indicator, or remove the device from installation, the applicant shall include in the application written instructions to be followed by the general licensee, estimated calendar quarter doses associated with such activity or activities, and basis for such estimates. The submitted information shall demonstrate that performance of such activity or activities by an individual untrained in radiological protection, in addition to other handling, storage, and use of devices under the general license, is unlikely to cause that individual to receive a calendar quarter dose in excess of 10% of the limits specified ~~in the table~~ in 12VAC5-481-640.

4. Each person licensed under ~~12VAC5-481-430 D~~ this subsection to distribute devices to generally licensed persons shall:

a. Furnish a copy of the general license contained in 12VAC5-481-430 ~~D~~ B to each person to whom he directly or through an intermediate person transfers radioactive material in a device for use pursuant to the general license contained in 12VAC5-481-430 ~~D~~ B;

b. Furnish a copy of the general license contained in the ~~Nuclear Regulatory Commission's~~ NRC's, or another agreement state's, ~~or licensing state's~~ regulation equivalent to 12VAC5-481-430 ~~D~~ B, or alternatively, furnish a copy of the general license contained in 12VAC5-481-430 ~~D~~ B to each person to whom he directly or through an intermediate person transfers radioactive material in a device for use pursuant to the general license of the ~~Nuclear Regulatory Commission~~ NRC, ~~the~~ or another agreement state~~, or the licensing state~~. If a copy of the general license in 12VAC5-481-430 ~~D~~ B is furnished to such a person, it shall be accompanied by a note explaining that the use of the device is regulated by the ~~Nuclear Regulatory Commission~~ NRC, or another agreement state, ~~or licensing state~~ under requirements substantially the same as those in 12VAC5-481-430 ~~D~~ B;

c. Report to the agency all transfers of such devices to persons for use under the general license in 12VAC5-481-430 ~~D~~ B. Such report shall identify each general licensee by name and address, an individual by name and/or position who may constitute a point of contact between the agency and the general licensee, the type and model number of device transferred, and the quantity and type of radioactive material contained in the device. If one or more intermediate persons will temporarily possess the device at the intended place of use prior to its possession by the user, the report shall include identification of each intermediate person by name, address, contact, and relationship to the intended user. If no transfers have been made to persons generally licensed under 12VAC5-481-430 ~~D~~ B during the reporting period, the report shall so indicate. The report shall cover each calendar quarter and shall be filed within 30 days thereafter;

d. Furnish reports to other agencies.

(1) Report to the ~~Nuclear Regulatory Commission~~ NRC all transfers of such devices to persons for use under the ~~Nuclear Regulatory Commission~~ NRC's general license ~~in regulation entitled Certain detecting, measuring, gauging, or controlling devices and certain devices for producing light or an ionized atmosphere (10 CFR 31.1, 68 FR 58804, October 10, 2003)~~ ~~that is applicable in the Commonwealth~~ in 10 CFR 31.5.

(2) Report to the responsible state agency all transfers of devices manufactured and distributed pursuant to this subsection for use under a general license in that state's regulations equivalent to 12VAC5-481-430 ~~D~~ B.

(3) Such reports shall identify each general licensee by name and address, an individual by name and/or position who may constitute a point of contact between the agency and the general licensee, the type and model of the device transferred, and the quantity and type of radioactive material contained in the device. If one or more intermediate persons will temporarily possess the device at the intended place of use prior to its possession by the user, the report shall include identification of each intermediate person by name, address, contact, and relationship to the intended user. The report shall be submitted within 30 days after the end of each calendar quarter in which such a device is transferred to the generally licensed person.

(4) If no transfers have been made to ~~Nuclear Regulatory Commission~~ NRC general licensees during the reporting period, this information shall be reported to the ~~Nuclear Regulatory Commission~~ NRC.

(5) If no transfers have been made to general licensees within a particular state during the reporting period, this information shall be reported to the responsible state agency upon request of that agency; and

e. Keep records showing the name, address, and the point of contact for each general licensee to whom he directly or through an intermediate person transfers radioactive material in devices for use pursuant to the general license provided in 12VAC5-481-430 ~~D~~ B, or equivalent regulations of the ~~Nuclear Regulatory Commission, an~~ NRC or another agreement state~~, or a licensing state~~. The records shall show the date of each transfer, the radionuclide and the quantity of radioactivity in each device transferred, the identity of any intermediate person, and compliance with the report requirements of subdivision 4 of this subsection.

f. If a notification of bankruptcy has been made under 12VAC5-481-500 E or the license is to be terminated, each person licensed under this section shall provide, upon request, to the agency, the NRC and to any appropriate agreement state, records of final disposition required under subdivision 4 e of this subsection.

g. The licensee shall maintain all information concerning transfers and receipts of devices that supports the reports required by this section. Records required by this section must be maintained for a period of three years following the date of the recorded event.

~~E.~~ D. Special requirements for the manufacture, initially transfer, assembly, or repair of luminous safety devices for use in aircraft. An application for a specific license to manufacture, assemble, or repair luminous safety devices containing tritium or promethium-147 for use in aircraft, for distribution to persons generally licensed under 12VAC5-481-430 ~~E~~ D will be approved if:

1. The applicant satisfies the general requirements specified in 12VAC5-481-450; and

2. The applicant satisfies the requirements of ~~§§~~ 10 CFR 32.53, 32.54, 32.55, 32.56, ~~and~~ 32.101 and 32.110 ~~of 10 CFR Part 32~~, or their equivalent.

~~F.~~ E. Special requirements for license to manufacture or initially transfer calibration sources containing americium-241, plutonium or radium-226 for distribution to persons generally licensed under 12VAC5-481-430 ~~G~~ F. An application for a specific license to manufacture calibration and reference sources containing americium-241, plutonium or radium-226 to persons generally licensed under 12VAC5-481-430 ~~G~~ F will be approved if:

1. The applicant satisfies the general requirement of 12VAC5-481-450; and

2. The applicant satisfies the requirements of ~~§§~~ 10 CFR 32.57, 32.58, 32.59, ~~and~~ 32.102 ~~of 10 CFR Part 32~~ and ~~§~~ 10 CFR 70.39 ~~of 10 CFR Part 70~~ or their equivalent.

~~G.~~ F. Reserved.

~~H.~~ G. Manufacture and distribution of radioactive material for certain in vitro clinical or laboratory testing under general license. An application for a specific license to manufacture or distribute radioactive material for use under the general license of 12VAC5-481-430 G will be approved if:

1. The applicant satisfies the general requirements specified in 12VAC5-481-450.

2. The radioactive material is to be prepared for distribution in prepackaged units of:

a. Carbon-14 in units not exceeding ~~10 microcuries (370 kBq)~~ 370 kBq (10 µCi) each.

b. Cobalt-57 in units not exceeding ~~10 microcuries (370 kBq)~~ 370 kBq (10 µCi) each.

c. Hydrogen-3 (tritium) in units not exceeding ~~50 microcuries (1.85 MBq)~~ 1.85 MBq (50 µCi) each.

d. Iodine-125 in units not exceeding ~~10 microcuries (370 kBq)~~ 370 kBq (10 µCi) each.

e. Mock iodine-125 in units not exceeding ~~0.05 microcurie (1.85 kBq)~~ 1.85 kBq (0.05 µCi) of iodine-129 and ~~0.005 microcurie (185 Bq)~~ 185 Bq (0.005 µCi) of americium-241 each.

f. Iodine-131 in units not exceeding ~~10 microcuries (370 kBq)~~ 370 kBq (10 µCi) each.

g. Iron-59 in units not exceeding ~~20 microcuries (740 kBq)~~ 740 kBq (20 µCi) each.

h. Selenium-75 in units not exceeding ~~10 microcuries (370 kBq)~~ 370 kBq (10 µCi) each.

3. Each prepackaged unit bears a durable, clearly visible label:

a. Identifying the radioactive contents as to chemical form and radionuclide, and indicating that the amount of radioactivity does not exceed ~~10 microcuries (370 kBq)~~ 370 kBq (10 µCi) of iodine-125, iodine-131, carbon-14, cobalt-57, or selenium-75; ~~50 microcuries (1.85 MBq)~~ 1.85 MBq (50 µCi) of hydrogen-3 (tritium); ~~20 microcuries (740 kBq)~~ 740 kBq (20 µCi) of iron-59; or mock iodine-125 in units not exceeding ~~0.05 microcurie (1.85 kBq)~~ 1.85 kBq (0.05 µCi) of iodine-129 and ~~0.005 microcurie (185 Bq)~~ 185 Bq (0.005 µCi) of americium-241 each; and

b. Displaying the radiation caution symbol described in 12VAC5-481-850 and the words, "CAUTION, RADIOACTIVE MATERIAL," and "Not for Internal or External Use in Humans or Animals."

4. One of the following statements, as appropriate, or a substantially similar statement that contains the information called for in one of the following statements, appears on a label affixed to each prepackaged unit or appears in a leaflet or brochure that accompanies the package:

a. This radioactive material may be received, acquired, possessed, and used only by physicians, veterinarians, clinical laboratories or hospitals and only for in vitro clinical or laboratory tests not involving internal or external administration of the material, or the radiation therefrom, to human beings or animals. Its receipt, acquisition, possession, use, and transfer are subject to the regulations and a general license of the Nuclear Regulatory Commission or of a state with which the Nuclear Regulatory Commission has entered into an agreement for the exercise of regulatory authority.

_____ Name of manufacturer

b. This radioactive material may be received, acquired, possessed, and used only by physicians, veterinarians, clinical laboratories or hospitals and only for in vitro clinical or laboratory tests not involving internal or external administration of the material, or the radiation therefrom, to human beings or animals. Its receipt, acquisition, possession, use, and transfer are subject to the regulations and a general license of a licensing state.

_____ Name of manufacturer

5. The label affixed to the unit, or the leaflet or brochure which accompanies the package, contains adequate information as to the precautions to be observed in handling and storing such radioactive material. In the case of the Mock Iodine-125 reference or calibration source, the information accompanying the source must also contain directions to the licensee regarding the waste disposal requirements set out in 12VAC5-481-910.

~~I.~~ H. Licensing the manufacture and distribution of ice detection devices. An application for a specific license to manufacture and distribute ice detection devices to persons generally licensed under 12VAC5-481-430 H will be approved if:

1. The applicant satisfies the general requirements of 12VAC5-481-450; and

2. The criteria of ~~§§~~ 10 CFR 32.61, 32.62, ~~and~~ 32.103 ~~of 10 CFR Part 32~~ and 32.110 are met.

~~J. Manufacture and distribution of radiopharmaceuticals containing radioactive material for medical use under group licenses. An application for a specific license to manufacture and distribute radiopharmaceuticals containing radioactive material for use by persons licensed pursuant to this part for the uses listed in 12VAC5-481-1940, 12VAC5-481-1960 and 12VAC5-481-2000 will be approved if:~~

~~1. The applicant satisfies the general requirements specified in 12VAC5-481-450;~~

~~2. The applicant submits evidence that:~~

~~a. The radiopharmaceutical containing radioactive material will be manufactured, labeled, and packaged in accordance with the federal Food, Drug and Cosmetic Act or the Public Health Service Act, such as a new drug application (NDA) approved by the Food and Drug Administration (FDA), or a "Notice of Claimed Investigational Exemption for a New Drug" (IND) that has been accepted by the FDA; or~~

~~b. The manufacture and distribution of the radiopharmaceutical containing radioactive material is not subject to the federal Food, Drug and Cosmetic Act and the Public Health Service Act;~~

~~3. The applicant submits information on the radionuclide, chemical and physical form, packaging including maximum activity per package, and shielding provided by the packaging of the radioactive material that is appropriate for safe handling and storage of radiopharmaceuticals by group licensees; and~~

~~4. a. The label affixed to each package of the radiopharmaceutical contains information on the radionuclide, quantity, and date of assay and the label affixed to each package, or the leaflet or brochure which accompanies each package, contains a statement that the radiopharmaceutical is licensed by the agency for distribution to persons licensed pursuant to this part for the uses listed in 12VAC5-481-1940, 12VAC5-481-1960 and 12VAC5-481-2000 or under equivalent licenses of the Nuclear Regulatory Commission, an agreement state, or a licensing state.~~

~~b. The labels, leaflets, or brochures required by subdivision 4 a of this subsection are in addition to the labeling required by the Food and Drug Administration (FDA) and they may be separate from or, with the approval of FDA, may be combined with the labeling required by FDA.~~

~~K. Manufacture and distribution of generators or reagent kits for preparation of radiopharmaceuticals containing radioactive material. An application for a specific license to manufacture and distribute generators or reagent kits containing radioactive material for preparation of radiopharmaceuticals by persons licensed. (Although the agency does not regulate the manufacture and distribution of reagent kits that do not contain radioactive material, it does regulate the use of such reagent kits for the preparation of radiopharmaceuticals containing radioactive material as part of its licensing and regulation of the users of radioactive material. Any manufacturer of reagent kits that do not contain radioactive material who desires to have his reagent kits approved by the agency for use by persons licensed pursuant to 12VAC5-481-1960 may submit the pertinent information specified in this subsection pursuant to this part for the uses listed in 12VAC5-481-1960 will be approved if:~~

~~1. The applicant satisfies the general requirements specified in 12VAC5-481-450;~~

~~2. The applicant submits evidence that:~~

~~a. The generator or reagent kit is to be manufactured, labeled and packaged in accordance with the federal Food, Drug and Cosmetic Act or the Public Health Service Act, such as a new drug application (NDA) approved by the Food and Drug Administration (FDA), or a "Notice of Claimed Investigational Exemption for a New Drug" (IND) that has been accepted by the FDA, or~~

~~b. The manufacture and distribution of the generator or reagent kit are not subject to the Federal Food, Drug and Cosmetic Act and the Public Health Service Act;~~

~~3. The applicant submits information on the radionuclide, chemical and physical form, packaging including maximum activity per package, and shielding provided by the packaging of the radioactive material contained in the generator or reagent kit;~~

~~4. The label affixed to the generator or reagent kit contains information on the radionuclide, quantity, and date of assay; and~~

~~5. The label affixed to the generator or reagent kit, or the leaflet or brochure that accompanies the generator or reagent kit, contains:~~

~~a. Adequate information, from a radiation safety standpoint, on the procedures to be followed and the equipment and shielding to be used in eluting the generator or processing radioactive material with the reagent kit, and~~

~~b. A statement that this generator or reagent kit, as appropriate, is approved for use by persons licensed by the agency pursuant to 12VAC5-481-1960 or under equivalent licenses of the Nuclear Regulatory Commission, an agreement state, or a licensing state. The labels, leaflets, or brochures required by this section are in addition to the labeling required by the Food and Drug Administration (FDA) and they may be separate from or, with the approval of FDA, may be combined with the labeling required by FDA.~~

I. Manufacture, preparation, or transfer for commercial distribution of drugs containing radioactive material for medical use under Part VII (12VAC5-481-1660 et seq.).

1. An application for a specific license to manufacture, prepare, or transfer for commercial distribution drugs containing radioactive material for use by persons authorized pursuant to Part VII (12VAC5-481-1660 et seq.) will be approved if:

a. The applicant satisfies the general requirements specified in 12VAC5-481-450;

b. The applicant submits evidence that the applicant is at least one of the following:

(1) Registered or licensed with the U.S. Food and Drug Administration (FDA) as a drug manufacturer;

(2) Registered or licensed with a state agency as a drug manufacturer;

(3) Licensed as a pharmacy by the Virginia Board of Pharmacy;

(4) Operating as a nuclear pharmacy within a federal medical institution; or

(5) A PET drug production facility registered with a state agency.

c. The applicant submits information on the radionuclide; the chemical and physical form; the maximum activity per vial, syringe, generator, or other container of the

radioactive drug; and the shielding provided by the packaging to show it is appropriate for the safe handling and storage of the radioactive drugs by medical use licensees; and

d. The applicant satisfies the following labeling requirements:

(1) A label is affixed to each transport radiation shield, whether it is constructed of lead, glass, plastic, or other material, of a radioactive drug to be transferred for commercial distribution. The label must include the radiation symbol and the words "CAUTION, RADIOACTIVE MATERIAL" or "DANGER, RADIOACTIVE MATERIAL"; the name of the radioactive drug or its abbreviation; and the quantity of radioactivity at a specified date and time. For radioactive drugs with a half life greater than 100 days, the time may be omitted.

(2) A label is affixed to each syringe, vial, or other container used to hold a radioactive drug to be transferred for commercial distribution. The label must include the radiation symbol and the words "CAUTION, RADIOACTIVE MATERIAL" or "DANGER, RADIOACTIVE MATERIAL" and an identifier that ensures that the syringe, vial, or other container can be correlated with the information on the transport radiation shield label.

2. A licensee authorized to manufacture, prepare or transfer for commercial distribution radioactive drugs shall ensure that any individual preparing the drugs is one of the following:

a. An authorized nuclear pharmacist (ANP) as defined in 12VAC5-481-10;

b. An individual that meets the requirements specified in 12VAC5-481-1770 and 12VAC5-481-1790, and the licensee has received an approved license amendment identifying this individual as an ANP;

c. A pharmacist, as defined in 12VAC5-481-10, designated as an ANP if:

(1) The individual was a nuclear pharmacist preparing only radioactive drugs containing accelerator-produced radioactive material, and

(2) The individual practiced at a pharmacy at a government agency or federally recognized Indian Tribe before November 30, 2007, or at all other pharmacies before August 8, 2009, or an earlier date as noticed by the NRC; or

d. An individual under the supervision of an ANP as specified in 12VAC5-481-1710.

3. Shall provide to the agency no later than 30 days after the date that the licensee allows, under subdivision 2 a or c in this subsection, the individual to work as an ANP:

a. The individual's certification by a specialty board whose certification process has been recognized by the NRC with the written attestation signed by a preceptor as required by 12VAC5-481-1770;

b. An NRC or another agreement state license;

c. NRC master materials licensee permit;

d. The permit issued by a licensee or NRC master materials permittee of broad scope or the authorization from a commercial nuclear pharmacy authorized to list its own authorized nuclear pharmacist; or

e. Documentation that only accelerator-produced radioactive materials were used in the practice of nuclear pharmacy at a government agency or federally recognized Indian Tribe before November 30, 2007, or at all other locations of use before August 8, 2009, or an earlier date as noticed by the NRC; and

f. The Virginia Board of Pharmacy's license.

4. A licensee shall possess and use instrumentation to measure the radioactivity of radioactive drugs. The licensee shall have procedures for use of the instrumentation. The licensee shall measure, by direct measurement or by combination of measurements and calculations, the amount of radioactivity in dosages of alpha, beta, or photon-emitting radioactive drugs prior to transfer for commercial distribution. In addition, the licensee shall:

a. Perform tests before initial use, periodically, and following repair, on each instrument for accuracy, linearity, and geometry dependence, as appropriate for the use of the instrument; and make adjustments when necessary; and

b. Check each instrument for constancy and proper operation at the beginning of each day of use.

5. Nothing in this subsection relieves the licensee from complying with applicable FDA, other federal, and state requirements governing radioactive drugs.

6. Each licensee preparing technetium-99m radiopharmaceuticals from molybdenum-99/technetium-99m generators or rubidium-82 from strontium-82/ryubidium-82 generators shall test the generator eluates for molybdenum-99 breakthrough or strontium-82 and strontium-85 contamination in accordance with 12VAC5-481-1930. The licensee shall record the results of each test and retain each record for three years after the record is made.

~~L.~~ J. Manufacture and distribution of sources or devices containing radioactive material for medical use. An application for a specific license to manufacture and distribute sources and devices containing radioactive material to persons licensed pursuant to Part VII (12VAC5-481-1660 et seq.) of this chapter for use as a calibration or reference source or for the uses listed in 12VAC5-481-2010, 12VAC5-481-2020, 12VAC5-481-2040 and 12VAC5-481-2060 will be approved if:

1. The applicant satisfies the general requirements in 12VAC5-481-450;

2. The applicant submits sufficient information regarding each type of source or device pertinent to an evaluation of its radiation safety, including:

a. The radioactive material contained, its chemical and physical form, and amount,

b. Details of design and construction of the source or device,

c. Procedures for, and results of, prototype tests to demonstrate that the source or device will maintain its integrity under stresses likely to be encountered in normal use and accidents,

d. For devices containing radioactive material, the radiation profile of a prototype device,

e. Details of quality control procedures to assure that production sources and devices meet the standards of the design and prototype tests,

f. Procedures and standards for calibrating sources and devices,

g. Legend and methods for labeling sources and devices as to their radioactive content, and

h. Instructions for handling and storing the source or device from the radiation safety standpoint; these instructions are to be included on a durable label attached to the source or device or attached to a permanent storage container for the source or device provided, that instructions that are too lengthy for such label may be summarized on the label and printed in detail on a brochure that is referenced on the label;

3. The label affixed to the source or device, or to the permanent storage container for the source or device, contains information on the radionuclide, quantity, and date of assay, and a statement that the source or device is licensed by the agency for distribution to persons licensed pursuant to ~~Part VII (12VAC5-481-1660 et seq.) of this chapter and 12VAC5-481-2040 and 12VAC5-481-2060~~ 12VAC5-481-1830, 12VAC5-481-2010, 12VAC5-481-2020 and 12VAC5-481-2040 or under equivalent licenses of the ~~Nuclear Regulatory Commission~~ NRC, ~~an~~ or another agreement state, ~~or a licensing state~~, provided that such labeling for sources that do not require long term storage may be on a leaflet or brochure that accompanies the source;

4. In the event the applicant desires that the source or device be required to be tested for leakage of radioactive material at intervals longer than six months, ~~he~~ the applicant shall include ~~in his application~~ sufficient information to demonstrate that such longer interval is justified by performance characteristics of the source or device or similar sources or devices and by design features that have a significant bearing on the probability or consequences of leakage of radioactive material from the source; and

5. In determining the acceptable interval for test of leakage of radioactive material, the agency will consider information that includes, but is not limited to:

a. Primary containment or source capsule,

b. Protection of primary containment,

c. Method of sealing containment,

d. Containment construction materials,

e. Form of contained radioactive material,

f. Maximum temperature withstood during prototype tests,

g. Maximum pressure withstood during prototype tests,

h. Maximum quantity of contained radioactive material,

i. Radiotoxicity of contained radioactive material, and

j. Operating experience with identical sources or devices or similarly designed and constructed sources or devices.

~~M.~~ K. Requirements for license to manufacture and distribute industrial products containing depleted uranium for mass-volume applications.

1. An application for a specific license to manufacture industrial products and devices containing depleted uranium for use pursuant to 12VAC5-481-420 ~~B~~ C or equivalent regulations of the ~~Nuclear Regulatory Commission~~ NRC or ~~an~~ another agreement state will be approved if:

a. The applicant satisfies the general requirements specified in 12VAC5-481-450;

b. The applicant submits sufficient information relating to the design, manufacture, prototype testing, quality control procedures, labeling or marking, proposed uses, and potential hazards of the industrial product or device to provide reasonable assurance that possession, use, or transfer of the depleted uranium in the product or device is not likely to cause any individual to receive in any

period of one calendar quarter a radiation dose in excess of 10% of the limits specified in 12VAC5-481-640; and

c. The applicant submits sufficient information regarding the industrial product or device and the presence of depleted uranium for a mass-volume application in the product or device to provide reasonable assurance that unique benefits will accrue to the public because of the usefulness of the product or device.

2. In the case of an industrial product or device whose unique benefits are questionable, the agency will approve an application for a specific license under this subsection only if the product or device is found to combine a high degree of utility and low probability of uncontrolled disposal and dispersal of significant quantities of depleted uranium into the environment.

3. The agency may deny any application for a specific license under this subsection if the end use(s) of the industrial product or device cannot be reasonably foreseen.

4. Each person licensed pursuant to subdivision 1 of this subsection shall:

a. Maintain the level of quality control required by the license in the manufacture of the industrial product or device, and in the installation of the depleted uranium into the product or device;

b. Label or mark each unit to:

(1) Identify the manufacturer or initial transferor of the product or device and the number of the license under which the product or device was manufactured or initially transferred, the fact that the product or device contains depleted uranium, and the quantity of depleted uranium in each product or device; and

(2) State that the receipt, possession, use, and transfer of the product or device are subject to a general license or the equivalent and the regulations of the ~~Nuclear Regulatory Commission~~ NRC or ~~an~~ another agreement state;

c. Assure that the depleted uranium before being installed in each product or device has been impressed with the following legend clearly legible through any plating or other covering: "Depleted Uranium";

d. Do the following:

(1) Furnish a copy of the general license contained in 12VAC5-481-420 ~~B~~ C and a copy of agency form ~~RH-F-13~~ "Certificate - Use of Depleted Uranium under a General License" to each person to whom ~~he transfers~~ depleted uranium in a product or device for use pursuant to the general license contained in 12VAC5-481-420 ~~B~~ C is transferred, or

(2) Furnish a copy of the general license contained in the ~~Nuclear Regulatory Commission's~~ NRC's or another agreement state's regulation equivalent to 12VAC5-481-420 B and a copy of the ~~Nuclear Regulatory Commission's~~ NRC's or another agreement state's certificate, or alternatively, furnish a copy of the general license contained in 12VAC5-481-420 ~~B~~ C and a copy of agency form ~~RH-F-13~~ "Certificate - Use of Depleted Uranium under a General License" to each person to whom ~~he transfers~~ depleted uranium in a product or device for use pursuant to the general license of the ~~Nuclear Regulatory Commission~~ NRC or ~~an~~ another agreement state is transferred, with a note explaining that use of the product or device is regulated by the ~~Nuclear Regulatory Commission~~ NRC or ~~an~~ another agreement state under requirements substantially the same as those in 12VAC5-481-420 ~~B~~ C;

e. Report to the agency all transfers of industrial products or devices to persons for use under the general license in 12VAC5-481-420 ~~B~~ C. Such report shall identify each general licensee by name and address, an individual by name and/or position who may constitute a point of contact between the agency and the general licensee, the type and model number of device transferred, and the quantity of depleted uranium contained in the product or device. The report shall be submitted within 30 days after the end of each calendar quarter in which such a product or device is transferred to the generally licensed person. If no transfers have been made to persons generally licensed under 12VAC5-481-420 ~~B~~ C during the reporting period, the report shall so indicate;

f. Do the following:

(1) Report to the ~~Nuclear Regulatory Commission~~ NRC all transfers of industrial products or devices to persons for use under the ~~Nuclear Regulatory Commission~~ NRC general license in 10 CFR 40.25,

(2) ~~Report~~ For devices transferred to another agreement state, report to the responsible state agency all transfers of devices manufactured and distributed pursuant to this subsection for use under a general license in that state's regulations equivalent to 12VAC5-481-420 ~~B~~ C,

(3) Such report shall identify each general licensee by name and address, an individual by name and/or position who may constitute a point of contact between the agency and the general licensee, the type and model number of the device transferred, and the quantity of depleted uranium contained in the product or device. The report shall be submitted within 30 days after the end of each calendar quarter in which such product or device is transferred to the generally licensed person,

(4) If no transfers have been made to ~~Nuclear Regulatory Commission~~ NRC licensees during the reporting period,

this information shall be reported to the ~~Nuclear Regulatory Commission~~ NRC, and

(5) If no transfers have been made to general licensees within ~~a particular~~ another agreement state during the reporting period, this information shall be reported to the responsible state agency upon the request of that agency; and keep records showing the name, address, and point of contact for each general licensee to whom he transfers depleted uranium in industrial products or devices for use pursuant to the general license provided in 12VAC5-481-420 ~~B~~ C or equivalent regulations of the ~~Nuclear Regulatory Commission~~ NRC or ~~an~~ another agreement state. The records shall be maintained for a period of two years and shall show the date of each transfer, the quantity of depleted uranium in each product or device transferred, and compliance with the report requirements of this section.

L. An application for a specific license to manufacture, or initially transfer for sale or distribution, synthetic plastic resins containing scandium-46 for use pursuant to 12VAC5-481-400 F will be approved if:

1. The applicant satisfies the general requirements specified in 12VAC5-481-450 of this chapter;

2. The product is designed to be used only for sand-consolidation in oil wells;

3. The applicant submits the following information:

a. The general description of the product to be manufactured or initially transferred.

b. A description of control procedures to be used to assure that the concentration of scandium-46 in the final product at the time of distribution will not exceed 1.4 x 10^{-3} µCi/ml.

4. Each container of such product will bear a durable, legible label approved by the agency, which contains the following information:

a. The product name;

b. A statement that the product contains radioactive scandium and is designed and manufactured only for sand-consolidation in oil wells;

c. Instructions necessary for proper use; and

d. The manufacturer's name.

M. Serialization of nationally tracked sources. Each licensee who manufactures a nationally tracked source shall assign a unique serial number to each nationally tracked source. Serial numbers must be composed only of alpha-numeric characters.

12VAC5-481-500. Specific terms and conditions of licenses.

A. Each license issued pursuant to this part shall be subject to all the provisions of the Act, now or hereafter in effect, and to all rules, regulations, and orders of the agency.

B. No license issued or granted under this part and no right to possess or utilize radioactive material granted by any license issued pursuant to this part shall be transferred, assigned, or in any manner disposed of, either voluntarily or involuntarily, directly or indirectly, through transfer of control of any license to any person unless the agency shall, after securing full information find that the transfer is in accordance with the provisions of the Act, now or hereafter in effect, and to all valid rules, regulations, and orders of the agency, and shall give its consent in writing.

C. Each person licensed by the agency pursuant to this part shall confine use and possession of the material licensed to the locations and purposes authorized in the license.

D. Each licensee shall notify the agency in writing when the licensee decides to permanently discontinue all activities involving materials authorized under the license.

E. Each licensee shall notify the agency in writing immediately following the filing of a voluntary or involuntary petition for bankruptcy under any Chapter of Title 11 (Bankruptcy) of the United States Code by or against:

1. The licensee;

2. An entity (as that term is defined in ~~11 USC §101(14))~~ 11 USC §101(15)) controlling the licensee or listing the license or licensee as property of the estate; or

3. An affiliate (as that term is defined in 11 USC §101(2)) of the licensee.

F. The notification specified in subsection E of this section shall indicate the bankruptcy court in which the petition for bankruptcy was filed and the date of the filing of the petition.

G. PET Distribution.

1. Authorization under 12VAC5-481-440 H to produce PET radioactive drugs for noncommercial transfer to medical use licensees in its consortium does not relieve the licensee from complying with applicable FDA, other state or local requirements governing radioactive drugs.

2. Each licensee authorized under 12VAC5-481-440 H to produce PET radioactive drugs for noncommercial transfer to medical use licensees in its consortium shall:

a. Satisfy the labeling requirements in 12VAC5-481-480 I 1 d for each PET radioactive drug transport radiation shield and each syringe, vial, or other container used to hold a PET radioactive drug intended for noncommercial distribution to members of its consortium.

b. Possess and use instrumentation to measure the radioactivity of the PET radioactive drugs intended for noncommercial distribution to members of its consortium and meet the procedural, radioactivity measurement, instrument test, instrument check, and instrument adjustment requirements in 12VAC5-481-480 I 3.

3. A licensee that is a pharmacy authorized under 12VAC5-481-440 H to produce PET radioactive drugs for noncommercial transfer to medical use licensees in its consortium shall require that any individual that prepares PET radioactive drugs shall be:

a. An ANP that meets the requirements in 12VAC5-481-480 I 2; or

b. An individual under the supervision of an ANP as specified in 12VAC5-481-1710.

4. A pharmacy, authorized under 12VAC5-481-440 H to produce PET radioactive drugs for noncommercial transfer to medical use licensees in its consortium that allows an individual to work as an ANP, shall meet the requirements of 12VAC5-481-480 I 2.

12VAC5-481-510. Expiration and termination of licenses and decommissioning of sites and separate building or outdoor areas.

A. Except as provided in 12VAC5-481-520 ~~B~~, ~~each~~ a specific license shall expire at the end of the specified day in the month and year stated ~~therein~~ in the license. If an application for license renewal has been filed at least 30 days prior to the expiration date stated in the existing license and the agency denies the renewal application, the license shall expire on the date as stated in the determination of denial. If an application for license renewal is filed less than 30 days from the expiration date stated in the existing license, the agency may deny the renewal application and the license shall expire on the expiration date stated in the license.

~~B. Each licensee shall notify the agency immediately, in writing, and request termination of the license when the licensee decides to terminate all activities involving radioactive material authorized under the license. This notification and request for termination of the license must include the reports and information specified in subsection D 1 d and e of this section.~~

~~C. No less than 30 days before the expiration date specified in the license, the licensee shall either:~~

~~1. Submit an application for license renewal under 12VAC5-481-520; or~~

~~2. Notify the agency, in writing, if the licensee decides not to renew the license.~~

~~D. Do the following:~~

~~1. If a licensee does not submit an application for license renewal under 12VAC5-481-520, the licensee shall, on or before the expiration date specified in the license:~~

~~a. Terminate use of radioactive material;~~

~~b. Remove radioactive contamination to the extent practicable;~~

~~c. Properly dispose of radioactive material;~~

~~d. Submit a completed appropriate agency form; and~~

~~e. Submit a radiation survey report to confirm the absence of radioactive material or to establish the levels of residual radioactive contamination, unless the licensee demonstrates the absence of residual radioactive contamination in some other manner. The licensee shall, as appropriate:~~

~~(1) Report levels of radiation in units of microrads per hour of beta and gamma radiation at one centimeter and gamma radiation at one meter from surfaces and report levels of radioactivity, including alpha, in units of transformations per minute (or microcuries) per 100 square centimeters removable and fixed on surfaces, microcuries per milliliter in water, and picocuries per gram in contaminated solids such as soils or concrete; and~~

~~(2) Specify the instrumentation used and certify that each instrument was properly calibrated and tested.~~

~~2. If no residual radioactive contamination attributable to activities conducted under the license is detected, the licensee shall submit a certification that no detectable radioactive contamination was found. The agency will notify the licensee, in writing, of the termination of the license.~~

~~3. Do the following:~~

~~a. If detectable levels of residual radioactive contamination attributable to activities conducted under the license are found, the license continues in effect beyond the expiration date, if necessary, with respect to possession of residual radioactive material present as contamination until the agency notifies the licensee in writing that the license is terminated. During this time the licensee is subject to the provisions of subsection E of this section.~~

~~b. In addition to the information submitted under subdivision 1 d and e of this subsection, the licensee shall submit a plan for decontamination, if required, as regards residual radioactive contamination remaining at the time the license expires.~~

~~E. Each licensee who possesses residual radioactive material under subdivision D 3 of this subsection, following the expiration date specified in the license shall:~~

~~1. Limit actions involving radioactive material to those related to decontamination and other activities related to preparation for release for unrestricted use; and~~

~~2. Continue to control entry to restricted areas until they are suitable for release for unrestricted use and the agency notifies the licensee in writing that the license is terminated.~~

B. A specific license revoked by the agency expires at the end of the day on the date of the agency's final determination, or on the expiration date stated in the determination, or as otherwise provided by an agency order.

C. A specific license remains valid, with respect to possession of radioactive material, until the agency notifies the licensee in writing that the license is terminated. While the license is valid, the licensee shall do all of the following:

1. Limit actions involving radioactive material to those related to decommissioning and other activities related to preparation for release for unrestricted use.

2. Continue to control entry to restricted areas until they are suitable for release for unrestricted use and the agency notifies the licensee in writing that the license is terminated.

D. A licensee shall do all of the following:

1. Notify the agency within 60 days of any of the following:

a. Expiration of the license pursuant to subsections A or B of this section.

b. The licensee's deciding to permanently cease principal activities at the entire site or in any separate building or outdoor area that contains residual radioactivity such that the building or outdoor area is unsuitable for release in accordance with agency requirements.

c. The absence of conduct of any principal activities under the license for a period of 24 months.

d. The absence of conduct of any principal activities for a period of 24 months in any separate building or outdoor area that contains residual radioactivity such that the building or outdoor area is unsuitable for release in accordance with agency requirements.

2. If any separate building or outdoor area contains residual radioactivity so that the building or outdoor area is unsuitable for release, do one of the following:

a. Begin decommissioning its site, separate building or outdoor area if a decommissioning plan has been previously approved by the agency.

b. Submit a decommissioning plan within 12 months if required by subsection F of this section and begin decommissioning upon approval of that plan.

E. Concurrent with the notification required by subsection D of this section, the licensee shall maintain in effect all decommissioning financial assurances established by the licensee pursuant to 12VAC5-481-450 C in conjunction with a license issuance or renewal or as required by this section. The amount of the financial assurance shall be increased, or may be decreased, as appropriate, to cover the detailed cost estimate for decommissioning established pursuant to subdivision H 5 of this section. Following approval of the decommissioning plan and with the agency's approval, a licensee may reduce the amount of the financial assurance as decommissioning proceeds and radiological contamination is reduced at the site.

F. A licensee shall submit a decommissioning plan to the agency if required by license condition or if the procedures and activities necessary to carry out decommissioning of the site, separate building or outdoor area have not been previously approved by the agency and the procedures and activities may adversely effect the health and safety of workers or the public. The procedures may not be carried out prior to the agency's approval of the decommissioning plan. Examples of applicable procedures and activities include any of the following cases:

1. Procedures that would involve techniques not applied routinely during cleanup or maintenance operations.

2. Procedures by which workers would be entering areas not normally occupied where surface contamination and radiation levels are significantly higher than routinely encountered during operation.

3. Procedures that could result in significantly greater airborne concentrations of radioactive materials than are present during operation.

4. Procedures that could result in significantly greater releases of radioactive material to the environment than those associated with operation.

G. The agency may approve an alternate schedule for submittal of a decommissioning plan required pursuant to subsection D of this section if the agency determines that the alternative schedule is necessary to the effective conduct of decommissioning operations and presents no undue risk from radiation to the public health and safety and is otherwise in the public interest.

H. The proposed decommissioning plan for the site or separate building or outdoor area shall include all of the following elements:

1. A description of the conditions of the site, separate building or outdoor area sufficient to evaluate the acceptability of the plan.

2. A description of planned decommissioning activities.

3. A description of methods used to ensure protection of workers and the environment against radiation hazards during decommissioning.

4. A description of the planned final radiation survey.

5. An updated detailed cost estimate for decommissioning, comparison of that estimate with present funds set aside for decommissioning, and a plan for assuring the availability of adequate funds for completion of decommissioning.

6. For decommissioning plans calling for completion of decommissioning later than 24 months after plan approval, a justification for the delay based on the criteria in subsection J of this section.

I. Except as provided in subsection H of this section, a licensee shall complete decommissioning of the site or separate building or outdoor area no later than 24 months following the initiation of decommissioning. When decommissioning involves the entire site, a licensee shall request license termination no later than 24 months following the initiation of decommissioning.

J. The agency may approve a request for an alternative schedule for completion of decommissioning of the site, separate building or outdoor area, and license termination if appropriate, if the agency determines that the alternative is warranted after consideration of all the following:

1. Whether it is technically feasible to complete decommissioning within the allotted 24-month period.

2. Whether sufficient waste disposal capacity is available to allow completion of decommissioning within the allotted 24-month period.

3. Whether a significant volume reduction in wastes requiring disposal will be achieved by allowing short-lived radionuclides to decay.

4. Whether a significant reduction in radiation exposure to workers may be achieved by allowing short-lived radionuclides to decay.

5. Other site-specific factors which the agency may consider appropriate on a case-by-case basis, such as the regulatory requirements of other government agencies, court decisions, ground-water treatment activities, monitored natural ground-water restoration, actions that could result in more environmental harm than deferred cleanup, and other factors beyond the control of the licensee.

K. As the final step in decommissioning, a licensee shall do all the following:

1. Certify the disposition of all licensed material, including accumulated wastes, by submitting a completed agency form for disposition of radioactive materials or equivalent information.

2. Conduct a radiation survey of the premises where the licensed activities were carried out and submit a report of the results of this survey, unless the licensee demonstrates in some other manner that the premises are suitable for release in accordance with the criteria for decommissioning in 12VAC5-481-1161.

3. Report levels of gamma radiation in units of millisieverts (microroentgen) per hour at one meter from surfaces, and report levels of radioactivity, including alpha and beta, in units of megabecquerels per 100 square centimeters, disintegrations per minute per 100 square centimeters or microcuries per 100 square centimeters - removable and fixed - for surfaces, megabecquerels (microcuries) per milliliter for water, and becquerels (picocuries) per gram for solids such as soils or concrete.

4. Specify the survey instruments used and certify that each instrument is properly calibrated and tested.

L. The agency shall terminate a specific license, including an expired license, by written notice to the licensee when the agency determines all of the following have occurred:

1. Radioactive material has been properly disposed of.

2. Reasonable effort has been made to eliminate residual radioactive contamination, if present.

3. The licensee has filed with the agency sufficient information, including a radiation survey, to demonstrate that the premises are suitable for release in accordance with the criteria for decommissioning in 12VAC5-481-1161.

4. The licensee has submitted records required under 12VAC5-481-571 to the agency.

12VAC5-481-530. Amendment of licenses at request of licensee.

~~Applications for amendment of~~ Amendment requests for a license shall be filed in accordance with 12VAC5-481-440 and shall specify the respects in which the licensee desires the license to be amended and the grounds for such amendment.

12VAC5-481-540. Agency action on applications to renew or amend.

In considering an application by a licensee to renew or amend the license, the agency will apply the criteria set forth in 12VAC5-481-450 through 12VAC5-481-480 and in Parts V (12VAC5-481-1170 et seq.), VII (12VAC5-481-1660 et seq.), XI (12VAC5-481-2330 et seq.), ~~or~~ XII (12VAC5-481-2660 et seq.), XIV (12VAC5-481-3140 et seq.), or XVI (12VAC5-481-3460 et seq.) of this chapter, as applicable.

Article 5
Licenses Held at the Time of the Effective Date of These Regulations

12VAC5-481-550. Persons possessing a license for source, byproduct, or special nuclear material in quantities not sufficient to form a critical mass on effective date of these regulations.

Any person who, on ~~September 20, 2006~~ the effective date as stated in 12VAC5-481-160, possesses a general or specific license for source, byproduct, or special nuclear material in quantities not sufficient to form a critical mass, issued by the ~~Nuclear Regulatory Commission~~ NRC, shall be deemed to possess a like license issued under this part and the Act, such license to expire either 90 days after receipt from the agency of a notice of expiration of such license, or on the date or expiration specified in the ~~Nuclear Regulatory Commission~~ NRC license, whichever is earlier.

12VAC5-481-560. Persons possessing ~~naturally occurring and accelerator-produced radioactive material (NARM)~~ NARM on effective date of these regulations.

Any person who, on September 20, 2006, possesses NARM for which a specific license is required by the Act or this part shall be deemed to possess such a license issued under the Act and this part. Such license shall expire 90 days after September 20, 2006; provided, however, that if within the 90 days the person possessing such material files an application in proper form for a license, such existing license shall not expire until the application has been finally determined by the agency.

Article 6
Transfer of Material

12VAC5-481-570. Transfer of material.

A. No licensee shall transfer radioactive material except as authorized pursuant to this section.

B. Except as otherwise provided in ~~his~~ the license and subject to the provisions of subsections C and D of this section, any licensee may transfer radioactive material:

1. To the agency only after receiving prior approval from the agency.

2. To the United States Department of Energy;

3. To any person exempt from these regulations to the extent permitted under such exemption;

4. To any person authorized to receive such material under terms of a general license or its equivalent, or a specific license or equivalent licensing document, issued by the agency, the ~~Nuclear Regulatory Commission~~ NRC, ~~any~~ or another agreement state ~~or any licensing state~~, or to any person otherwise authorized to receive such material by the federal government or any agency thereof, the agency, ~~an~~ or another agreement state~~, or a licensing state~~; or

5. As otherwise authorized by the agency in writing.

C. Before transferring radioactive material to a specific licensee of the agency, the ~~Nuclear Regulatory Commission~~ NRC, ~~an~~ or another agreement state ~~or a licensing state~~, or to a general licensee who is required to register with the agency, the ~~Nuclear Regulatory Commission~~ NRC, ~~an~~ or another agreement state ~~or a licensing state~~ prior to receipt of the radioactive material, the licensee transferring the material shall verify that the transferee's license authorizes the receipt of the type, form, and quantity of radioactive material to be transferred.

D. Any of the following methods for the verification required by subsection C of this section is acceptable:

1. The transferor may possess and read a current copy of the transferee's specific license or registration certificate.

2. The transferor may possess a written certification by the transferee that the transferee is authorized by license or registration certificate to receive the type, form, and quantity of radioactive material to be transferred, specifying the license or registration certificate number, issuing agency, and expiration date.

3. For emergency shipments, the transferor may accept oral certification by the transferee that the transferee is authorized by license or registration certificate to receive the type, form, and quantity of radioactive material to be transferred, specifying the license or registration certificate number, issuing agency, and expiration date; provided that the oral certification is confirmed in writing within 10 days.

4. The transferor may obtain other information compiled by a reporting service from official records of the agency, the ~~Nuclear Regulatory Commission~~ NRC, ~~an~~ or another agreement state, ~~or a licensing state~~ regarding the identity of licensees and the scope and expiration dates of licenses and registration.

5. When none of the methods of verification described in subdivisions 1 through 4 of this subsection are readily available or when a transferor desires to verify that information received by one of such methods is correct or up to date, the transferor may obtain and record confirmation from the agency, the ~~Nuclear Regulatory Commission~~ NRC, or ~~an~~ another agreement state, ~~or a licensing state~~ that the transferee is licensed to receive the radioactive material.

E. Shipment and transport of radioactive material shall be in accordance with the provisions of Part XIII (12VAC5-481-2950 et seq.) of this chapter.

Article 7
Records

12VAC5-481-571. Receipt, transfer and disposal records.

A. Record retention. A licensee shall retain records required by 12VAC5-481-100 or by license condition. If a retention period is not otherwise specified by this chapter or license condition, the record shall be retained until the agency terminates each license.

B. Transfer of records to the agency. Prior to license termination, a licensee authorized to possess radioactive material, in an unsealed form, with a half-life greater than 120 days, shall forward to the agency all records of disposal of licensed material made under 12VAC5-481-910 to 12VAC5-481-950, including burials authorized before January 28, 1981, and the results of measurements and calculations required by 12VAC5-481-1000.

C. Transfer of records to new licensee.

1. If licensed activities are transferred or assigned in accordance with 12VAC5-481-570, each licensee authorized to possess radioactive material in unsealed form, with a half-life greater than 120 days, shall transfer the following records to the new licensee:

a. Records of disposal of licensed material made under 12VAC5-481-910 to 12VAC5-481-950, including burials authorized before January 28, 1981.

b. Records of the results of measurements and calculations required by12VAC5-481-1000.

2. The new licensee shall be responsible for maintaining the records required in subdivision C 1 of this section until the license is terminated.

D. Transfer of records of decommissioning activities. A licensee shall forward the records required by 12VAC5-481-450 C to the agency prior to license termination.

Article ~~7~~ 8
Modification and Revocation of Licenses

12VAC5-481-580. Modification and revocation of licenses.

A. The terms and conditions of all licenses shall be subject to amendment, revision, or modification or the license may be suspended or revoked by reason of amendments to the Act, or by reason of rules, regulations, and orders issued by the agency.

B. Any license may be revoked, suspended, or modified, in whole or in part, for any false statement in the application or any statement of fact required under provisions of the Act, or because of conditions revealed by such application or statement of fact or any report, record, or inspection or other means that would warrant the agency to refuse to grant a license on an original application, or for violation of, or failure to observe any of the terms and conditions of the Act, or of the license, or of any rule, regulation, or order of the agency.

C. ~~No~~ Except in cases of willfulness or those in which the public health, interest or safety requires otherwise, no license shall be modified, suspended, or revoked unless, prior to the institution of proceedings therefor, facts or conduct that may warrant such action shall have been called to the attention of the licensee in writing and the licensee shall have been accorded an opportunity to demonstrate or achieve compliance with all lawful requirements.

Article ~~8~~ 9
Reciprocity

12VAC5-481-590. Reciprocal recognition of licenses.

A. Licenses of byproduct, source, and special nuclear material in quantities not sufficient to form a critical mass.

1. Subject to these regulations, any person who holds a specific license from the ~~Nuclear Regulatory Commission~~ NRC or ~~an~~ another agreement state, and issued by the agency having jurisdiction where the licensee maintains an office for directing the licensed activity and at which radiation safety records are normally maintained, is hereby granted a general license to conduct the activities authorized in such licensing document within this state for a period not in excess of 180 days in any calendar year provided that:

a. The licensing document does not limit the activity authorized by such document to specified installations or locations;

b. The out-of-state licensee notifies the agency in writing at least three days prior to engaging in such activity. Such notification shall indicate the location, period, and type of proposed possession and use within the state, and shall be accompanied by a copy of the pertinent licensing document. If, for a specific case, the three-day period would impose an undue hardship on the out-of-state licensee, the licensee may, upon application to the agency, obtain permission to proceed sooner. The agency may waive the requirement for filing additional written notifications during the remainder of the calendar year following the receipt of the initial notification from a person engaging in activities under the general license provided in this subdivision;

c. The out-of-state licensee complies with all applicable regulations of the agency and with all the terms and conditions of the licensing document, except any such terms and conditions that may be inconsistent with applicable regulations of the agency;

d. The out-of-state licensee supplies such other information as the agency may request; and

e. The out-of-state licensee shall not transfer or dispose of radioactive material possessed or used under the general license provided in this subdivision except by transfer to a person:

(1) Specifically licensed by the agency, ~~or by~~ the ~~Nuclear Regulatory Commission~~ NRC or another agreement state to receive such material, or

(2) Exempt from the requirements for a license for such material under 12VAC5-481-400 A.

2. Notwithstanding the provisions of ~~subsection~~ subdivision A 1 of this section, any person who holds a specific license issued by the ~~Nuclear Regulatory Commission~~ NRC or ~~an~~ another agreement state authorizing the holder to manufacture, transfer, install, or service a device described in 12VAC5-481-430 B within areas subject to the jurisdiction of the licensing body is hereby granted a general license to install, transfer, demonstrate, or service such a device in this state provided that:

a. Such person shall file a report with the agency within 30 days after the end of each calendar quarter in which any device is transferred to or installed in this state. Each such report shall identify each general licensee to whom such device is transferred by name and address, the type of device transferred, and the quantity and type of radioactive material contained in the device;

b. The device has been manufactured, labeled, installed, and serviced in accordance with applicable provisions of the specific license issued to such person by the ~~Nuclear Regulatory Commission~~ NRC or ~~an~~ another agreement state;

c. Such person shall assure that any labels required to be affixed to the device under regulations of the authority which licensed manufacture of the device bear a statement that "Removal of this label is prohibited"; and

d. The holder of the specific license shall furnish to each general licensee to whom he transfers such device or on whose premises he installs such device a copy of the general license contained in 12VAC5-481-430 ~~D~~ B or in equivalent regulations of the agency having jurisdiction over the manufacture and distribution of the device.

3. The agency may withdraw, limit, or qualify its acceptance of any specific license or equivalent licensing document issued by the ~~Nuclear Regulatory Commission~~ NRC or ~~an~~ another agreement state, or any product distributed pursuant to such licensing document, upon determining that such action is necessary in order to prevent undue hazard to public health and safety or property.

B. Licenses of ~~naturally occurring and accelerator produced radioactive material~~ NARM.

1. Subject to these regulations, any person who holds a specific license from ~~a licensing state~~ the NRC or another agreement state, and issued by the agency having jurisdiction where the licensee maintains an office for directing the licensed activity and at which radiation safety records are normally maintained, is hereby granted a general license to conduct the activities authorized in such licensing document within this state for a period not in excess of 180 days in any calendar year provided that:

a. The licensing document does not limit the activity authorized by such document to specified installations or locations;

b. The out-of-state licensee notifies the agency in writing at least three days prior to engaging in such activity. Such notification shall indicate the location, period, and type of proposed possession and use within the state, and shall be accompanied by a copy of the pertinent licensing document. If, for a specific case, the three-day period would impose an undue hardship on the out-of-state licensee, the licensee may, upon application to the agency, obtain permission to proceed sooner. The agency may waive the requirement for filing additional written notifications during the remainder of the calendar year following the receipt of the initial notification from a person engaging in activities under the general license provided in subdivision 1 of this subsection;

c. The out-of-state licensee complies with all applicable regulations of the agency and with all the terms and conditions of the licensing document, except any such terms and conditions which may be inconsistent with applicable regulations of the agency;

d. The out-of-state licensee supplies such other information as the agency may request; and

e. The out-of-state licensee shall not transfer or dispose of radioactive material possessed or used under the general license provided in subdivision 1 of this subsection except by transfer to a person:

(1) Specifically licensed by the agency, ~~or by another licensing state~~ the NRC or another agreement state to receive such material, or

(2) Exempt from the requirements for a license for such material under 12VAC5-481-400.

2. Notwithstanding the provisions of subdivision 1 of this subsection, any person who holds a specific license issued by ~~a licensing state~~ the NRC or another agreement state authorizing the holder to manufacture, transfer, install, or service a device described in 12VAC5-481-430 B ~~1~~ within areas subject to the jurisdiction of the licensing body is

hereby granted a general license to install, transfer, demonstrate or service such a device in this state provided that:

a. Such person shall file a report with the agency within 30 days after the end of each calendar quarter in which any device is transferred to or installed in this state. Each such report shall identify each general licensee to whom such device is transferred by name and address, the type of device transferred, and the quantity and type of radioactive material contained in the device;

b. The device has been manufactured, labeled, installed, and serviced in accordance with applicable provisions of the specific license issued to such person by ~~a licensing state~~ the NRC or another agreement state;

c. Such person shall assure that any labels required to be affixed to the device under regulations of the authority which licensed manufacture of the device bear a statement that "Removal of this label is prohibited"; and

d. The holder of the specific license shall furnish to each general licensee to whom he transfers such device or on whose premises he installs such device a copy of the general license contained in 12VAC5-481-430 ~~D~~ B or in equivalent regulations of the agency having jurisdiction over the manufacture and distribution of the device.

3. The agency may withdraw, limit, or qualify its acceptance of any specific license or equivalent licensing document issued by ~~a licensing state~~ the NRC or another agreement state, or any product distributed pursuant to such licensing document, upon determining that such action is necessary in order to prevent undue hazard to public health and safety or property.

Article 2
Radiation Protection Programs

12VAC5-481-630. Radiation protection programs.

The following ~~regulations~~ regulation, Radiation protection programs ~~(10 CFR 20.1101, 63 FR 39482, July 23, 1998) and Definitions (10 CFR 20.1003, 66 FR 55789, November 2, 2001) are~~ (10 CFR 20.1101) is applicable in the Commonwealth of Virginia.

Article 3
Occupational Dose Limits

12VAC5-481-640. Occupational dose limits for adults.

The following ~~regulations~~ regulation, Occupational dose limits for adults ~~(10 CFR 20.1201, 67 FR 16304, April 5, 2002) and Definitions (10 CFR 20.1003, 67 FR 62872, October 9, 2002) are~~ (10 CFR 20.1201) is applicable in the Commonwealth of Virginia.

12VAC5-481-650. Compliance with requirements for summation of external and internal doses.

The following ~~regulations~~ regulation, Compliance with requirements for summation of external and internal doses ~~(10 CFR 20.1202, 57 FR 5787, December 8, 1992) and Definitions (10 CFR 20.1003, 66 FR 55789, November 2, 2001) are~~ (10 CFR 20.1202) is applicable in the Commonwealth of Virginia.

12VAC5-481-660. Determination of external dose from airborne radioactive material.

The following ~~regulations~~ regulation, Determination of external dose from airborne radioactive material ~~(10 CFR 20.1203, 63 FR 39482, July 23, 1998) and Definitions (10 CFR 20.1003, 66 FR 55789, November 2, 2001) are~~ (10 CFR 20.1203) is applicable in the Commonwealth of Virginia.

12VAC5-481-670. Determination of internal exposure.

The following ~~regulations~~ regulation, Determination of internal exposure ~~(10 CFR 20.1204, 60 FR 20185, April 25, 1995) and Definitions (10 CFR 20.1003, 66 FR 55789, November 2, 2001) are~~ (10 CFR 20.1204) is applicable in the Commonwealth of Virginia.

12VAC5-481-680. Determination of prior occupational dose.

A. For each individual who may enter the licensee's or registrant's restricted area and is likely to receive, in a year, an occupational dose requiring monitoring pursuant to ~~12VAC5-481-660~~ 12VAC5-481-760, the licensee or registrant shall~~:~~ determine the occupational radiation dose received during the current year.

~~1. Determine the occupational radiation dose received during the current year; and~~

~~2. Attempt to obtain the records of lifetime cumulative occupational radiation dose.~~

B. Prior to permitting an individual to participate in a planned special exposure, the licensee or registrant shall determine:

1. The internal and external doses from all previous planned special exposures; and

2. All doses in excess of the limits, including doses received during accidents and emergencies, received during the lifetime of the individual.

C. In complying with the requirements of subsection A or B of this section, a licensee or registrant may:

1. Accept, as a record of the occupational dose that the individual received during the current year, a written signed statement from the individual, or from the individual's most recent employer for work involving radiation exposure, that discloses the nature and the

amount of any occupational dose that the individual received during the current year;

2. Accept, as the record of lifetime cumulative radiation dose, an up-to-date occupational radiation exposure form provided by the agency ~~form Y~~ or equivalent, signed by the individual and countersigned by an appropriate official of the most recent employer for work involving radiation exposure, or the individual's current employer, if the individual is not employed by the licensee or registrant; and

3. Obtain reports of the individual's dose equivalent from the most recent employer for work involving radiation exposure, or the individual's current employer, if the individual is not employed by the licensee or registrant, by telephone, telegram, facsimile, or letter. The licensee or registrant shall request a written verification of the dose data if the authenticity of the transmitted report cannot be established.

D. Do the following:

1. The licensee or registrant shall record the exposure history, as required by this section on an occupational radiation exposure form provided by the agency ~~form Y~~, or other clear and legible record, of all the information required on that form. The form or record shall show each period in which the individual received occupational exposure to radiation or radioactive material and shall be signed by the individual who received the exposure. For each period for which the licensee or registrant obtains reports, the licensee or registrant shall use the dose shown in the report in preparing the occupational radiation exposure form provided by the agency ~~form Y~~ or equivalent. For any period in which the licensee or registrant does not obtain a report, the licensee or registrant shall place a notation on the occupational radiation exposure form provided by the agency ~~form Y~~ or equivalent indicating the periods of time for which data are not available.

2. Licensees or registrants are not required to partition historical dose between external dose equivalent(s) and internal committed dose equivalent(s). Further, occupational exposure histories obtained and recorded on the occupational radiation exposure form provided by the agency ~~form Y~~ or equivalent before September 20, 2006, might not have included effective dose equivalent, but may be used in the absence of specific information on the intake of radionuclides by the individual.

E. If the licensee or registrant is unable to obtain a complete record of an individual's current and previously accumulated occupational dose, the licensee or registrant shall assume:

1. In establishing administrative controls pursuant to 12VAC5-481-640 for the current year, that the allowable dose limit for the individual is reduced by 12.5 mSv (1.25 rem) for each quarter for which records were unavailable and the individual was engaged in activities that could have resulted in occupational radiation exposure; and

2. That the individual is not available for planned special exposures.

F. The licensee or registrant shall retain the records on an occupational radiation exposure form provided by the agency ~~form Y~~ or equivalent until the agency terminates each pertinent license or registration requiring this record. The licensee or registrant shall retain records used in preparing the occupational radiation exposure form provided by the agency ~~form Y~~ or equivalent for three years after the record is made.

12VAC5-481-690. Planned special exposures.

The following ~~regulations~~ regulation, Planned special exposures ~~(10 CFR 20.1206, 63 FR 39482, July 23, 1998) and Definitions (10 CFR 20.1003, 66 FR 55789, November 2, 2001) are~~ (10 CFR 20.1206) is applicable in the Commonwealth of Virginia.

12VAC5-481-700. Occupational dose limits for minors.

The following ~~regulations~~ regulation, Occupational dose limits for minors ~~(10 CFR 20.1207 as amended January 1, 2003) and Definitions (10 CFR 20.1003, 66 FR 55789, November 2, 2001) are~~ (10 CFR 20.1207) is applicable in the Commonwealth of Virginia.

12VAC5-481-710. Dose to an embryo/fetus.

The following ~~regulations~~ regulation, Dose to an embryo/fetus ~~(10 CFR 20.1208, 63 FR 39482, July 23, 1998) and Definitions (10 CFR 20.1003, 66 FR 55789, November 2, 2001) are~~ (10 CFR 20.1208) is applicable in the Commonwealth of Virginia.

Article 4
Radiation Dose Limits for Individual Members of the Public

12VAC5-481-720. Dose limits for individual members of the public.

The following ~~regulations~~ regulation, Dose limits for individual members of the public ~~(10 CFR 20.1301, 67 FR 62872, October 9, 2002) and Definitions (10 CFR 20.1003, 67 FR 62872, October 9, 2002) are~~ (10 CFR20.1301) is applicable in the Commonwealth of Virginia.

12VAC5-481-730. Compliance with dose limits for individual members of the public.

The following ~~regulations~~ regulation, Compliance with dose limits for individual members of the public ~~(10 CFR 20.1302, 60 FR 20185, April 25, 1995) and Definitions (10 CFR 20.1003, 66 FR 55789, November 2, 2001) are~~ (10 CFR 20.1302) is applicable in the Commonwealth of Virginia.

Article 5
Testing for Leakage or Contamination of Sealed Sources

12VAC5-481-740. Testing for leakage or contamination of sealed sources.

A. The licensee or registrant in possession of any sealed source shall assure that:

1. Each sealed source, except as specified in subsection B of this section, is tested for leakage or contamination and the test results are received before the sealed source is put into use unless the licensee or registrant has a certificate from the transferor indicating that the sealed source was tested within six months before transfer to the licensee or registrant;

2. Each sealed source that is not designed to emit alpha particles is tested for leakage or contamination at intervals not to exceed six months or at alternative intervals approved by the agency, after evaluation of information specified by 12VAC5-481-480 ~~L~~ J 4 and 5, ~~an agreement state, a licensing state, or~~ the ~~Nuclear Regulatory Commission~~ NRC or another agreement state;

3. Each sealed source that is designed to emit alpha particles is tested for leakage or contamination at intervals not to exceed three months or at alternative intervals approved by the agency, after evaluation of information specified by 12VAC5-481-480 ~~L~~ J 4 and 5, ~~an agreement state, a licensing state, or~~ the ~~Nuclear Regulatory Commission~~ NRC or another agreement state;

4. For each sealed source that is required to be tested for leakage or contamination, at any other time there is reason to suspect that the sealed source might have been damaged or might be leaking, the licensee or registrant shall assure that the sealed source is tested for leakage or contamination before further use;

5. Tests for leakage for all sealed sources, except brachytherapy sources manufactured to contain radium, shall be capable of detecting the presence of 185 Bq (0.005 µCi) of radioactive material on a test sample. Test samples shall be taken from the sealed source or from the surfaces of the container in which the sealed source is stored or mounted on which one might expect contamination to accumulate. For a sealed source contained in a device, test samples are obtained when the source is in the "off" position;

6. The test for leakage for brachytherapy sources manufactured to contain radium shall be capable of detecting an absolute leakage rate of 37 Bq (0.001 µCi) of radon-222 in a 24-hour period when the collection efficiency for radon-222 and its daughters has been determined with respect to collection method, volume and time;

7. Tests for contamination from radium daughters shall be taken on the interior surface of brachytherapy source storage containers and shall be capable of detecting the presence of 185 Bq (0.005 µCi) of a radium daughter which has a half-life greater than four days.

B. A licensee or registrant need not perform test for leakage or contamination on the following sealed sources:

1. Sealed sources containing only radioactive material with a half-life of less than 30 days;

2. Sealed sources containing only radioactive material as a gas;

3. Sealed sources containing 3.7 MBq (100 µCi) or less of beta or photon-emitting material or 370 kBq (10 µCi) or less of alpha-emitting material;

4. Sealed sources containing only hydrogen-3;

5. Seeds of iridium-192 encased in nylon ribbon; and

6. ~~The following regulation, Tritium neutron generator target source (10 CFR 359.35, 68 FR 75390, December 31, 2003), is applicable in the Commonwealth of Virginia.~~ Sealed sources that are stored, not being used and identified as in storage. The licensee or registrant shall, however, test each such sealed source for leakage or contamination and receive the test results at intervals not to exceed five years and within six months before the date of use or transfer.

C. Tests for leakage or contamination from sealed sources shall be performed by persons specifically authorized by the agency, ~~an agreement state, a licensing state, or~~ the ~~Nuclear Regulatory Commission~~ NRC or another agreement state to perform such services.

D. Test results shall be kept in units of becquerel or microcurie and maintained for inspection by the agency. Records of test results for sealed sources shall be made pursuant to 12VAC5-481-1010.

E. The following shall be considered evidence that a sealed source is leaking:

1. The presence of 185 Bq (0.005 µCi) or more of removable contamination on any test sample;

2. Leakage of 37 Bq (0.001 µCi) of radon-222 per 24 hours for brachytherapy sources manufactured to contain radium;

3. The presence of removable contamination resulting from the decay of 185 Bq (0.005 µCi) or more of radium.

F. The licensee or registrant shall immediately withdraw a leaking sealed source from use and shall take action to prevent the spread of contamination. The leaking sealed source shall be repaired or disposed of in accordance with this part.

G. Reports of test results for leaking or contaminated sealed sources shall be made pursuant to 12VAC5-481-1150.

Article 6
Surveys and Monitoring

12VAC5-481-750. General.

The following ~~regulations~~ regulation, ~~General (10 CFR 20.1501, 63 FR 39482, July 23, 1998) and Definitions (10 CFR 20.1003, 66 FR 55789, November 2, 2001) are~~ (10 CFR 20.1501) is applicable in the Commonwealth of Virginia.

12VAC5-481-760. Conditions requiring individual monitoring of external and internal occupational dose.

The following ~~regulations~~ regulation, Conditions requiring individual monitoring of external and internal occupational dose ~~(10 CFR 20.1502, 63 FR 39482, July 23, 1998) and Definitions (10 CFR 20.1003, 66 FR 55789, November 2, 2001) are~~ (10 CFR 20.1502) is applicable in the Commonwealth of Virginia.

Article 7
Control of Exposure from External Sources in Restricted Areas

12VAC5-481-780. Control of access to high radiation areas.

A. The following ~~regulations~~ regulation, Control of access to high radiation areas ~~(10 CFR 20.1601, 56 FR 23398, May 21, 1991) and Definitions (10 CFR 20.1003, 66 FR 55789, November 2, 2001) are~~ (10 CFR 20.1601) is applicable in the Commonwealth of Virginia.

B. The licensee or registrant is not required to control entrance or access to rooms or other areas containing sources of radiation capable of producing a high radiation area as described in this section if the licensee or registrant has met all the specific requirements for access and control specified in other applicable parts of this chapter, such as Part V (12VAC5-481-1170 et seq.) for industrial radiography, Part VI (12VAC5-481-1580 et seq.) for X-rays in the healing arts, ~~and~~ Part IX (12VAC5-481-2140 et seq.) for particle accelerators and Part XII (12VAC5-481-2660 et seq.) for irradiators.

12VAC5-481-790. Control of access to very high radiation areas.

A. In addition to the requirements in 12VAC5-481-780, the licensee or registrant shall institute measures to ensure that an individual is not able to gain unauthorized or inadvertent access to areas in which radiation levels could be encountered at ~~five~~ 5 Gy (500 rad) or more in one hour at one meter from a source of radiation or any surface through which the radiation penetrates. This requirement does not apply to rooms or areas in which diagnostic X-ray systems are the only source of radiation, or to nonself-shielded irradiators.

B. The licensee or registrant is not required to control entrance or access to rooms or other areas containing sources of radiation capable of producing a very high radiation area as described in subsection A of this section if the registrant has met all the specific requirements for access and control specified in other applicable parts of these regulations, such as Part V (12VAC5-481-1170 et seq.) for industrial radiography, Part VI (12VAC5-481-1580 et seq.) for X-rays in the healing arts, ~~and~~ Part IX (12VAC5-481-2140 et seq.) for particle accelerators, and Part XII (12VAC5-481-2660 et seq.) for irradiators.

12VAC5-481-800. ~~Control of access to very high radiation areas—irradiators.~~ (Repealed.)

~~A. This section applies to licensees or registrants with sources of radiation in nonself-shielded irradiators. This section does not apply to sources of radiation that are used in teletherapy, in industrial radiography, or in completely self-shielded irradiators in which the source of radiation is both stored and operated within the same shielding radiation barrier and, in the designed configuration of the irradiator, is always physically inaccessible to any individual and cannot create high levels of radiation in an area that is accessible to any individual.~~

~~B. Each area in which there may exist radiation levels in excess of five Gy (500 rad) in one hour at one meter from a source of radiation that is used to irradiate materials shall meet the following requirements:~~

~~1. Each entrance or access point shall be equipped with entry control devices that:~~

~~a. Function automatically to prevent any individual from inadvertently entering a very high radiation area; and~~

~~b. Permit deliberate entry into the area only after a control device is actuated that causes the radiation level within the area, from the source of radiation, to be reduced below that at which it would be possible for an individual to receive a deep dose equivalent in excess of one mSv (0.1 rem) in one hour; and~~

~~c. Prevent operation of the source of radiation if it would produce radiation levels in the area that could result in a deep dose equivalent to an individual in excess of one mSv (0.1 rem) in one hour.~~

~~2. Additional control devices shall be provided so that, upon failure of the entry control devices to function as required by subdivision 1 of this subsection:~~

~~a. The radiation level within the area, from the source of radiation, is reduced below that at which it would be possible for an individual to receive a deep dose equivalent in excess of one mSv (0.1 rem) in one hour; and~~

b. Conspicuous visible and audible alarm signals are generated to make an individual attempting to enter the area aware of the hazard and at least one other authorized individual, who is physically present, familiar with the activity, and prepared to render or summon assistance, aware of the failure of the entry control devices.

3. The licensee or registrant shall provide control devices so that, upon failure or removal of physical radiation barriers other than the sealed source's shielded storage container:

a. The radiation level from the source of radiation is reduced below that at which it would be possible for an individual to receive a deep dose equivalent in excess of one mSv (0.1 rem) in one hour; and

b. Conspicuous visible and audible alarm signals are generated to make potentially affected individuals aware of the hazard and the licensee or registrant or at least one other individual, who is familiar with the activity and prepared to render or summon assistance, aware of the failure or removal of the physical barrier.

4. When the shield for stored sealed sources is a liquid, the licensee or registrant shall provide means to monitor the integrity of the shield and to signal, automatically, loss of adequate shielding.

5. Physical radiation barriers that comprise permanent structural components, such as walls, that have no credible probability of failure or removal in ordinary circumstances need not meet the requirements of subdivisions 3 and 4 of this subsection.

6. Each area shall be equipped with devices that will automatically generate conspicuous visible and audible alarm signals to alert personnel in the area before the source of radiation can be put into operation and in time for any individual in the area to operate a clearly identified control device, that must be installed in the area and that can prevent the source of radiation from being put into operation.

7. Each area shall be controlled by use of such administrative procedures and such devices as are necessary to ensure that the area is cleared of personnel prior to each use of the source of radiation.

8. Each area shall be checked by a radiation measurement to ensure that prior to the first individual's entry into the area after any use of the source of radiation, the radiation level from the source of radiation in the area is below that at which it would be possible for an individual to receive a deep dose equivalent in excess of one mSv (0.1 rem) in one hour.

9. The entry control devices required in subdivision 1 of this subsection shall be tested for proper functioning. See 12VAC5-481-1070 for recordkeeping requirements.

a. Testing shall be conducted prior to initial operation with the source of radiation on any day, unless operations were continued uninterrupted from the previous day;

b. Testing shall be conducted prior to resumption of operation of the source of radiation after any unintentional interruption; and

c. The licensee or registrant shall submit and adhere to a schedule for periodic tests of the entry control and warning systems.

10. The licensee or registrant shall not conduct operations, other than those necessary to place the source of radiation in safe condition or to effect repairs on controls, unless control devices are functioning properly.

11. Entry and exit portals that are used in transporting materials to and from the irradiation area, and that are not intended for use by individuals, shall be controlled by such devices and administrative procedures as are necessary to physically protect and warn against inadvertent entry by any individual through these portals. Exit portals for irradiated materials shall be equipped to detect and signal the presence of any loose radioactive material that is carried toward such an exit and automatically to prevent loose radioactive material from being carried out of the area.

C. Licensees, registrants, or applicants for licenses or registrations for sources of radiation within the purview of subsection B of this section that will be used in a variety of positions or in locations, such as open fields or forests, that make it impracticable to comply with certain requirements of subsection B of this section, such as those for the automatic control of radiation levels, may apply to the agency for approval of alternative safety measures. Alternative safety measures shall provide personnel protection at least equivalent to those specified in subsection B of this section. At least one of the alternative measures shall include an entry preventing interlock control based on a measurement of the radiation that ensures the absence of high radiation levels before an individual can gain access to the area where such sources of radiation are used.

D. The entry control devices required by subsections B and C of this section shall be established in such a way that no individual will be prevented from leaving the area.

Article 8
Respiratory Protection and Controls to Restrict Internal Exposure in Restricted Areas

12VAC5-481-810. Use of process or other engineering controls.

The following ~~regulations~~ regulation, Use of process or other engineering controls ~~(10 CFR 20.1701, 64 FR 54556, October 7, 1999) and Definitions (10 CFR 20.1003, 66 FR~~

~~55789, November 2, 2001) are~~ (10 CFR 20.1701) is applicable in the Commonwealth of Virginia.

12VAC5-481-820. Use of other controls.

The following ~~regulations~~ regulation, Use of other controls ~~(10 CFR 20.1702, 64 FR 54556, October 7, 1999) and Definitions (10 CFR 20.1003, 66 FR 55789, November 2, 2001) are~~ (10 CFR 20.1702) is applicable in the Commonwealth of Virginia.

12VAC5-481-830. Use of individual respiratory protection equipment.

The following regulations, Use of individual respiratory protection equipment ~~(10 CFR 20.1703, 67 FR 77652, December 19, 2002)~~ (10 CFR 20.1703), Further restrictions on the use of respiratory protection equipment, ~~(10 CFR 20.173, 64 FR 54556, October 7, 1999)~~ (10 CFR 20.1704), and Applications for use of higher assigned protection factors ~~(10 CFR 20.173, 64 FR 54556, October 7, 1999) and Definitions (10 CFR 20.1003, 67 FR 62872, October 9, 2002)~~ (10 CFR 20.1705) are applicable in the Commonwealth of Virginia.

Article 9
Security and Control of Licensed or Registered Sources of Radiation

12VAC5-481-840. Security and control of licensed or registered sources of radiation.

A. The following regulations, Security of stored materials ~~(10 CFR 20.1801, 56 FR 23401, May 21, 1991)~~ (10 CFR 20.1801), and Control of material not in storage ~~(10 CFR 20.1802, 56 FR 23401, May 21, 1991) and Definitions (10 CFR 20.1003, 66 FR 55789, November 2, 2001)~~ (10 CFR 20.1802) are applicable in the Commonwealth of Virginia.

B. The registrant shall secure registered radiation machines from unauthorized removal.

C. The registrant shall use devices or administrative procedures to prevent unauthorized use of registered radiation machines.

D. Security requirements for portable gauges. Each portable gauge licensee shall use a minimum of two independent physical controls that form tangible barriers to secure portable gauges from unauthorized removal, whenever portable gauges are not under the control and constant surveillance of the licensee.

Article 10
Precautionary Procedures

12VAC5-481-850. Caution signs.

The following ~~regulations~~ regulation, Caution signs ~~(10 CFR 20.1901, 56 FR 23401, May 21, 1991) and Definitions (10 CFR 20.1003, 66 FR 55789, November 2, 2001) are~~ (10 CFR 20.1901) is applicable in the Commonwealth of Virginia.

12VAC5-481-860. Posting requirements.

The following ~~regulations~~ regulation, Posting requirements ~~(10 CFR 20.1902, 63 FR 39482, July 23, 1998) and Definitions (10 CFR 20.1003, 66 FR 55789, November 2, 2001) are~~ (10 CFR 20.1902) is applicable in the Commonwealth of Virginia.

12VAC5-481-870. Exceptions to posting requirements.

The following ~~regulations~~ regulation, Exceptions to posting requirements ~~(10 CFR 20.1903, 63 FR 39482, July 23, 1998) and Definitions (10 CFR 20.1003, 66 FR 55789, November 2, 2001) are~~ (10 CFR 20.1903) is applicable in the Commonwealth of Virginia.

12VAC5-481-880. Labeling containers and radiation machines.

A. The following ~~regulations~~ regulation, Labeling containers ~~(10 CFR 20.1904, 56 FR 23401, May 21, 1991) and Definitions (10 CFR 20.1003, 66 FR 55789, November 2, 2001) are~~ (10 CFR 20.1904) is applicable in the Commonwealth of Virginia.

B. Each registrant shall ensure that each radiation machine is labeled in a conspicuous manner that cautions individuals that radiation is produced when it is energized.

12VAC5-481-890. Exemptions to labeling requirements.

The following ~~regulations~~ regulation, Exemptions to labeling requirements ~~(10 CFR 20.1905, 60 FR 20185, April 25, 1995) and Definitions (10 CFR 20.1003, 66 FR 55789, November 2, 2001) are~~ (10 CFR 20.1905) is applicable in the Commonwealth of Virginia.

12VAC5-481-900. Procedures for receiving and opening packages.

The following ~~regulations~~ regulation, Procedures for receiving and opening packages ~~(10 CFR 20.1906, 63 FR 39482, July 23, 1998) and Definitions (10 CFR 20.1003, 66 FR 55789, November 2, 2001) are~~ (10 CFR 20.1906) is applicable in the Commonwealth of Virginia.

Article 11
Waste Disposal

12VAC5-481-910. General requirements.

The following ~~regulations~~ regulation, General requirements ~~(10 CFR 20.2001, 66 FR 55789, November 2, 2001) and Definitions (10 CFR 20.1003, 66 FR 55789, November 2, 2001) are~~ (10 CFR 20.2001) is applicable in the Commonwealth of Virginia.

12VAC5-481-930. Disposal by release into sanitary sewerage.

The following ~~regulations~~ regulation, Disposal by release into sanitary sewerage ~~(10 CFR 20.2003, 60 FR 20185, April 25, 1995) and Definitions (10 CFR 20.1003, 66 FR 55789, November 2, 2001) are~~ (10 CFR 20.2003) is applicable in the Commonwealth of Virginia.

12VAC5-481-940. Treatment or disposal by incineration.

The following ~~regulations~~ regulation, Treatment or disposal by incineration ~~(10 CFR 20.2004, 57 FR 57656, December 7, 1992) and Definitions (10 CFR 20.1003, 66 FR 55789, November 2, 2001) are~~ (10 CFR 20.2004) is applicable in the Commonwealth of Virginia.

12VAC5-481-950. Disposal of specific wastes.

The following ~~regulations~~ regulation, Disposal of specific wastes ~~(10 CFR 20.2005, 56 FR 23403, May 21, 1991) and Definitions (10 CFR 20.1003, 66 FR 55789, November 2, 2001) are~~ (10 CFR 20.2005) is applicable in the Commonwealth of Virginia.

12VAC5-481-960. Transfer for disposal and manifests.

The following ~~regulations~~ regulation, Transfer for disposal and manifests ~~(10 CFR 20.2006, 63 FR 50128, September 21, 1998) and Definitions (10 CFR 20.1003, 66 FR 55789, November 2, 2001) are~~ (10 CFR 20.2006) is applicable in the Commonwealth of Virginia.

12VAC5-481-970. Compliance with environmental and health protection regulations.

The following ~~regulations~~ regulation, Compliance with environmental and health protection regulations ~~(10 CFR 20.2007, 56 FR 23403, May 21, 1991) and Definitions (10 CFR 20.1003, 66 FR 55789, November 2, 2001) are~~ (10 CFR 20.2007) is applicable in the Commonwealth of Virginia.

12VAC5-481-971. Disposal of certain byproduct material.

The following regulation, Disposal of certain byproduct material (10 CFR 20.2008) is applicable in the Commonwealth of Virginia.

Article 12
Records

12VAC5-481-980. General provisions.

The following ~~regulations~~ regulation, General Provisions ~~(10 CFR 20.2101, 63 FR 39483, July 23, 1998) and Definitions (10 CFR 20.1003, 66 FR 55789, November 2, 2001) are~~ (10 CFR 20.2101) is applicable in the Commonwealth of Virginia.

12VAC5-481-990. Records of radiation protection programs.

The following ~~regulations~~ regulation, Records of radiation protection programs ~~(10 CFR 20.2102, 56 FR 23403, May 21, 1991) and Definitions (10 CFR 20.1003, 66 FR 55789, November 2, 2001) are~~ (10 CFR 20.2102) is applicable in the Commonwealth of Virginia.

12VAC5-481-1000. Records of surveys.

~~A.~~ The following ~~regulations~~ regulation, Records of surveys ~~(10 CFR 20.2103, 66 FR 64737, December 14, 2001) and Definitions (10 CFR 20.1003, 66 FR 55789, November 2, 2001) are~~ (10 CFR 20.2103) is applicable in the Commonwealth of Virginia.

~~B. Upon termination of the license or registration, the licensee or registrant shall permanently store records on agency form Y or equivalent, or shall make provision with the agency for transfer to the agency.~~

12VAC5-481-1010. Records of tests for leakage or contamination of sealed sources.

Records of tests for leakage or contamination of sealed sources (required by 12VAC5-481-740) shall be kept in units of becquerel or microcurie and maintained ~~for inspection by the agency~~ for five years after the records are made.

12VAC5-481-1020. Records of prior occupational dose.

~~A.~~ The licensee or registrant shall retain the records of prior occupational dose and exposure history as specified in 12VAC5-481-680 on an occupational radiation exposure form provided by the agency ~~form Y~~ or equivalent until the agency terminates each pertinent license or registration requiring this record. The licensee or registrant shall retain records used in preparing an occupational radiation exposure form provided by the agency ~~form Y~~ or equivalent for three years after the record is made.

~~B. Upon termination of the license or registration, the licensee or registrant shall permanently store records on agency form Y or equivalent, or shall make provision with the agency for transfer to the agency.~~

12VAC5-481-1030. Records of planned special exposures.

The following ~~regulations~~ regulation, Records of planned special exposures ~~(10 CFR 20.2105, 56 FR 23403, May 21, 1991) and Definitions (10 CFR 20.1003, 66 FR 55789, November 2, 2001) are~~ (10 CFR 20.2105) is applicable in the Commonwealth of Virginia.

12VAC5-481-1040. Records of individual monitoring results.

The following ~~regulations~~ regulation, Records of individual monitoring results ~~(10 CFR 20.2107, 63 FR 39483, July 23, 1998) and Definitions (10 CFR 20.1003, 66 FR 55789,~~

~~November 2, 2001) are~~ (10 CFR 20.2106) is applicable in the Commonwealth of Virginia.

12VAC5-481-1050. Records of dose to individual members of the public.

A. Each licensee or registrant shall maintain records sufficient to demonstrate compliance with the dose limit for individual members of the public~~. See~~ per 12VAC5-481-720.

B. The licensee or registrant shall retain the records required by subsection A of this section until the agency terminates each pertinent license or registration requiring the record.

12VAC5-481-1070. Records of testing entry control devices for very high radiation areas.

A. Each licensee or registrant shall maintain records of tests made ~~pursuant to 12VAC5-481-800 B 9~~ on entry control devices for very high radiation areas. These records must include the date, time, and results of each such test of function.

B. The licensee or registrant shall retain the records required by subsection A of this section for three years after the record is made.

Article 13
Reports

12VAC5-481-1090. Reports of stolen, lost, or missing licensed or registered sources of radiation.

A. Telephone reports. Each licensee or registrant shall report to the agency~~, and Virginia State Police~~ by telephone as follows:

1. Immediately after its occurrence becomes known to the licensee or registrant, stolen, lost, or missing licensed or registered radioactive material in an aggregate quantity equal to or greater than 1,000 times the quantity specified in ~~Appendix C in 10 CFR Part 20~~ 12VAC5-481-3700 under such circumstances that it appears to the licensee or registrant that an exposure could result to individuals in unrestricted areas;

2. Within 30 days after its occurrence becomes known to the licensee or registrant, lost, stolen, or missing licensed or registered radioactive material in an aggregate quantity greater than 10 times the quantity specified in ~~Appendix C in 10 CFR Part 20~~ 12VAC5-481-3700 that is still missing; or

3. Immediately after its occurrence becomes known to the registrant, a stolen, lost, or missing radiation machine. ~~Appendix C refers to Appendix C to 10 CFR Part 20 Standards for Radiation Protections (10 CFR Part 20, 60 FR 20186, April 25, 1995) and is applicable in the Commonwealth of Virginia.~~

B. Written reports. Each licensee or registrant required to make a report pursuant to subsection A of this section shall, within 30 days after making the telephone report, make a written report to the agency setting forth the following information:

1. A description of the licensed or registered source of radiation involved, including, for radioactive material, the kind, quantity, and chemical and physical form; and, for radiation machines, the manufacturer, model and serial number, type and maximum energy of radiation emitted;

2. A description of the circumstances under which the loss or theft occurred;

3. A statement of disposition, or probable disposition, of the licensed or registered source of radiation involved;

4. Exposures of individuals to radiation, circumstances under which the exposures occurred, and the possible total effective dose equivalent to persons in unrestricted areas;

5. Actions that have been taken, or will be taken, to recover the source of radiation; and

6. Procedures or measures that have been, or will be, adopted to ensure against a recurrence of the loss or theft of licensed or registered sources of radiation.

C. Subsequent to filing the written report, the licensee or registrant shall also report additional substantive information on the loss or theft within 30 days after the licensee or registrant learns of such information.

D. The licensee or registrant shall prepare any report filed with the agency pursuant to this section so that names of individuals who may have received exposure to radiation are stated in a separate and detachable portion of the report.

~~E. The agency will forward information regarding a stolen, lost, or missing radiation material or device to the Virginia State Police and the Virginia Department of Emergency Services.~~

12VAC5-481-1100. Notification of incidents.

The following ~~regulations~~ regulation, Notification of incidents ~~(10 CFR 20.2107, 63 FR 39483, July 23, 1998) and Definitions (10 CFR 20.1003, 66 FR 55789, November 2, 2001) are~~ (10 CFR 20.2202) is applicable in the Commonwealth of Virginia, and notifications are made by telephone to the agency during normal business hours at (804) 864-8150, and after business hours to the State Emergency Operations Center (804) 674-2400.

12VAC5-481-1110. ~~Reports of exposures, radiation levels, and concentrations of radioactive material exceeding the limits~~ Reporting requirements.

The following regulations, Reports of exposures, radiation levels, and concentrations of radioactive material exceeding

the constraints or limits ~~(10 CFR 20.2203, 61 FR 65127, December 10, 1996) and Definitions (10 CFR 20.1003, 66 FR 55789, November 2, 2001)~~ (10 CFR 20.2203 (a) and (b)) and Reporting requirements (10 CFR 30.50, 10 CFR 40.60, and 10 CFR 70.50(a)(b)(c)) are applicable in the Commonwealth of Virginia, and reports are submitted to the agency at the following address: 109 Governor Street, Room 730, Richmond, VA 23219.

12VAC5-481-1130. Reports of individual monitoring.

A. This section applies to each person licensed or registered by the agency to:

1. Possess or use sources of radiation for purposes of industrial radiography pursuant to Parts III (12VAC5-481-380 et seq.) and V (12VAC5-481-1170 et seq.) of this chapter; or

2. Receive radioactive waste from other persons for disposal pursuant to Part XI (12VAC5-481-2330 et seq.) of this chapter; or

3. Possess or use at any time, for processing or manufacturing for distribution pursuant to Part III (12VAC5-481-380 et seq.) or VII (12VAC5-481-1660 et seq.) of this chapter, radioactive material in quantities exceeding any one of the following quantities:

Radionuclide	~~Activity~~[a] ~~Ci~~	Activity[a] GBq	Ci
Cesium-137	~~1~~	37	1
Cobalt-60	~~1~~	37	1
Gold-98	~~100~~	3,700	100
Iodine-131	~~1~~	37	1
Iridium-192	~~10~~	270	10
Krypton-85	~~1,000~~	37,000	1,000
Promethium-147	~~10~~	370	10
Technecium-99m	~~1,000~~	37,000	1,000

[a]The agency may require as a license condition, or by rule, regulation, or an order pursuant to 12VAC5-481-190, reports from licensees or registrants who are licensed or registered to use radionuclides not on this list, in quantities sufficient to cause comparable radiation levels.

B. Each licensee or registrant in a category listed in subsection A of this section shall submit an annual report of the results of individual monitoring carried out by the licensee or registrant for each individual for whom monitoring was required by 12VAC5-481-760 during that year. The licensee or registrant may include additional data for individuals for whom monitoring was provided but not required. The licensee or registrant shall use ~~agency form Z~~ the agency's record of individual monitoring results form or equivalent or electronic media containing all the information required by ~~agency form Z~~ the agency's record of individual monitoring results form.

C. The licensee or registrant shall file the report required by subsection B of this section, covering the preceding year, on or before April 30 of each year. The licensee or registrant shall submit the report to the agency.

12VAC5-481-1151. Reports of transactions involving nationally tracked sources.

A. Each licensee who manufactures a nationally tracked source shall complete and submit a National Source Tracking Transaction Report. The report must include the following information:

1. The name, address, and license number of the reporting licensee;

2. The name of the individual preparing the report;

3. The manufacturer, model, and serial number of the source;

4. The radioactive material in the source;

5. The initial source strength in becquerels (curies) at the time of manufacture; and

6. The manufacture date of the source.

B. Each licensee that transfers a nationally tracked source to another person shall complete and submit a National Source Tracking Transaction Report. The report must include the following information:

1. The name, address, and license number of the reporting licensee;

2. The name of the individual preparing the report;

3. The name and license number of the recipient facility and the shipping address;

4. The manufacturer, model, and serial number of the source or, if not available, other information to uniquely identify the source;

5. The radioactive material in the source;

6. The initial or current source strength in becquerels (curies);

7. The date for which the source strength is reported;

8. The shipping date;

9. The estimated arrival date; and

10. For nationally tracked sources transferred as waste under a Uniform Low-Level Radioactive Waste Manifest, the waste manifest number and the container identification of the container with the nationally tracked source.

C. Each licensee that receives a nationally tracked source shall complete and submit a National Source Tracking Transaction Report. The report must include the following information:

1. The name, address, and license number of the reporting licensee;

2. The name of the individual preparing the report;

3. The name, address, and license number of the person that provided the source;

4. The manufacturer, model, and serial number of the source or, if not available, other information to uniquely identify the source;

5. The radioactive material in the source;

6. The initial or current source strength in becquerels (curies);

7. The date for which the source strength is reported;

8. The date of receipt; and

9. For material received under a Uniform Low-Level Radioactive Waste Manifest, the waste manifest number and the container identification with the nationally tracked source.

D. Each licensee that disassembles a nationally tracked source shall complete and submit a National Source Tracking Transaction Report. The report must include the following information:

1. The name, address, and license number of the reporting licensee;

2. The name of the individual preparing the report;

3. The manufacturer, model, and serial number of the source or, if not available, other information to uniquely identify the source;

4. The radioactive material in the source;

5. The initial or current source strength in becquerels (curies);

6. The date for which the source strength is reported; and

7. The disassemble date of the source.

E. Each licensee who disposes of a nationally tracked source shall complete and submit a National Source Tracking Transaction Report. The report must include the following information:

1. The name, address, and license number of the reporting licensee;

2. The name of the individual preparing the report;

3. The waste manifest number;

4. The container identification with the nationally tracked source;

5. The date of disposal; and

6. The method of disposal.

F. The reports discussed in subsections A through E of this section must be submitted by the close of the next business day after the transaction. A single report may be submitted for multiple sources and transactions. The reports must be submitted to the National Source Tracking System by using:

1. The online National Source Tracking System;

2. Electronically using a computer-readable format;

3. By facsimile;

4. By mail to the address on the National Source Tracking Transaction Report Form (NRC Form 748); or

5. By telephone with followup by facsimile or mail.

G. Each licensee shall correct any error in previously filed reports or file a new report for any missed transaction within five business days of the discovery of the error or missed transaction. Such errors may be detected by a variety of methods such as administrative reviews or by physical inventories required by regulation. In addition, each licensee shall reconcile the inventory of nationally tracked sources possessed by the licensee against that licensee's data in the National Source Tracking System. The reconciliation must be conducted during the month of January in each year. The reconciliation process must include resolving any discrepancies between the National Source Tracking System and the actual inventory by filing the reports identified by subsections A through E of this section. By January 31 of each year, each licensee must submit to the National Source Tracking System confirmation that the data in the National Source Tracking System is correct.

Article 14
Additional Requirements

12VAC5-481-1160. ~~Vacating premises.~~ (Repealed.)

~~Each specific licensee or registrant shall, no less than 30 days before vacating or relinquishing possession or control of premises that may have been contaminated with radioactive material as a result of his activities, notify the agency in writing of intent to vacate. When deemed necessary by the agency, the licensee shall decontaminate the premises in such a manner as the agency may specify.~~

12VAC5-481-1161. Radiological criteria for license termination.

A. General provisions and applicability.

1. This part applies to the decommissioning of facilities licensed under this chapter.

2. This part does not apply to sites that:

a. Have been decommissioned before the effective date as stated in 12VAC5-481-160; or

b. Have previously submitted and received NRC's approval on a license termination plan or decommissioning plan.

3. After a site has been decommissioned and the license terminated according to this section, the agency shall require additional cleanup only if, based on new information, the agency determines that the criteria of this part were not met and residual radioactivity remaining at the site could result in a significant threat to public health and safety.

4. When calculating the Total Effective Dose Equivalent (TEDE) to the average member of the critical group, the licensee must determine the peak annual TEDE expected within the first 1,000 years after decommissioning.

B. Radiological criteria for unrestricted use. A site is considered acceptable for unrestricted use if the residual radioactivity that is distinguishable from background radiation results in a TEDE to an average member of the critical group that does not exceed 0.25 mSv (25 mrem) per year, including that from groundwater sources of drinking water; and the residual radioactivity has been reduced to levels that are ALARA. Determination of levels that are ALARA must take into account consideration of any detriments, such as deaths from transportation accidents, expected to potentially result from decontamination and waste disposal.

C. Criteria for termination under restricted conditions. A site is considered acceptable for license termination under restricted conditions, if the licensee:

1. Can demonstrate that further reductions in residual radioactivity necessary to comply with subsection B of this section would result in net public or environmental harm or are not being made because the residual levels associated with restricted conditions are ALARA. Determination of the levels that are ALARA must take into account consideration of any detriments, such as traffic accidents, expected to potentially result from decontamination and waste disposal;

2. Has made provisions for legally enforceable institutional controls that provide reasonable assurance that the TEDE from residual radioactivity, distinguishable from background radiation, will not exceed 0.25 mSv (25 mrem) per year to the average member of the critical group;

3. Has provided sufficient financial assurance to enable an independent third party, including a governmental custodian of a site, to assume and carry out responsibilities for any necessary control and maintenance of the site. Acceptable financial assurance mechanisms are:

a. Funds placed into an account segregated from the licensee's assets and outside the licensee's administrative control as described under 12VAC5-481-450 C 7 a;

b. Surety method, insurance, or other guarantee method as described under part 12VAC5-481-450 C 7 b;

c. A statement of intent, in the case of federal, state, or local government licensees, as described in 12VAC5-481-450 C 7 d; or

d. When a governmental entity is assuming custody and ownership of a site, an arrangement that is deemed acceptable by the governmental entity;

4. Has submitted a decommissioning plan or a license termination plan to the agency indicating the licensee's intent to decommission according to 12VAC5-481-510 and specifying that the licensee intends to decommission by restricting use of the site. The licensee must document in the license termination plan or decommissioning plan how the advice of individuals and institutions in the community has been sought according to subdivisions 5 and 6 of this subsection and incorporated, as appropriate, following analysis of that advice;

5. If proposing to decommission by restricting use of the site, seeks advice from individuals and institutions in the community who may be affected by the decommissioning regarding whether:

a. Institutional controls proposed by the licensee:

(1) Will provide reasonable assurance that the TEDE from residual radioactivity distinguishable from background radiation to the average member of the critical group will not exceed 0.25 mSv (25 mrem) TEDE per year;

(2) Will be enforceable; and

(3) Will not impose undue burdens on the local community or other affected parties; and

b. The licensee has provided sufficient financial assurance to enable an independent third party, including a governmental custodian of a site, to assume and carry out responsibilities for any necessary control and maintenance of the site;

6. While seeking advice under subdivision 5 of this subsection, provides for:

a. Participation by representatives of a broad cross section of community interests who may be affected by the decommissioning;

b. An opportunity for a comprehensive, collective discussion on the issues by the participants represented; and

c. A publicly available summary of the results of all such discussions, including a description of the individual viewpoints of the participants on the issues and the extent of agreement and disagreement among the participants on the issues; and

7. Reduces residual radioactivity at the site so that if the institutional controls were no longer in effect, there is reasonable assurance that the TEDE from residual radioactivity distinguishable from background radiation to the average member of the critical group is ALARA and would not exceed:

a. 1 mSv (100 mrem) per year; or

b. 5 mSv (500 mrem) per year, if the licensee:

(1) Demonstrates that further reductions in residual radioactivity necessary to comply with subdivision C 7 a of this section are not technically achievable, would be prohibitively expensive, or would result in net public or environmental harm;

(2) Makes provisions for durable institutional controls; and

(3) Provides sufficient financial assurance, according to subdivision C 3 of this section, to enable a responsible governmental entity or independent third party, including a governmental custodian of a site, to carry out periodic rechecks of the site no less frequently than every five years to ensure that the institutional controls remain in place as necessary to meet the criteria of subdivision C 2 of this section, and to assume and carry out responsibilities for any necessary control and maintenance of those controls.

D. Alternative criteria for license termination.

1. The agency may terminate a license using alternative criteria greater than the dose criterion of subsection B and subdivision C 5 a (1) of this section, if the licensee:

a. Provides assurance that public health and safety would continue to be protected and that it is unlikely that the dose from all manmade sources combined, other than medical, would be more than the 1 mSv (100 mrem) per year limit under 12VAC5-481-720, by submitting an analysis of possible sources of exposure;

b. Employs, to the extent practical, restrictions on site use according to subsection C of this section, in minimizing exposures at the site;

c. Reduces doses to ALARA levels, taking into consideration any detriments, such as traffic accidents, expected to potentially result from decontamination and waste disposal; and

d. Submits a decommissioning plan or license termination plan to the agency indicating the licensee's intent to decommission according to 12VAC5-481-510, and specifying that the licensee proposes to decommission by use of alternate criteria. The licensee must document in the decommissioning plan or license termination plan how the advice of individuals and institutions in the community who may be affected by the decommissioning has been sought and addressed, as appropriate, following analysis of that advice. In seeking such advice, the licensee must provide for:

(1) Participation by representatives of a broad cross section of community interests who may be affected by the decommissioning;

(2) An opportunity for a comprehensive, collective discussion on the issues by the participants represented; and

(3) A publicly available summary of the results of all such discussions, including a description of the individual viewpoints of the participants on the issues and the extent of agreement and disagreement among the participants on the issues.

2. The use of alternate criteria to terminate a license requires the approval of the agency after consideration of staff recommendations of the agency that address any comments provided by federal, state and local governments and any public comments submitted pursuant under subsection E of this section.

E. Public notification and public participation. Upon receipt of a license termination plan or decommissioning plan from a licensee or a proposal by a licensee for release of a site according to subsection C or D of this section, or whenever the agency deems such notice to be in the public interest, the agency must:

1. Notify and solicit comments from:

a. Local and state governments in the vicinity of the site and any Indian Nation or other indigenous people that have treaty or statutory rights that could be affected by the decommissioning; and

b. The US Environmental Protection Agency and Virginia Department of Environmental Quality for cases when the licensee proposes to release a site according to subsection D of this section; and

2. Publish a notice in the State Register and in a forum, such as local newspapers, letters to state and local organizations, or other appropriate forum, that is readily accessible to individuals in the vicinity of the site and solicit comments from affected parties.

12VAC5-481-1190. Exemptions.

A. Uses of certified and certifiable cabinet X-ray systems are exempt from the requirements of this part except for 12VAC5-481-1200 and the following:

1. For certified and certifiable cabinet X-ray systems, including those designed to allow admittance of individuals:

a. No registrant shall permit any individual to operate a cabinet X-ray system until the individual has received a copy of and instruction in the operating procedures for the unit. Records that demonstrate compliance with this subdivision shall be maintained for agency inspection until disposal is authorized by the agency.

b. Tests for proper operation of interlocks must be conducted and recorded at intervals not to exceed six months. Records of these tests shall be maintained for agency inspection until disposal is authorized by the agency.

c. The registrant shall perform an evaluation of the radiation dose limits to determine compliance with 12VAC5-481-720 and 21 CFR 1020.40, Cabinet X-ray Systems ~~(39 FR 12986, April 10, 1974)~~, at intervals not to exceed one year. Records of these evaluations shall be maintained for agency inspection for two years after the evaluation.

2. Certified cabinet X-ray systems shall be maintained in compliance with 21 CFR 1020.40, Cabinet X-ray Systems ~~(39 FR 12986, April 10, 1974)~~, and no modification shall be made to the system unless prior agency approval has been granted.

B. Industrial uses of hand-held light intensified imaging devices are exempt from the requirements of exceed ~~two millirem~~ 0.2 mSv (2 mrem) per hour. Devices that exceed this limit shall meet the applicable requirements of this part and the licensing or registration requirements of Part II (12VAC5-481-260 et seq.) or Part III (12VAC5-481-380 et seq.) of this chapter, as applicable.

12VAC5-481-1200. Licensing and registration requirements for industrial radiography operations.

A. The agency will approve an application for a specific license for the use of licensed material or a registration for use of radiation machines if the applicant meets the following requirements:

1. The applicant satisfies the general requirements specified in Part II (12VAC5-481-260 et seq.) for radiation machine facilities or Part III (12VAC5-481-380 et seq.) for radioactive material, as applicable, and any special requirements contained in this part;

2. The applicant submits an adequate program for training radiographers and radiographer's assistants that meets the requirements of 12VAC5-481-1320~~.~~;

~~a. After two years after September 20, 2006, the applicant need not describe the initial training and examination program for radiographers in the subjects outlined in 12VAC5-481-1320 G.~~

~~b. From September 20, 2006, to two years after September 20, 2006, the applicant may affirm that all individuals acting as industrial radiographers will be certified in radiation safety by a certifying entity before commencing duty as radiographers. This affirmation substitutes for a description of its initial training and examination program for radiographers in the subjects outlined in 12VAC5-481-1320 G.~~

3. The applicant submits procedures for verifying and documenting the certification status of radiographers and for ensuring that the certification of individuals acting as radiographers remains valid;

4. The applicant submits written operating and emergency procedures as described in 12VAC5-481-1330;

5. The applicant submits a description of a program for inspections of the job performance of each radiographer and radiographer's assistant at intervals not to exceed six months as described in 12VAC5-481-1320 E;

6. The applicant submits a description of the applicant's overall organizational structure as it applies to the radiation safety responsibilities in industrial radiography, including specified delegation of authority and responsibility;

7. The applicant submits the qualifications of the individual(s) designated as the radiation safety officer as described in 12VAC5-481-1310 A 1;

8. If an applicant intends to perform leak testing of sealed sources or exposure devices containing depleted uranium (DU) shielding, the applicant must describe the procedures for performing the test. The description must include the:

a. Methods of collecting the samples;

b. Qualifications of the individual who analyzes the samples;

c. Instruments to be used; and

d. Methods of analyzing the samples~~.~~;

9. If the applicant intends to perform calibrations of survey instruments and alarming ratemeters, the applicant must describe methods to be used and the experience of the person(s) who will perform the calibrations. All calibrations must be performed according to the procedures described and at the intervals prescribed in 12VAC5-481-1240 and 12VAC5-481-1350 G 4;

10. The applicant identifies and describes the location(s) of all field stations and permanent radiographic installations;

11. The applicant identifies the location(s) where all records required by this and other parts of these regulations will be maintained;

12. If a license application includes underwater radiography, a description of:

a. Radiation safety procedures and radiographer responsibilities unique to the performance of underwater radiography;

b. Radiographic equipment and radiation safety equipment unique to underwater radiography; and

c. Methods for gas-tight encapsulation of equipment; and

13. If an application includes offshore platform and/or lay-barge radiography, a description of:

a. Transport procedures for radioactive material to be used in industrial radiographic operations;

b. Storage facilities for radioactive material; and

c. Methods for restricting access to radiation areas.

B. A license or registration will be issued if the requirements of subsection A of this section, as applicable, are met.

12VAC5-481-1220. Limits on external radiation levels from storage containers and source changers.

The maximum exposure rate limits for storage containers and source changers are ~~two millisieverts~~ 2 mSv (200 mrem) per hour at any exterior surface, and 0.1 ~~millisieverts~~ mSv (10 mrem) per hour at one meter from any exterior surface with the sealed source in the shielded position.

12VAC5-481-1230. Locking of sources of radiation, storage containers and source changers.

A. Each radiographic exposure device must have a lock or outer locked container designed to prevent unauthorized or accidental removal of the sealed source from its shielded position. The exposure device and/or its container must be kept locked, and if a keyed-lock, with the key removed at all times, when not under the direct surveillance of a radiographer or a radiographer's assistant except at permanent radiographic installations as stated in 12VAC5-481-1370. In addition, during radiographic operations the sealed source assembly must be secured in the shielded position each time the source is returned to that position.

B. Each sealed source storage container and source changer must have a lock or outer locked container designed to prevent unauthorized or accidental removal of the sealed source from its shielded position. Storage containers and source changers must be kept locked, and if a keyed-lock, with the key removed at all times, when containing sealed sources except when under the direct surveillance of a radiographer or a radiographer's assistant.

C. The control panel of each radiation machine shall be equipped with a lock that will prevent the unauthorized use of an X-ray system or the accidental production of radiation. The radiation machine shall be kept locked and the key removed at all times except when under the direct visual surveillance of a radiographer or a radiographer's assistant.

12VAC5-481-1240. Radiation survey instruments.

A. The licensee or registrant shall keep sufficient calibrated and operable radiation survey instruments at each location where sources of radiation are present to make the radiation surveys required by this part and by Part IV (12VAC5-481-600 et seq.) of this chapter. Instrumentation required by this section must be capable of measuring a range from 0.02 ~~millisieverts~~ mSv (2 mrem) per hour through 0.01 ~~sievert~~ Sv (1 rem) per hour.

B. The licensee or registrant shall have each radiation survey instrument required under subsection A of this section calibrated:

1. At energies appropriate for use and at intervals not to exceed six months or after instrument servicing, except for battery changes;

2. For linear scale instruments, at two points located approximately one-third and two-thirds of full-scale on each scale; for logarithmic scale instruments, at mid-range of each decade, and at two points of at least one decade; and for digital instruments, at three points between 0.02 and 10 ~~millisieverts~~ mSv (2 and 1000 mrem) per hour; and

3. So that an accuracy within plus or minus 20% of the true radiation dose rate can be demonstrated at each point checked.

C. The licensee or registrant shall maintain records of the results of the instrument calibrations in accordance with 12VAC5-481-1410.

12VAC5-481-1250. Leak testing and replacement of sealed sources.

A. The replacement of any sealed source fastened to or contained in a radiographic exposure device and leak testing of any sealed source must be performed by persons authorized to do so by the agency, the ~~Nuclear Regulatory Commission~~ NRC, or another agreement state.

B. The opening, repair, or modification of any sealed source must be performed by persons specifically authorized to do so by the agency, the ~~Nuclear Regulatory Commission~~ NRC, or another agreement state.

C. Testing and recordkeeping requirements.

1. Each licensee who uses a sealed source shall have the source tested for leakage at intervals not to exceed six months. The leak testing of the source must be performed using a method approved by the agency, the ~~Nuclear Regulatory Commission~~ NRC, or by another agreement state. The wipe sample should 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 ~~becquerel (0.005 Ci)~~ Bq

(0.005 µCi) of radioactive material on the test sample and must be performed by a person specifically authorized by the agency, the ~~Nuclear Regulatory Commission~~ NRC, or another agreement state to perform the analysis.

2. The licensee shall maintain records of the leak tests in accordance with 12VAC5-481-1420.

3. Unless a sealed source is accompanied by a certificate from the transferor that shows that it has been leak tested within six months before the transfer, it may not be used by the licensee until tested for leakage. Sealed sources that are in storage and not in use do not require leak testing, but must be tested before use or transfer to another person if the interval of storage exceeds six months.

D. Any test conducted pursuant to subsections B and C of this section that reveals the presence of 185 ~~becquerel (0.005 Ci)~~ Bq (0.005 µCi) or more of removable radioactive material must be considered evidence that the sealed source is leaking. The licensee shall immediately withdraw the equipment involved from use and shall have it decontaminated and repaired or disposed of in accordance with agency regulations. A report must be filed with the agency within five days of any test with results that exceed the threshold in this paragraph, describing the equipment involved, the test results, and the corrective action taken.

E. Each exposure device using depleted uranium (DU) shielding and an "S" tube configuration must be tested for DU contamination at intervals not to exceed 12 months. The analysis must be capable of detecting the presence of 185 ~~becquerel (0.005 Ci)~~ Bq (0.005 µCi) of radioactive material on the test sample and must be performed by a person specifically authorized by the agency, the ~~Nuclear Regulatory Commission~~ NRC, or another agreement state to perform the analysis. Should such testing reveal the presence of DU contamination, the exposure device must be removed from use until an evaluation of the wear of the S-tube has been made. Should the evaluation reveal that the S-tube is worn through, the device may not be used again. DU shielded devices do not have to be tested for DU contamination while not in use and in storage. Before using or transferring such a device, however, the device must be tested for DU contamination, if the interval of storage exceeds 12 months. A record of the DU leak test must be made in accordance with 12VAC5-481-1420.

12VAC5-481-1270. Inspection and maintenance of radiation machines, radiographic exposure devices, transport and storage containers, associated equipment, source changers, and survey instruments.

A. The licensee or registrant shall perform visual and operability checks on survey meters, radiation machines, radiographic exposure devices, transport and storage containers, associated equipment and source changers before each day's use, or work shift, to ensure that:

1. The equipment is in good working condition;

2. The sources are adequately shielded; and

3. Required labeling is present.

B. Survey instrument operability must be performed using check sources or other appropriate means.

C. If equipment problems are found, the equipment must be removed from service until repaired.

D. Each licensee or registrant shall have written procedures for and perform inspection and routine maintenance of radiation machines, radiographic exposure devices, source changers, associated equipment, transport and storage containers, and survey instruments at intervals not to exceed three months or before the first use thereafter to ensure the proper functioning of components important to safety. If equipment problems are found, the equipment must be removed from service until repaired. Replacement components shall meet design requirements.

E. The licensee's inspection and maintenance program must include procedures to assure that Type B packages are shipped and maintained in accordance with the certificate of compliance or other approval.

F. Records of equipment problems and of any maintenance performed under this section must be made in accordance with 12VAC5-481-1450.

Article 2
Radiation Safety Requirements

12VAC5-481-1300. Conducting industrial radiographic operations.

A. Whenever radiography is performed at a location other than a permanent radiographic installation, the radiographer must be accompanied by at least one other qualified radiographer or an individual who has at a minimum met the requirements of 12VAC5-481-1320 C. The additional qualified individual shall observe the operations and be capable of providing immediate assistance to prevent unauthorized entry. Radiography may not be performed if only one qualified individual is present.

B. All radiographic operations must be conducted in a permanent radiographic installation unless otherwise specifically authorized by the agency.

C. Except when physically impossible, collimators shall be used in industrial radiographic operations that use radiographic exposure devices that allow the source to be moved out of the device.

D. A licensee or registrant may conduct lay-barge, offshore platform, or underwater radiography only if procedures have been approved by the agency, the ~~Nuclear Regulatory Commission~~ NRC, or by another agreement state.

12VAC5-481-1310. Radiation safety officer.

A. The radiation safety officer shall ensure that radiation safety activities are being performed in accordance with approved procedures and regulatory requirements in the daily operation of the licensee's or registrant's program.

B. The minimum qualifications, training, and experience for radiation safety officers for industrial radiography are as follows:

1. Completion of the training and testing requirements of 12VAC5-481-1320 A;

2. 2000 hours of hands-on experience as a qualified radiographer in industrial radiographic operations; and

3. Formal training in the establishment and maintenance of a radiation protection program.

C. The agency will consider alternatives when the radiation safety officer has appropriate training and experience in the field of ionizing radiation, and in addition, has adequate formal training with respect to the establishment and maintenance of a radiation safety protection program.

D. The specific duties and authorities of the radiation safety officer include:

1. Establishing and overseeing all operating, emergency, and ALARA procedures as required by Part IV (12VAC5-481-600 et seq.) of this chapter and reviewing them regularly to ensure that they conform to agency regulations and to the license or registration conditions;

2. Overseeing and approving the training program for radiographic personnel to ensure that appropriate and effective radiation protection practices are taught;

3. Ensuring that required radiation surveys and leak tests are performed and documented in accordance with the regulations, including any corrective measures when levels of radiation exceed established limits;

4. Ensuring that personnel monitoring devices are calibrated, if applicable, and used properly; that records are kept of the monitoring results; and that timely notifications are made as required by Part IV of this chapter; and

5. Ensuring that operations are conducted safely and for implementing corrective actions including terminating operations.

~~E. Licensees and registrants will have two years from September 20, 2006, to meet the requirements of subsections B and C of this section.~~

12VAC5-481-1320. Training.

A. The licensee or registrant may not permit any individual to act as a radiographer until the individual~~: 1. Has~~ has received at least 40 hours of training in the subjects outlined in subsection G of this section in addition to on the job training consisting of hands-on experience under the supervision of a radiographer and is certified through a radiographer certification program by a certifying entity ~~in accordance with the criteria specified in Appendix M of this part~~ meeting the requirements of 10 CFR Part 34, Appendix A. The on-the-job training shall include a minimum of two months (320 hours) of active participation in the performance of industrial radiography utilizing radioactive material and/or one month (160 hours) of active participation in the performance of industrial radiography utilizing radiation machines. Individuals performing industrial radiography utilizing radioactive materials and radiation machines must complete both segments of the on-the-job training (3 months or 480 hours)~~; or~~.

~~2. The licensee or registrant may, until two years after the effective date of these regulations September 20, 2006, allow an individual who has not met the requirements of subdivision 1 of this subsection, to act as a radiographer after the individual has received at least 40 hours of training in the subjects outlined in subsection G of this section and demonstrated an understanding of these subjects by successful completion of a written examination that was previously submitted to and approved by the agency, the Nuclear Regulatory Commission, or another agreement state, in addition to on the job training consisting of hands on experience under the supervision of a radiographer. The on the job training shall include a minimum of two months (320 hours) of active participation in the performance of industrial radiography utilizing radioactive material and/or one month (160 hours) of active participation in the performance of industrial radiography utilizing radiation machines. Individuals performing industrial radiography utilizing radioactive materials and radiation machines must complete both segments of the on the job training (3 months or 480 hours).~~

B. In addition, the licensee or registrant may not permit any individual to act as a radiographer until the individual:

1. Has received copies of and instruction in the requirements described in the regulations contained in this part, 12VAC5-481-30 and applicable sections of Parts IV (12VAC5-481-600 et seq.), X (12VAC5-481-2250 et seq.), and XIII (12VAC5-481-2950 et seq.) of this chapter, in the license or registration under which the radiographer will perform industrial radiography, and the licensee's or registrant's operating and emergency procedures;

2. Has demonstrated an understanding of items in subdivision 1 of this subsection by successful completion of a written ~~or oral~~ examination;

3. Has received training in the use of the registrant's radiation machines, or the licensee's radiographic exposure

devices, sealed sources, in the daily inspection of devices and associated equipment, and in the use of radiation survey instruments; and

4. Has demonstrated understanding of the use of the equipment described in subdivision 3 of this subsection by successful completion of a practical examination.

C. The licensee or registrant may not permit any individual to act as a radiographer's assistant until the individual:

1. Has received copies of and instruction in the requirements described in the regulations contained in this part, 12VAC5-481-30 and applicable sections of Parts IV (12VAC5-481-600 et seq.), X (12VAC5-481-2250 et seq.), and XIII (12VAC5-481-2950 et seq.) of this chapter, in the license or registration under which the radiographer's assistant will perform industrial radiography, and the licensee's or registrant's operating and emergency procedures;

2. Has demonstrated an understanding of items in subdivision 1 of this subsection by successful completion of a written ~~or oral~~ examination;

3. Under the personal supervision of a radiographer, has received training in the use of the registrant's radiation machines, or the licensee's radiographic exposure devices and sealed sources, in the daily inspection of devices and associated equipment, and in the use of radiation survey instruments; and

4. Has demonstrated understanding of the use of the equipment described in subdivision 3 of this subsection by successful completion of a practical examination.

D. The licensee or registrant shall provide annual refresher safety training for each radiographer and radiographer's assistant at intervals not to exceed 12 months.

E. Except as provided in subdivision 4 of this subsection, the ~~radiation safety officer~~ RSO or designee shall conduct an inspection program of the job performance of each radiographer and radiographer's assistant to ensure that the agency's regulations, license or registration requirements, and operating and emergency procedures are followed. The inspection program must:

1. Include observation of the performance of each radiographer and radiographer's assistant during an actual industrial radiographic operation, at intervals not to exceed six months;

2. Provide that, if a radiographer or a radiographer's assistant has not participated in an industrial radiographic operation for more than six months since the last inspection, the radiographer must demonstrate knowledge of the training requirements of subdivision B 3 of this section and the radiographer's assistant must demonstrate knowledge of the training requirements of subdivision C 3 of this section by a practical examination before these individuals can next participate in a radiographic operation;

3. The agency may consider alternatives in those situations where the individual serves as both radiographer and radiation safety officer; and

4. In those operations where a single individual serves as both radiographer and radiation safety officer, and performs all radiography operations, an inspection program is not required;

F. The licensee or registrant shall maintain records of the above training to include certification documents, written~~,~~ ~~oral~~ and practical examinations, refresher safety training and inspections of job performance in accordance with 12VAC5-481-1470.

G. The licensee or registrant shall include the following subjects required in subsection A of this section:

1. Fundamentals of radiation safety including:

a. Characteristics of gamma and x-radiation;

b. Units of radiation dose and quantity of radioactivity;

c. Hazards of exposure to radiation;

d. Levels of radiation from sources of radiation; and

e. Methods of controlling radiation dose (time, distance, and shielding);

2. Radiation detection instruments including:

a. Use, operation, calibration, and limitations of radiation survey instruments;

b. Survey techniques; and

c. Use of personnel monitoring equipment;

3. Equipment to be used including:

a. Operation and control of radiographic exposure equipment, remote handling equipment, and storage containers, including pictures or models of source assemblies (pigtails);

b. Operation and control of radiation machines;

c. Storage, control, and disposal of sources of radiation; and

d. Inspection and maintenance of equipment.

4. The requirements of pertinent state and federal regulations; and

5. Case histories of accidents in radiography.

~~H. Licensees and registrants will have one year from September 20, 2006, to comply with the additional training~~

requirements specified in subdivisions B 1 and C 1 of this section.

I. An independent certifying organizations shall:

1. Be an organization such as a society or association, whose members participate in, or have an interest in, the field of industrial radiography;

2. Make its membership available to the general public nationwide. Membership shall not be restricted because of race, color, religion, sex, age, national origin or disability;

3. Have a certification program open to nonmembers, as well as members;

4. Be an incorporated, nationally recognized organization that is involved in setting national standards of practice within its fields of expertise;

5. Have an adequate staff, a viable system for financing its operations, and a policy and decision making review board;

6. Have a set of written organizational by laws and policies that provide adequate assurance of lack of conflict of interest and a system for monitoring and enforcing those by laws and policies;

7. Have a committee, whose members can carry out their responsibilities impartially, to review and approve the certification guidelines and procedures, and to advise the organization's staff in implementing the certification program;

8. Have a committee, whose members can carry out their responsibilities impartially, to review complaints against certified individuals and to determine appropriate sanctions;

9. Have written procedures describing all aspects of its certification program, maintain records of the current status of each individual's certification and the administration of its certification program;

10. Have procedures to ensure that certified individuals are provided due process with respect to the administration of its certification program, including the process of becoming certified and any sanctions imposed against certified individuals;

11. Have procedures for proctoring examinations, including qualifications for proctors. These procedures must ensure that the individuals proctoring each examination are not employed by the same company or corporation (or a wholly owned subsidiary of such company or corporation) as any of the examinees;

12. Exchange information about certified individuals with the Nuclear Regulatory Commission and other independent certifying organizations and/or agreement states and allow periodic review of its certification program and related records; and

13. Provide a description to the Nuclear Regulatory Commission of its procedures for choosing examination sites and for providing an appropriate examination environment.

J. Requirements for Certification Programs.

1. All certification programs must:

a. Require applicants for certification to (i) receive training in the topics set forth in 12VAC5-481-1320 or equivalent state or Nuclear Regulatory Commission regulations, and (ii) satisfactorily complete a written examination covering these topics;

b. Require applicants for certification to provide documentation that demonstrates the applicant has:

(1) Received training in the topics set forth in this section or equivalent state or Nuclear Regulatory Commission regulations;

(2) Satisfactorily completed a minimum period of on the job training as specified in this section; and

(3) Received verification by a state licensee or registrant or a Nuclear Regulatory Commission licensee that the applicant has demonstrated the capability of independently working as a radiographer.

c. Include procedures to ensure that all examination questions are protected from disclosure;

d. Include procedures for denying an application and revoking, suspending, or reinstating a certification;

e. Provide a certification period of not less than three years nor more than five years;

f. Include procedures for renewing certifications and, if the procedures allow renewals without examination, require evidence of recent full-time employment and annual refresher training; and

g. Provide a timely response to inquiries, by telephone or letter, from members of the public, about an individual's certification status.

K. Requirements for written examinations. All examinations must:

1. Be designed to test an individual's knowledge and understanding of the topics listed in this section or equivalent state or Nuclear Regulatory Commission requirements;

2. Be written in a multiple choice format; and

~~3. Have test items drawn from a question bank containing psychometrically valid questions based on the material in this section.~~

12VAC5-481-1350. Personnel monitoring.

A. The licensee or registrant may not permit any individual to act as a radiographer or a radiographer's assistant unless, at all times during radiographic operations, each individual wears, on the trunk of the body, a combination of direct reading dosimeter, an alarming ratemeter, and either a film badge, an optically stimulated luminescence (OSL) dosimeter or a ~~TLD~~ thermoluminescent dosimeter (TLD). At permanent radiographic installations where other appropriate alarming or warning devices are in routine use, or during radiographic operations using radiation machines, the use of an alarming ratemeter is not required.

1. Pocket dosimeters must have a range from ~~zero to two millisieverts~~ 0 to 2 mSv (200 mrem) and must be recharged at the start of each shift. Electronic personal dosimeters may only be used in place of ion-chamber pocket dosimeters.

2. Each film badge ~~and~~, OSL or TLD must be assigned to and worn by only one individual.

3. Film badges ~~and TLD's~~ must be exchanged ~~at periods not to exceed one month~~ monthly. OSLs or TLDs must be exchanged at periods not to exceed three months.

4. After replacement, each film badge, OSL or TLD must be returned to the supplier for processing within 14 calendar days of the end of the monitoring period, or as soon as practicable. In circumstances that make it impossible to return each film badge, OSL or TLD in 14 calendar days, such circumstances must be documented and available for review by the agency.

B. Direct reading dosimeters, such as pocket dosimeters or electronic personal dosimeters, must be read and the exposures recorded at the beginning and end of each shift, and records must be maintained in accordance with 12VAC5-481-1490.

C. Pocket dosimeters, or electronic personal dosimeters, must be checked at periods not to exceed 12 months for correct response to radiation, and records must be maintained in accordance with 12VAC5-481-1490. Acceptable dosimeters must read within plus or minus 20% of the true radiation exposure.

D. If an individual's pocket dosimeter is found to be off-scale, or the electronic personal dosimeter reads greater than ~~two millisieverts~~ 2 mSv (200 mrem), the individual's film badge, OSL or TLD must be sent for processing within 24 hours. In addition, the individual may not resume work associated with the use of sources of radiation until a determination of the individual's radiation exposure has been made. This determination must be made by the radiation safety officer or the radiation safety officer's designee. The results of this determination must be included in the records maintained in accordance with 12VAC5-481-1490.

E. If a film badge, OSL or TLD is lost or damaged, the worker shall cease work immediately until a replacement film badge, OSL or TLD is provided and the exposure is calculated for the time period from issuance to loss or damage of the film badge, OSL or TLD. The results of the calculated exposure and the time period for which the film badge, OSL or TLD was lost or damaged must be included in the records maintained in accordance with 12VAC5-481-1490.

F. Reports received from the film badge, OSL or TLD processor must be retained in accordance with 12VAC5-481-1490.

G. Each alarming ratemeter must:

1. Be checked to ensure that the alarm functions properly before using at the start of each shift;

2. Be set to give an alarm signal at a preset dose rate of ~~five millisieverts (500 mrem per hour)~~ 5 mSv (500 mrem) per hour with an accuracy of plus or minus 20% of the true radiation dose rate;

3. Require special means to change the preset alarm function; and

4. Be calibrated at periods not to exceed 12 months for correct response to radiation. The licensee shall maintain records of alarming ratemeter calibrations in accordance with 12VAC5-481-1490.

12VAC5-481-1380. Posting.

All areas in which industrial radiography is being performed must be conspicuously posted as required by 12VAC5-481-860. The exceptions listed in ~~12VAC5-481-880~~ 12VAC5-481-870 do not apply to industrial radiographic operations.

12VAC5-481-1420. Records of leak testing of sealed sources and devices containing DU.

Each licensee shall maintain records of leak test results for sealed sources and for devices containing DU. The results must be stated in units of becquerels ~~(Ci)~~ (microcuries). The licensee shall retain each record for three years after it is made or until the source in storage is removed.

12VAC5-481-1440. Utilization logs.

A. Each licensee or registrant shall maintain utilization logs showing for each source of radiation the following information:

1. A description, including the make, model, and serial number of the radiation machine or the radiographic exposure device, transport, or storage container in which the sealed source is located;

2. The identity ~~or~~ and signature of the radiographer to whom assigned;

3. The location and dates of use, including the dates removed and returned to storage; and

4. For permanent radiographic installations, the dates each radiation machine is energized.

B. The licensee or registrant shall retain the logs required by subsection A of this section for three years.

12VAC5-481-1490. Records of personnel monitoring.

Each licensee or registrant shall maintain the following exposure records specified in ~~12VAC5-481-1270~~ 12VAC5-481-1350:

1. Direct reading dosimeter readings and yearly operability checks required by 12VAC5-481-1350 B and 12VAC5-481-1350 C for three years after the record is made;

2. Records of alarming ratemeter calibrations for three years after the record is made;

3. Reports received from the film badge, OSL or TLD processor until the agency terminates the license or registration; and

4. Records of estimates of exposures as a result of off-scale personal direct reading dosimeters, or lost or damaged film badges, OSL or TLD's, until the agency terminates the license or registration.

12VAC5-481-1520. Location of documents and records.

A. Each licensee or registrant shall maintain copies of records required by this part and other applicable parts of these regulations at the location specified in 12VAC5-481-1200 A 11.

B. Each licensee or registrant shall also maintain current copies of the following documents and records sufficient to demonstrate compliance at each applicable field station and each temporary jobsite;

1. The license or registration authorizing the use of sources of radiation;

2. A copy of Parts I (12VAC5-481-10 et seq.); IV (12VAC5-481-600 et seq.); V (12VAC5-481-1170 et seq.); and X (12VAC5-481-2250 et seq.) of this chapter;

3. Utilization logs for each source of radiation dispatched from that location as required by 12VAC5-481-1440.

4. Records of equipment problems identified in daily checks of equipment as required by 12VAC5-481-1450 A;

5. Records of alarm system and entrance control checks required by 12VAC5-481-1460, if applicable;

6. Records of dosimeter readings as required by 12VAC5-481-1490;

7. Operating and emergency procedures as required by 12VAC5-481-1480;

8. Evidence of the latest calibration of the radiation survey instruments in use at the site, as required by 12VAC5-481-1410;

9. Evidence of the latest calibrations of alarming ratemeters and operability checks of dosimeters as required by 12VAC5-481-1490;

10. Survey records as required by 12VAC5-481-1500 and 12VAC5-481-1000 as applicable, for the period of operation at the site;

11. The shipping papers for the transportation of radioactive materials required by Part XIII (12VAC5-481-2950 et seq.) of this chapter; and

12. When operating under reciprocity pursuant to Part III (12VAC5-481-380 et seq.) of this chapter, a copy of the applicable state license or registration, or ~~Nuclear Regulatory Commission~~ NRC license authorizing the use of sources of radiation.

Article 5
~~Radiographer Certification~~ Jobsite Requirements

12VAC5-481-1540. ~~Application and examinations.~~ (Repealed.)

~~A. Application.~~

~~1. An application for taking the examination shall be on forms prescribed and furnished by the agency.~~

~~2. A nonrefundable fee of $150 shall be submitted with the application to cover certification administrative costs, such as the examination, training documentation review, and issuance of certification.~~

~~3. The application and the nonrefundable fee shall be submitted to the agency on or before the dates specified by the agency.~~

~~4. An individual whose certification ID card has been suspended or revoked shall obtain written approval from the agency to apply to retake the examination.~~

~~B. Examination. The examination shall be given for the purpose of determining the qualifications of applicants.~~

1. ~~A written examination shall be held at times and places determined by the agency. The scope of the examination and the methods of procedure, including determination of the passing score, shall be prescribed by the agency. The examination will assess the applicant's knowledge to safely use sources of radiation and related equipment and the applicant's knowledge of Parts IV (12VAC5-481-600 et~~

~~seq.), V (12VAC5-481-1170 et seq.), and XIII (12VAC5-481-2950 et seq.) of this chapter.~~

~~2. The examination will be administered by the agency or persons authorized by the agency.~~

~~3. A candidate failing an examination may apply for reexamination in accordance with subsection A of this section and will be reexamined. A candidate shall not retake the same version of the examination.~~

~~4. The examination will be held at dates, times and locations designated by the agency.~~

~~5. The examination will be in English.~~

~~6. To take the examination, an individual shall have a picture identification card, such as a driver's license, at the time of the examination.~~

~~7. Calculators will be permitted during the examination. However, calculators or computers with preprogrammed data or formulas, including exposure calculators, will not be permitted during the examination.~~

~~8. The examination will be a "closed book" examination.~~

~~9. Any individual observed by an agency proctor to be compromising the integrity of the examination shall be required to surrender the examination, the answer sheet, and any work paper. Such individual will not be allowed to complete the examination, will forfeit the examination fee, and will leave the examination site to avoid disturbing other examinees. Such individual must wait 90 days and must resubmit a new application and an additional $50 fee before taking a new examination.~~

~~10. Examination material shall be returned to the agency at the end of the examination. No photographic or other copying of examination questions or materials shall be permitted. Disclosure by any individual of the contents of any examination prior to its administration is prohibited.~~

~~11. The names and scores of individuals taking the examination shall be a public record.~~

12VAC5-481-1550. ~~Certification identification (ID) card.~~ (Repealed.)

~~A. A certification ID card shall be issued to each person who successfully completes the requirements of 12VAC5-481-1320 A 1 and the examination prescribed in 12VAC5-481-1540 B.~~

~~1. Each person's certification ID card shall contain their photograph. The agency will take the photograph at the time the examination is administered.~~

~~2. The certification ID card remains the property of the agency and may be revoked or suspended.~~

~~3. Any individual who wishes to replace their certification ID card shall submit to the agency a written request for a replacement certification ID card, stating the reason a replacement certification ID card is needed. A nonrefundable fee of $50 shall be paid to the agency for each replacement of a certification ID card. The prescribed fee shall be submitted with the written request for a replacement certification ID card. The individual shall maintain a copy of the request in their possession while performing industrial radiographic operations until a replacement certification ID card is received from the agency.~~

~~B. Each certification ID card is valid for a period of five years, unless revoked or suspended in accordance with subsection D of this section. Each certification ID card expires at the end of the day, in the month and year stated on the certification ID card.~~

~~C. Renewal of certification ID card.~~

~~1. Applications for examination to renew a certification ID card shall be filed in accordance with 12VAC5-481-1540 A.~~

~~2. The examination for renewal of a certification ID card shall be administered in accordance with 12VAC5-481-1540 B.~~

~~3. A renewal certification ID card shall be issued in accordance with 12VAC5-481-1550 A.~~

~~D. Revocation or suspension of a certification ID card.~~

~~1. Any radiographer who violates these regulations, equivalent state or Nuclear Regulatory Commission regulations, or any applicable statutory requirements may be required to show cause at a formal hearing why their certification ID card should not be revoked or suspended in accordance with subdivision D 2 of this section.~~

~~2. When an agency order has been issued for an industrial radiographer to cease and desist from the use of sources of radiation or the agency revokes or suspends their certification ID card, the industrial radiographer shall surrender the certification ID card to the agency until the order is changed or the suspension expires.~~

12VAC5-481-1560. Reciprocity.

A. All reciprocal recognition of licenses and registrations by the agency will be granted in accordance with Part III (12VAC5-481-380 et seq.) of this chapter.

B. Reciprocal recognition by the agency of an individual radiographer certification will be granted provided that:

1. The individual holds a valid certification in the appropriate category issued by a certifying entity, as defined in 12VAC5-481-10;

2. The requirements and procedures of the certifying entity issuing the certification affords the same or comparable

certification standards as those afforded by 12VAC5-481-1320 A;

3. The applicant presents the certification to the agency prior to entry into the state; and

4. No escalated enforcement action is pending with the ~~Nuclear Regulatory Commission~~ NRC or in any other agreement state.

C. Certified individuals who are granted reciprocity by the agency shall maintain the certification upon which the reciprocal recognition was granted, or prior to the expiration of such certification, shall meet the requirements of 12VAC5-481-1320 A.

12VAC5-481-1570. Specific requirements for radiographic personnel performing industrial radiography.

A. At a job site, the following shall be supplied by the licensee or registrant:

1. At least one operable, calibrated survey instrument for each exposure device or radiation machine in use;

2. A current whole body personnel monitor (TLD, OSL or film badge) for each person performing radiographic operations;

3. An operable, calibrated pocket dosimeter with a range of ~~zero to 200 milliroentgens~~ 0 to 2 mSv (200 mrem) for each person performing radiographic operations;

4. An operable, calibrated, alarming ratemeter for each person performing radiographic operations using a radiographic exposure device; and

5. The appropriate barrier ropes and signs.

B. Each radiographer at a job site shall have on their person a valid certification ID card issued by a certifying entity.

C. Industrial radiographic operations shall not be performed if any of the items in subsections A and B of this section are not available at the job site or are inoperable.

D. During an inspection, the agency may terminate an operation if any of the items in subsections A and B of this section are not available or operable, or if the required number of radiographic personnel are not present. Operations shall not be resumed until all required conditions are met.

Article 2
General Information

12VAC5-481-1670. General requirements.

The following regulations, ~~Definitions (10 CFR 35.2, 70 FR 16361, March 30, 2005),~~ Maintenance of records ~~(10 CFR 35.5, 68 FR 35534, June 16, 2003)~~ (10 CFR 35.5), Provisions for the protection of human research subjects ~~(10 CFR 35.6, 67 FR 62872, October 9, 2002)~~ (10 CFR 35.6), FDA, other Federal, and State requirements ~~(10 CFR 35.7, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.7), and Implementation ~~(10 CFR 35.10, 70 FR 16361, March 30, 2005)~~ (10 CFR 35.10) are applicable in the Commonwealth of Virginia.

12VAC5-481-1680. Licensing and ~~Exemptions~~ exemptions.

The following regulations, License required ~~(10 CFR 35.11, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.11(a) and (b)), Application for license, amendment, or renewal ~~(10 CFR 35.12, 67 FR 62872, October 9, 2002) License amendments (10 CFR 35.13, 70 FR 16361, March 30, 2005)~~ (10 CFR 35.12), Exemptions regarding Type A licenses of broad scope ~~(10 CFR 35.15, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.15), License issuance ~~(10 CFR 35.18, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.18), and Specific exemptions ~~(10 CFR 35.19, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.19) are applicable in the Commonwealth of Virginia.

12VAC5-481-1690. Notifications.

The following regulation, Notifications ~~(10 CFR 35.14, 70 FR 16361, March 20, 2005)~~ (10 CFR 35.14) is applicable in the Commonwealth of Virginia.

Article 3
General Administrative Requirements

12VAC5-481-1700. Authority and responsibilities for the radiation protection programs and changes.

The following regulations, Authority and responsibilities for the radiation protection programs ~~(10 CFR 35.24, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.24), and Radiation Protection program changes ~~(10 CFR 35.26, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.26) are applicable in the Commonwealth of Virginia.

12VAC5-481-1710. Supervision.

The following regulation, Supervision ~~(10 CFR 35.27, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.27) is applicable in the Commonwealth of Virginia.

12VAC5-481-1720. Written directives.

The following regulation, Written directives ~~(10 CFR 35.40, 68 FR 75389, December 31, 2003)~~ (10 CFR 35.40) is applicable in the Commonwealth of Virginia.

12VAC5-481-1730. Procedures for administrations requiring a written directive.

The following regulation, Procedures for administrations requiring a written directive ~~(10 CFR 35.41, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.41) is applicable in the Commonwealth of Virginia.

12VAC5-481-1740. Suppliers for sealed sources or devices for medical use.

The following regulation, Suppliers for sealed sources or devices for medical use ~~(10 CFR 35.49, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.49) is applicable in the Commonwealth of Virginia.

12VAC5-481-1750. Training for Radiation Safety Officer.

The following regulation, Training for Radiation Safety Officer ~~(10 CFR 35.50, 71 FR 1926, January 12, 2006)~~ (10 CFR 35.50) is applicable in the Commonwealth of Virginia.

12VAC5-481-1760. Training for an authorized medical physicist.

The following regulation, Training for an authorized medical physicist ~~(10 CFR 35.51, 70 FR 16362, March 30, 2005)~~ (10 CFR 35.51) is applicable in the Commonwealth of Virginia.

12VAC5-481-1770. Training for an authorized nuclear pharmacist.

The following regulation, Training for an authorized nuclear pharmacist ~~(10 CFR 35.55, 70 FR 16362, March 30, 2005)~~ (10 CFR 35.55) is applicable in the Commonwealth of Virginia.

12VAC5-481-1780. Training for experienced Radiation Safety Officer, teletherapy or medical physicist, authorized user, and pharmacist.

The following regulation, Training for experienced Radiation Safety Officer, teletherapy or medical physicist, authorized user, and pharmacist ~~(10 CFR 35.57, 70 FR 16363, March 30, 2005)~~ (10 CFR 35.57) is applicable in the Commonwealth of Virginia.

12VAC5-481-1790. Recentness of training.

The following regulation, Recentness of training ~~(10 CFR 35.59, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.59) is applicable in the Commonwealth of Virginia.

Article 4
General Technical Requirements

12VAC5-481-1800. Possession, use, and calibration of instruments used to measure the activity of unsealed byproduct material.

The following regulation, Possession, use, and calibration of instruments used to measure the activity of unsealed byproduct material ~~(10 CFR 35.60, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.60) is applicable in the Commonwealth of Virginia.

12VAC5-481-1810. Calibration of survey instruments.

The following regulation, Calibration of survey instruments ~~(10 CFR 35.61, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.61) is applicable in the Commonwealth of Virginia.

12VAC5-481-1820. Determination of dosages of unsealed byproduct material for medical use.

The following regulation, Determination of dosages of unsealed byproduct material for medical use ~~(10 CFR 35.63, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.63) is applicable in the Commonwealth of Virginia.

12VAC5-481-1830. Authorization for calibration, transmission, and reference sources.

The following regulation, Authorization for calibration, transmission, and reference sources ~~(10 CFR 35.65, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.65) is applicable in the Commonwealth of Virginia.

12VAC5-481-1840. Requirements for possession of sealed sources and brachytherapy sources.

The following regulation, Requirements for possession of sealed sources and brachytherapy sources ~~(10 CFR 35.67, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.67) is applicable in the Commonwealth of Virginia.

12VAC5-481-1850. Labeling of vials and syringes.

The following regulation, Labeling of vials and syringes ~~(10 CFR 35.69, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.69) is applicable in the Commonwealth of Virginia.

12VAC5-481-1860. Surveys of ambient radiation exposure rate.

The following regulation, Surveys of ambient radiation exposure rate ~~(10 CFR 35.70, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.70) is applicable in the Commonwealth of Virginia.

12VAC5-481-1870. Release of individuals containing unsealed byproduct material or implants containing byproduct material.

The following regulation, Release of individuals containing unsealed byproduct material or implants containing byproduct material ~~(10 CFR 35.75, 70 FR 16363, March 30, 2005)~~ (10 CFR 35.75) is applicable in the Commonwealth of Virginia.

12VAC5-481-1880. Provision of mobile medical service.

The following regulation, Provision of mobile medical service ~~(10 CFR 35.80, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.80) is applicable in the Commonwealth of Virginia.

12VAC5-481-1890. Decay-in-storage.

The following regulation, Decay-in-storage ~~(10 CFR 35.92, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.92) is applicable in the Commonwealth of Virginia.

Article 5
Unsealed Byproduct Material – Written Directive Not Required

12VAC5-481-1900. Use of unsealed byproduct material for uptake, dilution, and excretion studies for which a written directive is not required.

The following regulation, Use of unsealed byproduct material for uptake, dilution, and excretion studies for which a written directive is not required ~~(10 CFR 35.100, 70 FR 16363, March 30, 2005)~~ (10 CFR 35.100) is applicable in the Commonwealth of Virginia.

12VAC5-481-1910. Training for uptake, dilution, and excretion studies.

The following regulation, Training for uptake, dilution, and excretion studies ~~(10 CFR 35.190, 70 FR 16363, March 30, 2005)~~ (10 CFR 35.190) is applicable in the Commonwealth of Virginia.

12VAC5-481-1920. Use of unsealed byproduct material for imaging and localization studies for which a written directive is not required.

The following regulation, Use of unsealed byproduct material for imaging and localization studies for which a written directive is not required ~~(10 CFR 35.200, 70 FR 16363, March 30, 2005)~~ (10 CFR 35.200) is applicable in the Commonwealth of Virginia.

12VAC5-481-1930. Permissible molybdenum-99 concentration.

The following regulation, Permissible molybdenum-99 concentration ~~(10 CFR 35.204, 68 FRC 35534, June 16, 2003)~~ (10 CFR 35.204) is applicable in the Commonwealth of Virginia.

12VAC5-481-1940. Training for imaging and localization studies.

The following regulation, Training for imaging and localization studies ~~(10 CFR 35.290, 70 FR 16364, March 30, 2005)~~ (10 CFR 35.290) is applicable in the Commonwealth of Virginia.

Article 6
Unsealed Byproduct Material - Written Directive Required

12VAC5-481-1950. Use of unsealed by product material for which a written directive is required.

The following regulation, Use of unsealed by product material for which a written directive is required ~~(10 CFR 35.300, 69 FR 55738, September 16, 2004)~~ (10 CFR 35.300) is applicable in the Commonwealth of Virginia.

12VAC5-481-1960. Safety instruction.

The following regulation, Safety instruction ~~(10 CFR 35.300, 68 FR 19324, April 21, 2003)~~ (10 CFR 35.310) is applicable in the Commonwealth of Virginia.

12VAC5-481-1970. Safety precautions.

The following regulation, Safety precautions ~~(10 CFR 35.315, 68 FR 19325, April 21, 2003)~~ (10 CFR 35.315) is applicable in the Commonwealth of Virginia.

12VAC5-481-1980. Training for use of unsealed byproduct material for which a written directive is required.

The following regulation, Training for use of unsealed byproduct material for which a written directive is required ~~(10 CFR 35.390, 70 FR 16364, March 30, 2005)~~ (10 CFR 35.390) is applicable in the Commonwealth of Virginia.

12VAC5-481-1990. Training for the oral administration of sodium iodide I-131 requiring a written directive in quantities less than or equal to 1.22 Gigabecquerels (33 millicuries).

The following regulation, Training for the oral administration of sodium iodide I-131 requiring a written directive in quantities less than or equal to 1.22 Gigabecquerels (33 millicuries) ~~(10 CFR 35.392, 70 FR 16364, March 30, 2005)~~ (10 CFR 35.392) is applicable in the Commonwealth of Virginia.

12VAC5-481-2000. Training for the oral administration of sodium iodide I-131 requiring a written directive in quantities greater than 1.22 Gigabecquerels (33 millicuries).

The following regulation, Training for the oral administration of sodium iodide I-131 requiring a written directive in quantities greater than 1.22 Gigabecquerels (33 millicuries) ~~(10 CFR 35.394, 70 FR 16365, March 30, 2005) and Training for the parenteral administration of unsealed byproduct material requiring a written directive (10 CFR 35.396, 70 FR 16365, March 30, 2005) are~~ (10 CFR 35.394) is applicable in the Commonwealth of Virginia.

12VAC5-481-2001. Training for the parental administration of unsealed byproduct material requiring a written directive.

The following regulation, Training for the parenteral administration of unsealed byproduct material requiring a written directive (10 CFR 35.396) is applicable in the Commonwealth of Virginia.

Article 7
Manual Brachytherapy

12VAC5-481-2010. Manual Brachytherapy.

The following regulations, Use of sources for manual brachytheray ~~(10 CFR 35.400, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.400), Surveys after source implant and removal ~~(10 CFR 35.404, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.404), Brachytherapy sources accountability ~~(10 CFR 35.406, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.406), Safety instruction ~~(10 CFR 35.410, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.410), Safety precautions ~~(10 CFR 35.415, 68 FR 19325, April 21, 2003)~~ (10 CFR 35.415), Calibration measurements of brachytherapy sources ~~(10 CFR 35.432, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.432), Decay of strontium-90 sources for ophthalmic treatment ~~(10 CFR 35.433, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.433), Therapy-related computer systems ~~(10 CFR 35.457, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.457), Training for use of manual brachytherapy sources ~~(10 CFR 35.490, 70 FR 16366, March 30, 2005)~~(10 CFR 35.490), and Training for ophthalmic use of strontium-90 ~~(10 CFR 35.491, 70 FR 16366, March 30, 2005)~~ (10 CFR 35.491) are applicable in the Commonwealth of Virginia.

Article 8
Sealed Sources for Diagnosis

12VAC5-481-2020. Use of sealed sources for diagnosis.

The following regulation, Use of sealed sources for diagnosis ~~(10 CFR 35.500, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.500) is applicable in the Commonwealth of Virginia.

12VAC5-481-2030. Training for use of sealed sources for diagnosis.

The following regulation, Training for use of sealed sources for diagnosis ~~(10 CFR 35.590, 70 FR 16366, March 30, 2005)~~ (10 CFR 35.590) is applicable in the Commonwealth of Virginia.

Article 9
Photon Emitting Remote Afterloader Units, Teletherapy Units, and Stereotactic Radiosurgery Units

12VAC5-481-2040. Photon Emitting Remote Afterloader Units, Teletherapy Units, and Stereotactic Radiosurgery Units.

The following regulations, Use of a sealed source in a remote afterloader unit, teletherapy unit, or gamma stereotactic radiosurgery unit ~~(10 CFR 35.600, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.600), Surveys of patients and human research subjects treated with a remote afterloader unit ~~(10 CFR 35.604, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.604), Installation, maintenance, adjustment, and repair ~~(10 CFR 35.605, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.605), Safety procedures and instructions for remote afterloader units, teletherapy units, and gamma stereotactic radiosurgery units ~~(10 CFR 35.610, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.610), Safety precautions for remote afterloader units, teletherapy units, and gamma stereotactic radiosurgery units (10 CFR 35.615), Dosimetry equipment (10 CFR 35.630), Full calibration measurements on teletherapy units ~~(10 CFR 35.632, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.632), Full calibration measurements on remote afterloader units ~~(10 CFR 35.633, 67 FR 20370, April 24, 2002)~~, ~~Dosimetry equipment (10 CFR 35.630, 68 FR 19326, April 21, 2003~~ (10 CFR 35.633), Full calibration measurements on gamma stereotactic radiosurgery units ~~(10 CFR 35.635, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.635), Periodic spot-checks for teletherapy units ~~(10 CFR 35.642, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.642), Periodic spot-checks for remote afterloader units ~~(10 CFR 35.643, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.643), Periodic spot-checks for gamma stereotactic radiosurgery units ~~(10 CFR 35.645, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.645), Additional technical requirements for mobile remote afterloader units ~~(10 CFR 35.647, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.647), Radiation surveys, ~~(10 CFR 35.652, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.652), Five-year inspection for teletherapy and gamma stereotactic radiosurgery units ~~(10 CFR 35.655, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.655), Therapy-related computer systems ~~(10 CFR 35.657, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.657), and Training for use of remote afterloader units, teletherapy units, and gamma stereotactic radiosurgery units ~~(10 CFR 35.690, 70 FR 16366, March 30, 2005)~~ (10 CFR 35.690) are applicable in the Commonwealth of Virginia.

Article 10
Training and Experience Requirements

12VAC5-481-2050. ~~Training and experience requirements.~~ (Repealed.)

~~The following regulations, Radiation Safety Officer (10 CFR 35.900, 67 FR 20370, April 24, 2002), Training for uptake, dilution, and excretion studies (10 CFR 35.910, 67 FR 20370, April 24, 2002), Training for imaging and localization studies (10 CFR 35.920, 67 FR 20370, April 24, 2002), Training for therapeutic use of unsealed byproduct material (10 CFR 35.930, 67 FR 20370, April 24, 2002), Training for treatment of hyperthyroidism (10 CFR 35.932, 67 FR 20370, April 24, 2002), Training for treatment of thyroid carcinoma (10 CFR 35.934, 67 FR 20370, April 24, 2002), Training for use of brachytherapy sources (10 CFR 35.940, 67 FR 20370, April 24, 2002), Training for ophthalmic use of strontium 90 (10 CFR 35.941, 67 FR 20370, April 24, 2002), Training for use of sealed sources for diagnosis (10 CFR 35.950, 67 FR 20370, April 24, 2002), Training for use of therapeutic medical devices (10 CFR 35.960, 67 FR 20370, April 24, 2002), Training for authorized medical physicist (10 CFR 35.961, 70 FR 16367, March 30, 2005), Training for an authorized nuclear~~

~~pharmacist (10 CFR 35.980, 67 FR 20370, April 24, 2002), and Training for experienced nuclear pharmacists (10 CFR 35.981, 67 FR 20370, April 24, 2002), are applicable in the Commonwealth of Virginia.~~

Article 11
Other Medical Uses of Byproduct Material or Radiation from Byproduct Material

12VAC5-481-2060. Other medical uses of byproduct material or radiation from byproduct materials.

The following regulation, Other medical uses of byproduct material or radiation from byproduct materials ~~(10 CFR 35.1000, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.1000) is applicable in the Commonwealth of Virginia.

Article 12
Records

12VAC5-481-2070. Records.

The following regulations, Records of authority and responsibilities for radiation protection programs ~~(10 CFR 35.2024, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.2024), Records of radiation protection program changes ~~(10 CFR 35.2026, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.2026), Records of written directives ~~(10 CFR 35.2040, 67 FR 20370, April 24, 2002)~~(10 CFR 35.2040), Records for procedures for administrations requiring a written directive ~~(10 CFR 35.2041, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.2041), Records of calibrations of instruments used to measure the activity of unsealed byproduct materials ~~(10 CFR 35.2060, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.2060), Records of radiation survey instrument calibrations ~~(10 CFR 35.2061, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.2061), Records of dosages of unsealed byproduct material for medical use ~~(10 CFR 35.2063, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.2063), Records of leaks tests and inventory of sealed sources and brachytherapy sources ~~(10 CFR 35.2067, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.2067), Records of surveys for ambient radiation exposure rate ~~(10 CFR 35.2070, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.2070), Records of the release of individuals containing unsealed byproduct material or implants containing byproduct material ~~(10 CFR 35.2075, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.2075), Records of mobile medical services ~~(10 CFR 35.2080, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.2080), Records of decay-in-storage ~~(10 CFR 35.2092, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.2092), Records of molybdenum-99 concentrations ~~(10 CFR 35.2204, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.2204), Records of safety instruction ~~(10 CFR 35.2310, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.2310), Records of surveys after source implant and removal ~~(10 CFR 35.2404, 67 FR 20370, April 24, 2002 as amended January 1, 2003)~~ (10 CFR 35.2404), Records of brachytherapy source accountability ~~(10 CFR 35.2406, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.2406), Records of calibration measurements of brachytherapy sources ~~(10 CFR 35.2432, 68 FR 19326, April 21, 2003)~~ (10 CFR 35.2432), Records of decay of strontium-90 sources for ophthalmic treatments ~~(10 CFR 35.2433, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.2433), Records of installation, maintenance, adjustment, and repair of remote afterloader units, teletherapy units, and gamma stereotactic radiosurgery units ~~(10 CFR 35.2605, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.2605), Records of safety procedures ~~(10 CFR 35.2610, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.2610), Records of dosimetry equipment used with remote afterloader units, teletherapy units, and gamma stereotactic radiosurgery units ~~(10 CFR 35.2630, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.2630), Records of teletherapy, remote afterloader, and gamma stereotactic radiosurgery full calibrations ~~(10 CFR 35.2632, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.2632), Records of periodic spot-checks for teletherapy units ~~(10 CFR 35.2642, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.2642), Records of periodic spot-checks for remote afterloader units ~~(10 CFR 35.2643, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.2643), Records of periodic spot-checks for gamma stereotactic radiosurgery units ~~(10 CFR 35.2645, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.2645), Records of additional technical requirements for mobile remote afterloader units ~~(10 CFR 35.2647, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.2647), Records of surveys of therapeutic treatment units ~~(10 CFR 35.2652, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.2652), and Records of 5-year inspection for teletherapy and gamma stereotactic radiosurgery units ~~(10 CFR 35.2655, 67 FR 20370, April 24, 2002)~~ (10 CFR 35.2655) are applicable in the Commonwealth of Virginia.

Article 13
Reports

12VAC5-481-2080. Reports.

The following regulations, Report and notification of a medical event ~~(10 CFR 35.3045, 68 FR 58805, October 10, 2003)~~ (10 CFR 35.3045), Report and notification of a dose to an embryo/fetus or a nursing child ~~(10 CFR 35.3047, 68 FR 58805, October 10, 2003)~~ (10 CFR 35.3047), and Report of a leaking source ~~(10 CFR 35.3067, 68 FR 58805, October 10, 2003)~~ (10 CFR 35.3067), are applicable in the Commonwealth of Virginia.

12VAC5-481-2100. Equipment requirements.

A. Safety device. A device that prevents the entry of any portion of an individual's body into the primary X-ray beam path or that causes the beam to be shut off upon entry into its path shall be provided on all open-beam configurations. A registrant ~~(or licensee)~~ may apply to the agency for an exemption from the requirement of a safety device. Such application shall include:

1. A description of the various safety devices that have been evaluated;

2. The reason each of these devices cannot be used; and

3. A description of the alternative methods that will be employed to minimize the possibility of an accidental exposure, including procedures to assure that operators and others in the area will be informed of the absence of safety devices.

B. Warning devices.

1. Open-beam configurations shall be provided with a readily discernible indication of:

a. X-ray tube "on-off" status located near the radiation source housing, if the primary beam is controlled in this manner; and/or

b. Shutter "open-closed" status located near each port on the radiation source housing, if the primary beam is controlled in this manner.

2. An easily visible warning light labeled with the words "X-RAY ~~ON",~~ ON,"or words having a similar intent, shall be located:

a. Near any switch that energizes an X-ray tube and shall be illuminated only when the tube is energized; or

b. In the case of a radioactive source, near any switch that opens a housing shutter and shall be illuminated only when the shutter is open.

3. Warning devices shall be labeled so that their purpose is easily identified. On equipment installed after September 20, 2006, warning devices shall have fail-safe characteristics.

C. Ports. Unused ports on radiation source housings shall be secured in the closed position in a manner that will prevent casual opening.

D. Labeling. All analytical X-ray equipment shall be labeled with a readily discernible sign or signs bearing the radiation symbol and the words:

1. "CAUTION—HIGH INTENSITY X-RAY ~~BEAM",~~ BEAM," or words having a similar intent, on the X-ray source housing; and

2. "CAUTION RADIATION—THIS EQUIPMENT PRODUCES RADIATION WHEN ~~ENERGIZED",~~ ENERGIZED," or words having a similar intent, near any switch that energizes an X-ray tube if the radiation source is an X-ray tube; or

3. "CAUTION—RADIOACTIVE MATERIAL", or words having a similar intent, on the source housing in accordance with 12VAC5-481-660 if the radiation source is a radionuclide.

E. Shutters. On open-beam configurations installed after September 20, 2006, each port on the radiation source housing shall be equipped with a shutter that cannot be opened unless a collimator or a coupling has been connected to the port.

F. Radiation source housing. Each radiation source housing shall be subject to the following requirements:

1. Each X-ray tube housing shall be equipped with an interlock that shuts off the tube if it is removed from the radiation source housing or if the housing is disassembled.

2. Each radioactive source housing or port cover or each X-ray tube housing shall be so constructed that, with all shutters closed, the radiation measured at a distance of five centimeters from its surface is not capable of producing a dose in excess of 2.5 millirems (0.025 mSv) in one hour. For systems utilizing X-ray tubes, this limit shall be met at any specified tube rating.

G. Generator cabinet. Each X-ray generator shall be supplied with a protective cabinet that limits leakage radiation measured at a distance of five centimeters from its surface such that it is not capable of producing a dose in excess of 0.25 millirem (2.5 μSv) in one hour.

12VAC5-481-2230. Radiation monitoring requirements.

A. There shall be available at each particle accelerator facility appropriate portable monitoring equipment that is operable and has been appropriately calibrated for the radiations being produced at the facility. Such equipment shall be tested for proper operation daily and calibrated at intervals not to exceed one year and after each servicing and repair.

B. A radiation ~~protection~~ survey shall be performed and documented by a private inspector, acceptable to the agency, when changes have been made in shielding, operation, equipment, or occupancy of adjacent areas.

C. Radiation levels in all high radiation areas shall be continuously monitored. The monitoring devices shall be electrically independent of the accelerator control and safety interlock systems and capable of providing a readout at the control panel.

D. All area monitors shall be calibrated at intervals not to exceed one year and after each servicing and repair.

E. Whenever applicable, periodic surveys shall be made to determine the amount of airborne particulate radioactivity present.

F. Whenever applicable, periodic smear surveys shall be made to determine the degree of contamination.

G. All surveys shall be made in accordance with the written procedures established by a private inspector, acceptable to the agency, or the radiation safety officer.

H. Records of all radiation protection surveys, calibrations, and instrumentation tests shall be maintained at the accelerator facility ~~for inspection by the agency~~.

12VAC5-481-2240. Ventilation systems.

A. Ventilation systems shall be provided to ensure that personnel entering any area where airborne radioactivity may be produced will not be exposed to airborne radioactive material in excess of those limits specified in ~~Table 1 of Appendix B to Part 20 Annual Limits on Intake (ALIs) and Derived Air Concentrations (DACs) of Radionuclides for Occupational Exposure; Effluent Concentrations; Concentrations for Release to Sewerage (10 CFR 20 Appendix B, 58 FR 67659, December 22, 1993)~~ 12VAC5-481-3690.

B. A registrant, as required in ~~Table 1 of Appendix B to Part 20 Annual Limits on Intake (ALIs) and Derived Air Concentrations (DACs) of Radionuclides for Occupational Exposure; Effluent Concentrations; Concentrations for Release to Sewerage (10 CFR 20 Appendix B, 58 FR 67659, December 22, 1993)~~ 12VAC5-481-3690 shall not vent, release, or otherwise discharge airborne radioactive material to an unrestricted area which exceeds the limits specified in ~~Table 2 of Appendix B to Part 20 Annual Limits on Intake (ALIs) and Derived Air Concentrations (DACs) of Radionuclides for Occupational Exposure; Effluent Concentrations; Concentrations for Release to Sewerage (10 CFR 20 Appendix B, 58 FR 67659, December 22, 1993)~~ 12VAC5-481-3690, except as authorized pursuant to 12VAC5-481-730. For purposes of this subsection concentrations may be averaged over a period not greater than one year. Every effort should be made to maintain releases of radioactive material to unrestricted areas as far below these limits as is reasonably achievable.

12VAC5-481-2260. Posting of notices to workers.

A. Each licensee or registrant shall post current copies of the following documents:

1. The regulations in this part and in Part IV (12VAC5-481-600 et seq.) of this chapter;

2. The license, certificate of registration, conditions or documents incorporated into the license by reference and amendments thereto;

3. The operating procedures applicable to activities under the license or registration; ~~and~~

4. Any notice of violation involving radiological working conditions, proposed imposition of civil penalty, or order issued pursuant to Part I (12VAC5-481-10 et seq.) of this chapter, and any response from the licensee or registrant~~.~~; and

5. Agency form "Notice to Employees" as required by these regulations.

B. If posting of a document specified in subdivisions A 1 through 3 of this ~~subsection~~ section is not practicable, the licensee or registrant may post a notice that describes the document and states where it may be examined.

~~C. Agency form X "Notice to Employees" shall be posted by each licensee or registrant as required by these regulations.~~

~~D.~~ C. Agency documents posted pursuant to subdivision A 4 of this section shall be posted within ~~five~~ two working days after receipt of the documents from the agency; the licensee's or registrant's response, if any, shall be posted within five working days after dispatch from the licensee or registrant. Such documents shall remain posted for a minimum of five working days or until action correcting the violation has been completed, whichever is later.

~~E.~~ D. Documents, notices, or forms posted pursuant to this section shall appear in a sufficient number of places to permit individuals engaged in work under the license or registration to observe them on the way to or from any particular work location to which the document applies, shall be conspicuous, and shall be replaced if defaced or altered.

12VAC5-481-2270. Instructions to workers.

A. All individuals likely to receive in a year an occupational dose in excess of 1 mSv (100 mrem):

1. Shall be kept informed of the storage, transfer, or use of sources of radiation in the licensee's or registrant's workplace;

2. Shall be instructed in the health protection problems associated with exposure to radiation or radioactive material to the individual and potential offspring, in precautions or procedures to minimize exposure, and in the purposes and functions of protective devices employed;

3. Shall be instructed in, and instructed to observe, to the extent within the worker's control, the applicable provisions of these regulations and licenses for the protection of personnel from exposures to radiation or radioactive material;

4. Shall be instructed of their responsibility to report promptly to the licensee or registrant any condition that may constitute, lead to, or cause a violation of the Act, these regulations, or license condition, or any unnecessary exposure to radiation or radioactive material;

5. Shall be instructed in the appropriate response to warnings made in the event of any unusual occurrence or malfunction that may involve exposure to radiation or radioactive material; and

6. Shall be advised as to the radiation exposure reports that workers shall be furnished pursuant to 12VAC5-481-2280.

B. The extent of these instructions shall be commensurate with potential radiological health protection problems present in the workplace.

C. The instructions listed in subsection A of this section shall be given at least annually to said individuals.

12VAC5-481-2280. Notifications and reports to individuals.

A. Radiation exposure data for an individual and the results of any measurements, analyses, and calculations of radioactive material deposited or retained in the body of an individual shall be reported to the individual as specified in this section. The information reported shall include data and results obtained pursuant to these regulations, orders, or license conditions, as shown in records maintained by the licensee or registrant pursuant to 12VAC5-481-1040. Each notification and report shall:

1. Be in writing;

2. Include appropriate identifying data such as the name of the licensee or registrant, the name of the individual, and the individual's identification number~~, preferably social security number~~;

3. Include the individual's exposure information; and

4. Contain the following statement:

"This report is furnished to you under the provisions of Part X (12VAC5-481-2250 et seq.) of 12VAC5-481, Virginia Radiation Protection Regulations. You should preserve this report for further reference."

B. Each licensee ~~or registrant shall furnish to each worker annually a written report of the worker's dose~~ shall make dose information available to workers as shown in records maintained by the licensee ~~or registrant pursuant to~~ under the provisions of 12VAC5-481-1040. The licensee shall provide an annual report to each individual monitored under 12VAC5-481-760 of the dose received in that monitoring year if:

1. The individual's occupational does exceeds 1 mSv (100 mrem) TEDE or 1 mSv (100 mrem) to any individual organ or tissue; or

2. The individual requests his annual dose report.

C. Each licensee or registrant shall furnish a written report of the worker's exposure to sources of radiation at the request of a worker formerly engaged in activities controlled by the licensee or registrant. The report shall include the dose record for each year the worker was required to be monitored pursuant to 12VAC5-481-760. Such report shall be furnished within 30 days from the date of the request, or within 30 days after the dose of the individual has been determined by the licensee or registrant, whichever is later. The report shall cover the period of time that the worker's activities involved exposure to sources of radiation and shall include the dates and locations of work under the license or registration in which the worker participated during this period.

D. When a licensee or registrant is required pursuant to 12VAC5-481-1100, 12VAC5-481-1110, or 12VAC5-481-1120 to report to the agency any exposure of an individual to sources of radiation, the licensee or the registrant shall also provide the individual a written report on the exposure data included therein. Such reports shall be transmitted at a time not later than the transmittal to the agency.

E. At the request of a worker who is terminating employment with the licensee or registrant in work involving exposure to radiation or radioactive material, during the current year, each licensee or registrant shall provide at termination to each such worker, or to the worker's designee, a written report regarding the radiation dose received by that worker from operations of the licensee or registrant during the current year or fraction thereof. If the most recent individual monitoring results are not available at that time, a written estimate of the dose shall be provided together with a clear indication that this is an estimate.

Part XI
Licensing Requirements for Land Disposal of Radioactive Waste

Article 1
Purpose and Scope

12VAC5-481-2330. Purpose and scope.

A. The regulations in this part establish procedures, criteria, and terms and conditions upon which the agency issues licenses for the land disposal of wastes received from other persons. ~~(Applicability of the requirements in this part to agency licenses for waste disposal facilities in effect on September 20, 2006, will be determined on a case by case basis and implemented through terms and conditions of the license or by orders issued by the agency.)~~ The requirements of this part are in addition to, and not in substitution for, other applicable requirements of these regulations.

B. The regulations in this part do not apply to disposal of byproduct material as defined in the definition of "byproduct material" in these regulations in quantities greater than 10,000 kilograms containing more than ~~five millicuries~~ 185 MBq (5 mCi) of radium-226 or disposal of radioactive material as provided for in Part IV (12VAC5-481-600 et seq.) of this chapter.

C. This part establishes procedural requirements and performance objectives applicable to any method of land disposal. It establishes specific technical requirements for near-surface disposal of radioactive waste that involves disposal in the uppermost portion of the earth.

12VAC5-481-2420. Conditions of licenses.

A. A license issued under this part, or any right thereunder, may be transferred, assigned, or in any manner disposed of, either voluntarily or involuntarily, directly or indirectly, through transfer of control of the license to any person, only

if the agency finds, after securing full information, that the transfer is in accordance with the provisions of the Act and gives its consent in writing in the form of a license amendment.

B. The licensee shall submit written statements under oath upon request of the agency, at any time before termination of the license, to enable the agency to determine whether the license should be modified, suspended, or revoked.

C. The license will be terminated only on the full implementation of the final closure plan as approved by the agency, including post-closure observation and maintenance.

D. The licensee shall be subject to the provisions of the Act now or hereafter in effect, and to all rules, regulations, and orders of the agency. The terms and conditions of the license are subject to amendment, revision, or modification, by reason of amendments to, or by reason of rules, regulations, and orders issued in accordance with the terms of the Act.

E. Each person licensed by the agency pursuant to the regulations in this part shall confine possession and use of materials to the locations and purposes authorized in the license.

F. The licensee shall not dispose of waste until the agency has inspected the land disposal facility and has found it to be in conformance with the description, design, and construction described in the application for a license.

G. The agency may incorporate in any license at the time of issuance, or thereafter, by appropriate rule, regulation or order, additional requirements and conditions with respect to the licensee's receipt, possession, and disposal of waste as it deems appropriate or necessary in order to:

1. Protect health or to minimize danger to life or property;

2. Require reports and the keeping of records, and to provide for inspections of activities under the license that may be necessary or appropriate to effectuate the purposes of the Act and regulations thereunder.

H. The authority to dispose of wastes expires on the date stated in the license. Any expiration date on a license applies only to the above ground activities and to the authority to dispose of waste. Failure to renew the license shall not relieve the licensee of responsibility for implementing site closure, post-closure observation, and transfer of the license to the site owner.

I. Each licensee shall notify the agency in writing immediately following the filing of a voluntary or involuntary petition for bankruptcy under any Chapter of Title 11 (Bankruptcy) of the United States Code by or against:

1. The licensee;

2. An entity (as that term is defined in ~~11 USC §101(14))~~ 11 USC §101(15)) controlling the licensee or listing the license or licensee as property of the estate; or

3. An affiliate (as that term is defined in 11 USC §101(2)) of the licensee.

J. The notification specified in this section shall indicate the bankruptcy court in which the petition for bankruptcy was filed and the date of the filing of the petition.

12VAC5-481-2430. Application for renewal or closure.

A. An application for renewal or an application for closure under 12VAC5-481-2440 must be filed at least 90 days prior to license expiration.

B. Applications for renewal of a license must be filed in accordance with 12VAC5-481-2350 through 12VAC5-481-2400. Applications for closure must be filed in accordance with 12VAC5-481-2440. ~~Information contained in previous applications, statements, or reports filed with the agency under the license may be incorporated by reference if the references are clear and specific.~~

C. In any case in which a licensee has filed an application in proper form for renewal of a license, the license does not expire until the agency has taken final action on the application for renewal.

D. In determining whether a license will be renewed, the agency will apply the criteria set forth in 12VAC5-481-2410.

12VAC5-481-2470. Termination of license.

A. Following any period of institutional control needed to meet the requirements found necessary under 12VAC5-481-2410, the licensee may apply for an amendment to terminate the license.

B. This application will be reviewed in accordance with the provisions of ~~12VAC5-481-440~~ 12VAC5-481-450.

C. A license shall be terminated only when the agency finds:

1. That the institutional control requirements found necessary under ~~1subdivision 8 of 2VAC5-481-2410~~ 12VAC5-481-2410 8 have been met;

2. That any additional requirements resulting from new information developed during the institutional control period have been met; and

3. That permanent monuments or markers warning against intrusion have been installed.

12VAC5-481-2490. Protection of the general population from releases of radioactivity.

Concentrations of radioactive material that may be released to the general environment in ground water, surface water, air, soil, plants, or animals shall not result in an annual dose exceeding an equivalent of ~~25 millirems (0.25 mSv)~~ 0.25

mSv (25 mrem) to the whole body, ~~75 millirems (0.75 mSv)~~ 0.75 mSv (75 mrem) to the thyroid, and ~~25 millirems (0.25 mSv)~~ 0.25 mSv (25 mrem) to any other organ of any member of the public. Reasonable effort should be made to maintain releases of radioactivity in effluents to the general environment ~~as low as is reasonably achievable~~ ALARA.

12VAC5-481-2510. Protection of individuals during operations.

Operations at the land disposal facility shall be conducted in compliance with the standards for radiation protection set out in Part IV (12VAC5-481-600 et seq.) of this chapter, except for releases of radioactivity in effluents from the land disposal facility, that shall be governed by 12VAC5-481-2490. Every reasonable effort should be made to maintain radiation exposures ~~as low as is reasonably achievable~~ ALARA.

Article 4
Technical Requirements for Land Disposal Facilities

12VAC5-481-2530. Disposal site suitability requirements for land disposal.

~~A.~~ Disposal site suitability for near-surface disposal. The primary emphasis in disposal site suitability is given to isolation of wastes and to disposal site features that ensure that the long-term performance objectives are met.

1. The disposal site shall be capable of being characterized, modeled, analyzed and monitored.

2. Within the region where the facility is to be located, a disposal site should be selected so that projected population growth and future developments are not likely to affect the ability of the disposal facility to meet the performance objectives of this part.

3. Areas shall be avoided having known natural resources which, if exploited, would result in failure to meet the performance objectives of this part.

4. The disposal site shall be generally well drained and free of areas of flooding or frequent ponding. Waste disposal shall not take place in a 100-year flood plain, coastal high-hazard area or wetland, as defined in federal Executive Order 11988, "Floodplain Management ~~Guidelines."~~ Guidelines."

5. Upstream drainage areas shall be minimized to decrease the amount of runoff which could erode or inundate waste disposal units.

6. The disposal site shall provide sufficient depth to the water table that ground water intrusion, perennial or otherwise, into the waste will not occur. The agency will consider an exception to this requirement to allow disposal below the water table if it can be conclusively shown that disposal site characteristics will result in molecular diffusion being the predominant means of radionuclide movement and the rate of movement will result in the performance objectives being met. In no case will waste disposal be permitted in the zone of fluctuation of the water table.

7. The hydrogeologic unit used for disposal shall not discharge ground water to the surface within the disposal site.

8. Areas shall be avoided where tectonic processes such as faulting, folding, seismic activity, or vulcanism may occur with such frequency and extent to significantly affect the ability of the disposal site to meet the performance objectives of this part or may preclude defensible modeling and prediction of long-term impacts.

9. Areas shall be avoided where surface geologic processes such as mass wasting, erosion, slumping, landsliding, or weathering occur with such frequency and extent to significantly affect the ability of the disposal site to meet the performance objectives of this part, or may preclude defensible modeling and prediction of long-term impacts.

10. The disposal site must not be located where nearby facilities or activities could adversely impact the ability of the site to meet the performance objectives of this part or significantly mask the environmental monitoring program.

~~B. Reserved.~~

12VAC5-481-2540. Disposal site design for land disposal.

~~A.~~ Disposal site design for near-surface disposal.

1. Site design features shall be directed toward long-term isolation and avoidance of the need for continuing active maintenance after site closure.

2. The disposal site design and operation shall be compatible with the disposal site closure and stabilization plan and lead to disposal site closure that provides reasonable assurance that the performance objectives will be met.

3. The disposal site shall be designed to complement and improve, where appropriate, the ability of the disposal site's natural characteristics to assure that the performance objectives will be met.

4. Covers shall be designed to minimize to the extent practicable water infiltration, to direct percolating or surface water away from the disposed waste, and to resist degradation by surface geologic processes and biotic activity.

5. Surface features shall direct surface water drainage away from disposal units at velocities and gradients that will not result in erosion that will require ongoing active maintenance in the future.

6. The disposal site shall be designed to minimize to the extent practicable the contact of water with waste during storage, the contact of standing water with waste during

disposal, and the contact of percolating or standing water with wastes after disposal.

~~B. Reserved.~~

12VAC5-481-2550. Land disposal facility operation and disposal site closure.

~~A.~~ Near-surface disposal facility operation and disposal site closure.

1. Wastes designated as Class A pursuant to these regulations shall be segregated from other wastes by placing in disposal units which are sufficiently separated from disposal units for the other waste classes so that any interaction between Class A wastes and other wastes will not result in the failure to meet the performance objectives of this part. This segregation is not necessary for Class A wastes if they meet the stability requirements of these regulations.

2. Wastes designated as Class C pursuant to these regulations shall be disposed of so that the top of the waste is a minimum of ~~five~~ 5 meters below the top surface of the cover or must be disposed of with intruder barriers that are designed to protect against an inadvertent intrusion for at least 500 years.

3. Except as provided in subdivision 12 of this subsection, only waste classified as Class A, B, or C shall be acceptable for near-surface disposal. All waste shall be disposed of in accordance with requirements of 4 through 11 of this subsection.

4. Wastes shall be emplaced in a manner that maintains the package integrity during emplacement, minimizes the void spaces between packages, and permits the void spaces to be filled.

5. Void spaces between waste packages shall be filled with earth or other material to reduce future subsidence within the fill.

6. Waste shall be placed and covered in a manner that limits the radiation dose rate at the surface of the cover to levels that at a minimum will permit the licensee to comply with all provisions of 12VAC5-481-640 at the time the license is transferred pursuant to 12VAC5-481-2460.

7. The boundaries and locations of each disposal unit shall be accurately located and mapped by means of a land survey. Near-surface disposal units shall be marked in such a way that the boundaries of each unit can be easily defined. Three permanent survey marker control points, referenced to United States Geological Survey (USGS) or National Geodetic Survey (NGS) survey control stations, shall be established on the site to facilitate surveys. The USGS or NGS control stations shall provide horizontal and vertical controls as checked against USGS or NGS record files.

8. A buffer zone of land shall be maintained between any buried waste and the disposal site boundary and beneath the disposed waste. The buffer zone shall be of adequate dimensions to carry out environmental monitoring activities specified in 12VAC5-481-2560 C and take mitigative measures if needed.

9. Closure and stabilization measures as set forth in the approved site closure plan shall be carried out as each disposal unit is filled and covered.

10. Active waste disposal operations shall not have an adverse effect on completed closure and stabilization measures.

11. Only wastes containing or contaminated with radioactive material shall be disposed of at the disposal site.

12. Proposals for disposal of waste that is not generally acceptable for near-surface disposal because the waste form and disposal methods must be different and, in general, more stringent than those specified for Class C waste, may be submitted to the agency for approval.

~~B. Reserved.~~

12VAC5-481-2571. Waste classification.

A. Considerations. Determination of the classification of radioactive waste involves two considerations. First, consideration must be given to the concentration of long-lived radionuclides (and their shorter-lived precursors) whose potential hazard will persist long after such precautions as institutional controls, improved waste form, and deeper disposal have ceased to be effective. These precautions delay the time when long-lived radionuclides could cause exposures. In addition, the magnitude of the potential dose is limited by the concentration and availability of the radionuclide at the time of exposure. Second, consideration must be given to the concentration of shorter-lived radionuclides for which requirements on institutional controls, waste form, and disposal methods are effective.

B. Classes of waste.

1. Class A waste is waste that is usually segregated from other waste classes at the disposal site. The physical form and characteristics of Class A waste must meet the minimum requirements set forth in 12VAC5-481-2572 A. If Class A waste also meets the stability requirements set forth in 12VAC5-481-2572 B, it is not necessary to segregate the waste for disposal.

2. Class B waste is waste that must meet more rigorous requirements on waste form to ensure stability after disposal. The physical form and characteristics of Class B waste must meet both the minimum and stability requirements set forth in 12VAC5-481-2572.

3. Class C waste is waste that not only must meet more rigorous requirements on waste form to ensure stability but also requires additional measures at the disposal facility to protect against inadvertent intrusion. The physical form and characteristics of Class C waste must meet both the minimum and stability requirements set forth 12VAC5-481-2572.

4. Waste that is not generally acceptable for near-surface disposal is waste for which form and disposal methods must be different, and in general more stringent, than those specified for Class C waste. In the absence of specific requirements in this part, such waste must be disposed of in a geologic repository as defined in 10 CFR Part 60 or 63 unless proposals for disposal of such waste in a disposal site licensed pursuant to this part are approved by the agency.

C. Classification determined by long-lived radionuclides. If radioactive waste contains only radionuclides listed in Table 2, classification shall be determined as follows:

1. If the concentration does not exceed 0.1 times the value in Table 2, the waste is Class A.

2. If the concentration exceeds 0.1 times the value in Table 2 but does not exceed the value in Table 3, the waste is Class C.

3. If the concentration exceeds the value in Table 2, the waste is not generally acceptable for near-surface disposal.

4. For wastes containing mixtures of radionuclides listed in Table 2, the total concentration shall be determined by the sum of fractions rule described in subsection G of this section.

Table 2
Long Lived Radionuclides Waste Concentration

Radionuclide	Concentration curies per cubic meter
C-14	8
C-14 in activated metal	80
Ni-59 in activated metal	220
Nb-94 in activated metal	0.2
Tc-99	3
I-129	0.08
Alpha emitting transuranic nuclides with half-life greater than 5 years	[1]100
Pu-241	[1]3,500
Cm-242	[1]20,000

[1]Units are nanocuries per gram.

D. Classification determined by short-lived radionuclides. If radioactive waste does not contain any of the radionuclides listed in Table 2, classification shall be determined based on the concentrations shown in Table 3. However, as specified in subsection F of this section, if radioactive waste does not contain any nuclides listed in either Table 2 or 3, it is Class A.

1. If the concentration does not exceed the value in Column 1, the waste is Class A.

2. If the concentration exceeds the value in Column 1, but does not exceed the value in Column 2, the waste is Class B.

3. If the concentration exceeds the value in Column 2, but does not exceed the value in Column 3, the waste is Class C.

4. If the concentration exceeds the value in Column 3, the waste is not generally acceptable for near-surface disposal.

5. For wastes containing mixtures of the nuclides listed in Table 3, the total concentration shall be determined by the sum of fractions rule described in subsection G of this section.

Table 3
Short Lived Radionuclide Waste Concentration

Radionuclide	Concentration, curies per cubic meter		
	Col. 1	Col. 2	Col. 3
Total of all nuclides with less than 5 year half-life	700	(1)	(1)
H-3	40	(1)	(1)
Co-60	700	(1)	(1)
Ni-63	3.5	70	700
Ni-63 in activated metal	35	700	7000
Sr-90	0.04	150	7000
Cs-137	1	44	4600

[1]There are no limits established for these radionuclides in Class B or C wastes. Practical considerations such as the effects of external radiation and internal heat generation on transportation, handling, and disposal will limit the concentrations for these wastes. These wastes shall be Class B unless the concentrations of other nuclides in Table 3 determine the waste to the Class C independent of these nuclides.

E. Classification determined by both long- and short-lived radionuclides. If radioactive waste contains a mixture of radionuclides, some of which are listed in Table 2, and some of which are listed in Table 3, classification shall be determined as follows:

1. If the concentration of a nuclide listed in Table 2 does not exceed 0.1 times the value listed in Table 2, the class shall be that determined by the concentration of nuclides listed in Table 3.

2. If the concentration of a nuclide listed in Table 2 exceeds 0.1 times the value listed in Table 2 but does not exceed the value in Table 2, the waste shall be Class C, provided the concentration of nuclides listed in Table 3 does not exceed the value shown in Column 3 of Table 3.

F. Classification of wastes with radionuclides other than those listed in Tables 2 and 3. If radioactive waste does not contain any nuclides listed in either Table 2 or 3, it is Class A.

G. The sum of the fractions rule for mixtures of radionuclides. For determining classification for waste that contains a mixture of radionuclides, it is necessary to determine the sum of fractions by dividing each nuclide's concentration by the appropriate limit and adding the resulting values. The appropriate limits must all be taken from the same column of the same table. The sum of the fractions for the column must be less than 1.0 if the waste class is to be determined by that column. Example: A waste contains Sr-90 in a concentration of 50 Ci/m^3 and Cs-137 in a concentration of 22 Ci/m^3. Since the concentrations both exceed the values in Column 1, Table 2, they must be compared to Column 2 values. For Sr-90 fraction 50/150=0.33; for Cs-137 fraction, 22/44=0.5; the sum of the fractions=0.83. Since the sum is less than 1.0, the waste is Class B.

H. Determination of concentrations in wastes. The concentration of a radionuclide may be determined by indirect methods such as use of scaling factors that relate the inferred concentration of one radionuclide to another that is measured, or radionuclide material accountability, if there is reasonable assurance that the indirect methods can be correlated with actual measurements. The concentration of a radionuclide may be averaged over the volume of the waste, or weight of the waste if the units are expressed as nanocuries per gram.

12VAC5-481-2572. Waste characteristics.

A. The following requirements are minimum requirements for all classes of waste and are intended to facilitate handling at the disposal site and provide protection of health and safety of personnel at the disposal site.

1. Waste must not be packaged for disposal in cardboard or fiberboard boxes.

2. Liquid waste must be solidified or packaged in sufficient absorbent material to absorb twice the volume of the liquid.

3. Solid waste containing liquid shall contain as little freestanding and noncorrosive liquid as is reasonably achievable, but in no case shall the liquid exceed 1.0% of the volume.

4. Waste must not be readily capable of detonation or of explosive decomposition or reaction at normal pressures and temperatures, or of explosive reaction with water.

5. Waste must not contain, or be capable of generating, quantities of toxic gases, vapors, or fumes harmful to persons transporting, handling, or disposing of the waste. This does not apply to radioactive gaseous waste packaged in accordance with subdivision 7 of this subsection.

6. Waste must not be pyrophoric. Pyrophoric materials contained in waste shall be treated, prepared, and packaged to be nonflammable.

7. Waste in a gaseous form must be packaged at a pressure that does not exceed 1.5 atmospheres at 20°C. Total activity must not exceed 100 curies per container.

8. Waste containing hazardous, biological, pathogenic, or infectious material must be treated to reduce to the maximum extent practicable the potential hazard from the nonradiological materials.

B. The requirements in this section are intended to provide stability of the waste. Stability is intended to ensure that the waste does not structurally degrade and affect overall stability of the site through slumping, collapse, or other failure of the disposal unit and thereby lead to water infiltration. Stability is also a factor in limiting exposure to an inadvertent intruder, since it provides a recognizable and nondispersible waste.

1. Waste must have structural stability. A structurally stable waste form will generally maintain its physical dimensions and its form, under the expected disposal conditions such as weight of overburden and compaction equipment, the presence of moisture, and microbial activity, and internal factors such as radiation effects and chemical changes. Structural stability can be provided by the waste form itself, processing the waste to a stable form, or placing the waste in a disposal container or structure that provides stability after disposal.

2. Notwithstanding the provisions in subdivision A 2 and A 3 of this section, liquid wastes, or wastes containing liquid, must be converted into a form that contains as little freestanding and noncorrosive liquid as is reasonably achievable, but in no case shall the liquid exceed 1.0% of the volume of the waste when the waste is in a disposal container designed to ensure stability, or 0.5% of the volume of the waste for waste processed to a stable form.

3. Void spaces within the waste and between the waste and its package must be reduced to the extent practicable.

12VAC5-481-2573. Labeling.

Each package of waste must be clearly labeled to identify whether it is Class A waste, Class B waste, or Class C waste, in accordance with 12VAC5-481-2571.

Part XII
Licensing and Radiation Safety Requirements for Irradiators

Article 1
Purpose and Scope

12VAC5-481-2660. Purpose and scope.

The ~~regulations~~ following regulation, Purpose and scope ~~(10 CFR 36.1, as amended January 1, 2003) and Definitions (10 CFR 36.2, as amended January 1, 2003) are~~ (10 CFR 36.1) is applicable in the Commonwealth of Virginia.

Article 2
Specific Licensing Requirements

12VAC5-481-2670. Application for a specific license.

The following regulation, Application for a specific license ~~(10 CFR 36.11, 58 FR 7728, February 9, 1993)~~ (10 CFR 36.11) is applicable in the Commonwealth of Virginia.

12VAC5-481-2680. Specific licenses for irradiators.

The following regulation, Specific licenses for irradiators ~~(10 CFR 36.13, 58 FR 7728, February 9, 1993)~~ (10 CFR 36.13) is applicable in the Commonwealth of Virginia.

12VAC5-481-2690. Start of construction.

The following regulation, Start of construction ~~(10 CFR 36.15, 58 FR 7728, February 9, 1993)~~ (10 CFR 36.15) is applicable in the Commonwealth of Virginia.

12VAC5-481-2700. Applications for exemptions.

The following regulation, Applications for exemptions ~~(10 CFR 36.17, 58 FR 7728, February 9, 1993)~~ (10 CFR 36.17) is applicable in the Commonwealth of Virginia.

12VAC5-481-2710. Request for written statements.

The following regulation, Request for written statements ~~(10 CFR 36.19, 58 FR 7728, February 9, 1993)~~ (10 CFR 36.19) is applicable in the Commonwealth of Virginia.

Article 3
Design and Performance Requirements for Irradiators

12VAC5-481-2720. Performance criteria for sealed sources.

The following regulation, Performance criteria for sealed sources ~~(10 CFR 36.21, 58 FR 7728, February 9, 1993)~~ (10 CFR 36.21) is applicable in the Commonwealth of Virginia.

12VAC5-481-2730. Access control.

The following regulation, Access control ~~(10 CFR 36.23, 58 FR 7728, February 9, 1993)~~ (10 CFR 36.23) is applicable in the Commonwealth of Virginia.

12VAC5-481-2740. Shielding.

The following regulation, Shielding ~~(10 CFR 36.25, 58 FR 7728, February 9, 1993)~~ (10 CFR 36.25) is applicable in the Commonwealth of Virginia.

12VAC5-481-2750. Fire protection.

The following regulation, Fire protection ~~(10 CFR 36.27, 58 FR 7728, February 9, 1993)~~ (10 CFR 36.27) is applicable in the Commonwealth of Virginia.

12VAC5-481-2760. Radiation monitors.

The following regulation, Radiation monitors ~~(10 CFR 36.29, 58 FR 7728, February 9, 1993)~~ (10 CFR 36.29) is applicable in the Commonwealth of Virginia.

12VAC5-481-2770. Control of source movement.

The following regulation, Control of source movement ~~(10 CFR 36.31, 58 FR 7728, February 9, 1993)~~ (10 CFR 36.31) is applicable in the Commonwealth of Virginia.

12VAC5-481-2780. Irradiator pools.

The following regulation, Irradiator pools ~~(10 CFR 36.33, 58 FR 7728, February 9, 1993)~~ (10 CFR 36.33) is applicable in the Commonwealth of Virginia.

12VAC5-481-2790. Source rack protection.

The following regulation, Source rack protection ~~(10 CFR 36.35, 58 FR 7728, February 9, 1993)~~ (10 CFR 36.35) is applicable in the Commonwealth of Virginia.

12VAC5-481-2800. Power failures.

The following regulation, Power failures ~~(10 CFR 36.37, 58 FR 7728, February 9, 1993)~~ (10 CFR 36.37) is applicable in the Commonwealth of Virginia.

12VAC5-481-2810. Design requirements.

The following regulation, Design requirements ~~(10 CFR 36.39, 58 FR 7728, February 9, 1993)~~ (10 CFR 36.39) is applicable in the Commonwealth of Virginia.

12VAC5-481-2820. Construction monitoring and acceptance testing.

The following regulation, Construction monitoring and acceptance testing ~~(10 CFR 36.41, 58 FR 7728, February 9, 1993)~~ (10 CFR 36.41) is applicable in the Commonwealth of Virginia.

Article 4
Operation of Irradiators

12VAC5-481-2830. Training.

The following regulation, Training ~~(10 CFR 36.51, 58 FR 7728, February 9, 1993)~~ (10 CFR 36.51) is applicable in the Commonwealth of Virginia.

12VAC5-481-2840. Operating and emergency procedures.

The following regulation, Operating and emergency procedures ~~(10 CFR 36.53, 58 FR 7728, February 9, 1993)~~ (10 CFR 36.53) is applicable in the Commonwealth of Virginia.

12VAC5-481-2850. Personnel monitoring.

The following regulation, Personnel monitoring ~~(10 CFR 36.55, 58 FR 7728, February 9, 1993)~~ (10 CFR 36.55) is applicable in the Commonwealth of Virginia.

12VAC5-481-2860. Radiation surveys.

The following regulation, Radiation surveys ~~(10 CFR 36.57, 58 FR 7728, February 9, 1993)~~ (10 CFR 36.57) is applicable in the Commonwealth of Virginia.

12VAC5-481-2870. Detection of leaking sources.

The following regulation, Detection of leaking sources ~~(10 CFR 36.59, 58 FR 67660, December 22, 1993)~~ (10 CFR 36.58) is applicable in the Commonwealth of Virginia.

12VAC5-481-2880. Inspection and maintenance.

The following regulation, Inspection and maintenance ~~(10 CFR 36.61, 58 FR 7728, February 9, 1993)~~ (10 CFR 36.61) is applicable in the Commonwealth of Virginia.

12VAC5-481-2890. Pool water purity.

The following regulation, Pool water purity ~~(10 CFR 36.63, 58 FR 7728, February 9, 1993)~~ (10 CFR 36.63) is applicable in the Commonwealth of Virginia.

12VAC5-481-2900. Attendance during operation.

The following regulation, Attendance during operation ~~(10 CFR 36.65, 58 FR 7728, February 9, 1993)~~ (10 CFR 36.65) is applicable in the Commonwealth of Virginia.

12VAC5-481-2910. Entering and leaving the radiation room.

The following regulation, Entering and leaving the radiation room ~~(10 CFR 36.67, 58 FR 7728, February 9, 1993)~~ (10 CFR 36.67) is applicable in the Commonwealth of Virginia.

12VAC5-481-2920. Irradiation of explosive or flammable materials.

The following regulation, Irradiation of explosive or flammable materials ~~(10 CFR 36.41, 58 FR 7728, February 9, 1993)~~ (10 CFR 36.69) is applicable in the Commonwealth of Virginia.

Article 5
Records

12VAC5-481-2930. Records and retention periods.

The following regulation, Records and retention periods ~~(10 CFR 36.81, 65 FR 63752, October 24, 2000)~~ (10 CFR 36.81) is applicable in the Commonwealth of Virginia.

12VAC5-481-2940. Reports.

The following regulation, Reports ~~(10 CFR 36.83, 58 FR 7728, February 9, 1993)~~ (10 CFR 36.83) is applicable in the Commonwealth of Virginia

Part XIII
Transportation of Radioactive Material

Article 1
Purpose and Scope

12VAC5-481-2950. Purpose and scope.

~~The regulations in this part establish requirements for packaging, preparation for shipment, and transportation of radioactive material and apply to any person who transports radioactive material or delivers radioactive material to a carrier for transport.~~

The regulations in this part apply to any licensee authorized by specific or general license issued by the agency to receive, possess, use, or transfer licensed material, if the licensee delivers that material to a carrier for transport, transports the material outside the site of usage as specified in the agency license, or transports that material on public highways. No provision of this part authorizes possession of licensed material.

12VAC5-481-2970. Exemptions.

A. Common and contract carriers, freight forwarders, and warehouse workers that are subject to the requirements of the United States Department of Transportation (DOT) in 49 CFR Part 170 through 49 Part CFR 189 or the United States Postal Service in the Postal Service Domestic Mail Manual (DMM), Section C-023.9.0, and the United States Postal Service, are exempt from the requirements of this part to the extent that they transport or store radioactive material in the regular course of their carriage for others or storage incident thereto. Common and contract carriers that are not subject to the requirements of the ~~United States Department of Transportation~~ DOT or United States Postal Service are subject to 12VAC5-481-2960 and other applicable requirements of these regulations.

B. ~~Any licensee is exempt from the requirements of this part to the extent that the licensee delivers to a carrier for transport a package containing radioactive material having a specific~~

~~activity not greater than 70 becquerel per gram (0.002 μCi/g).~~ A licensee is exempt from all the requirements of this part with respect to shipment or carriage of the following low-level materials:

1. NARM and ores containing naturally occurring radionuclides that are not intended to be processed for use of these radionuclides, provided the activity concentration of the material does not exceed 10 times the values specified in Table A-2 of 12VAC5-481-3770.

2. Materials for which the activity concentration is not greater than the activity concentration values specified in Table A-2 of 12VAC5-481-3770, or for which the consignment activity is not greater than the limit for an exempt consignment found in Table A-2 of 12VAC5-481-3770.

C. Fissile material meeting one of the following requirements are exempt from classification as fissile material and from the fissile material package standards of 10 CFR 71.55 and 71.59, but are subject to all other requirements of 10 CFR 71, except as noted.

1. Individual package containing two grams or less fissile material.

2. Individual or bulk packaging containing 15 grams or less of fissile material provided the package has at least 200 grams of solid nonfissile material for every gram of fissile material. Lead, beryllium, graphite, and hydrogenous material enriched in deuterium may be present in the package but must not be included in determining the required mass for solid nonfissile material.

3. Low concentrations of solid fissile material commingled with solid nonfissile material, provided that there is at least 2,000 grams of solid nonfissile material for every gram of fissile material, and there is no more than 180 grams of fissile material distributed within 360 kg of contiguous nonfissile material. Lead, beryllium, graphite, and hydrogenous material enriched in deuterium may be present in the package but must not be included in determining the required mass of solid nonfissile material.

4. Uranium enriched in uranium-235 to a maximum of 1.0% by weight, and with total plutonium and uranium-233 content of up to 1.0% of the mass of uranium-235, provided that the mass of any beryllium, graphite, and hydrogenous material enriched in deuterium constitutes less than 5.0% of the uranium mass.

5. Liquid solutions of uranyl nitrate enriched in uranium-235 to a maximum of 2.0% by mass, with a total plutonium and uranium-233 content not exceeding 0.002% of the mass of uranium, and with a minimum nitrogen to uranium atomic ratio (N/U) of 2. The material must be contained in at least a DOT Type A package.

6. Packages containing, individually, a total plutonium mass of not more than 1,000 grams, of which not more than 20% by mass may consist of plutonium-239, plutonium-241, or any combination of these radionuclides.

D. Any physician licensed by the Commonwealth of Virginia to dispense drugs in the practice of medicine is exempt from this section with respect to transport by the physician of radioactive material for use in the practice of medicine provided the physician is an authorized user under Part VII (12VAC5-481-1660 et seq.).

12VAC5-481-2980. Transportation of licensed material.

A. Each licensee who transports licensed material outside the site of usage, as specified in the agency license, or where transport is on public highways, or who delivers licensed material to a carrier for transport, shall:

1. Comply with the applicable requirements, appropriate to the mode of transport, of the regulations of the ~~United States Department of Transportation~~ DOT; particularly the regulations of the ~~United States Department of Transportation~~ DOT in the following areas:

a. Packaging – 49 CFR Part 173: Subparts A and B and I.

b. Marking and labeling – 49 CFR Part 172: Subpart D, 172.400 through 172.407~~,~~ and 172.436 through ~~172.440, and Subpart E~~ 172.441.

c. Placarding – 49 CFR Part 172: Subpart F, especially §§172.500 through 172.519, 172.556, and Appendices B and C.

d. Accident reporting – 49 CFR Part 171: §§171.15 and 171.16.

e. Shipping papers and emergency information – 49 CFR Part 172: Subpart C and Subpart G.

f. Hazardous material employee training – 49 CFR Part 172: Subpart H.

g. Hazardous material shipper/carrier registration – 49 CFR Part 107: Subpart G.

h. Security plans – 49 CFR Part 172: Subpart I.

2. The licensee shall also comply with applicable ~~United States Department of Transportation~~ DOT regulations pertaining to the following modes of transportation:

a. Rail – 49 CFR Part 174: Subparts A through D and K.

b. Air – 49 CFR Part 175.

c. Vessel – 49 CFR Part 176: Subparts A through F and M.

d. Public Highway – 49 CFR Part 177 and Parts 390 through 397.

3. Assure that any special instructions needed to safely open the package are sent to or have been made available to the consignee in accordance with 12VAC5-481-900.

B. If, for any reason, the regulations of the ~~United States Department of Transportation~~ DOT are not applicable to a shipment of licensed material, the licensee shall conform to the standards and requirements of ~~49 CFR Parts 170 through 49 CFR 189~~ 49 CFR Parts 107, 171 through 180, and 390 through 397, appropriate to the mode of transport to the same extent as if the shipment was subject to the regulations.

12VAC5-481-3000. General license: ~~Nuclear Regulatory Commission-approved~~ NRC-approved packages.

A. A general license is hereby issued to any licensee to transport, or to deliver to a carrier for transport, licensed material in a package for which a license, certificate of compliance (CoC), or other approval has been issued by the ~~Nuclear Regulatory Commission~~ NRC.

B. This general license applies only to a licensee who:

1. Has a copy of the specific license, ~~certificate of compliance~~ CoC, or other approval by the ~~Nuclear Regulatory Commission~~ NRC of the package and has the drawings and other documents referenced in the approval relating to the use and maintenance of the packaging and to the actions to be taken prior to shipment;

2. Complies with the terms and conditions of the license, certificate, or other approval by the ~~Nuclear Regulatory Commission~~ NRC, as applicable, and the applicable requirements of ~~this~~ Part XIII (12VAC5-481-2950 et seq.) of this chapter;

3. Prior to the licensee's first use of the package, ~~has registered with the Nuclear Regulatory Commission~~ submits in writing to the NRC the licensee's name and license number and the package identification number specified in the package approval using the appropriate method listed in 10 CFR 71.1(a); and

4. Has a quality assurance program ~~required by~~ that complies with 12VAC5-481-3130.

C. The general license in subsection A of this section applies only when the package approval authorizes use of the package under this general license.

D. For a Type B or fissile material package, the design of which was approved by the ~~Nuclear Regulatory Commission~~ NRC before April 1, 1996, the general license is subject to the additional restrictions of 12VAC5-481-3010.

12VAC5-481-3010. ~~General license: previously~~ Previously approved packages.

~~A. A Type B package previously approved by the Nuclear Regulatory Commission, but not designated as B(U) or B(M) in the identification number of the Nuclear Regulatory Commission certificate of compliance, may be used under the general license of 12VAC5-481-3000 with the following additional conditions:~~

~~1. Fabrication of the packaging was satisfactorily completed before August 31, 1986, as demonstrated by application of its model number in accordance with Nuclear Regulatory Commission regulations at 10 CFR 71.85(c);~~

~~2. A package used for a shipment to a location outside the United States is subject to multilateral approval, as defined in United States Department of Transportation regulations at 49 CFR 173.403; and~~

~~3. A serial number that uniquely identifies each packaging that conforms to the approved design is assigned to, and legibly and durably marked on, the outside of each packaging.~~

~~B.~~ A Type B(U) package, a Type B(M) package~~, a low specific activity (LSA) material package~~ or a fissile material package, previously approved by the ~~Nuclear Regulatory Commission~~ NRC but without the designation "-85" in the identification number of the ~~Nuclear Regulatory Commission certificate of compliance~~ NRC CoC, may be used under the general license of 12VAC5-481-3000 with the following additional conditions:

1. Fabrication of the package is satisfactorily completed by April 1, 1999, as demonstrated by application of its model number in accordance with ~~Nuclear Regulatory Commission regulations at~~ 10 CFR 71.85(c);

2. A package used for a shipment to a location outside the United States is subject to multilateral approval except approved under special arrangement in accordance with United States Department of Transportation regulations at 49 CFR 173.403; and

3. A serial number that uniquely identifies each packaging that conforms to the approved design is assigned to and legibly and durably marked on the outside of each packaging.

12VAC5-481-3020. General License: United States Department of Transportation specification container.

A. A general license is issued to any licensee to transport, or to deliver to a carrier for transport, licensed material in a specification container for fissile material or for a Type B quantity of radioactive material as specified in 49 CFR Parts 173 and 178.

B. This general license applies only to a licensee who:

1. Has a copy of the specification;

2. Complies with the terms and conditions of the specification and the applicable requirements of this part; and

3. Has a quality assurance program ~~required by~~ that complies with 12VAC5-481-3130.

C. The general license in subsection A of this section is subject to the limitation that the specification container may not be used for a shipment to a location outside the United States except by multilateral approval as defined in 49 CFR 173.403.

12VAC5-481-3030. General License: use of foreign approved package.

A. A general license is issued to any licensee to transport, or to deliver to a carrier for transport, licensed material in a package the design of which has been approved in a foreign national competent authority certificate that has been revalidated by the ~~United States Department of Transportation~~ DOT as meeting the applicable requirements of 49 CFR 171.12.

B. This general license applies only to international shipments.

C. This general license applies only to a licensee who:

1. Has a copy of the applicable certificate, the revalidation, and the drawings and other documents referenced in the certificate relating to the use and maintenance of the packaging and to the actions to be taken prior to shipment;

2. Complies with the terms and conditions of the certificate and revalidation, and with the applicable requirements of this part; and

3. The licensee has a quality assurance program ~~approved by the Nuclear Regulatory Commission~~ that complies with 12VAC5-481-3130.

12VAC5-481-3040. General ~~License:~~ license: fissile material~~, limited quantity per package~~.

A. A general license is ~~hereby~~ issued to any licensee to transport fissile material, or to deliver fissile material to a carrier for transport, if the material is shipped in accordance with this section. The fissile material need not be contained in a package that meets the standards of 10 CFR Part 71, Subparts E and F; however, the material must be contained in a Type A package. The Type A package must also meet the DOT requirements of 49 CFR 173.417(a).

B. ~~This~~ The general license applies only ~~when a package contains no more than a Type A quantity of radioactive material, including only one of the following:~~ to a licensee who has a quality assurance program that complies with 12VAC5-481-3130.

~~1. Up to 40 grams of uranium-235;~~

~~2. Up to 30 grams of uranium-233;~~

~~3. Up to 25 grams of the fissile radionuclides of plutonium, except that for encapsulated plutonium-beryllium neutron sources in special form, an A1 quantity of plutonium may be present; or~~

~~4. A combination of fissile radionuclides in which the sum of the ratios of the amount of each radionuclide to the corresponding maximum amounts in subdivisions 1, 2, and 3 of this subsection do not exceed unity.~~

~~C. Except as specified in subdivision 2 of this subsection, this general license applies only when all of the following requirements are met:~~

~~1. A package containing more than 15 grams of fissile radionuclides is labeled with a transport index not less than the number given by the following equation:~~

~~Minimum Transport Index = (0.40x + 0.67y + z) (1 - 15/(x+y+z))~~

~~where the package contains x grams of uranium-235, y grams of uranium-233, and z grams of the fissile radionuclides of plutonium;~~

~~2. For a package in which the only fissile material is in the form of encapsulated plutonium-beryllium neutron sources in special form, the transport index based on criticality considerations may be taken as 0.026 times the number of grams of the fissile radionuclides of plutonium in excess of 15 grams.~~

~~3. In all cases, the transport index must be rounded up to one decimal place and shall not exceed 10.0.~~

~~4. The licensee has a quality assurance program as required by 12VAC5-481-3130.~~

C. The general license applies only when a package's contents:

1. Contain no more than a Type A quantity of radioactive material; and

2. Contain less than 500 total grams of beryllium, graphite, or hydrogenous material enriched in deuterium.

D. The general license applies only to packages containing fissile material that are labeled with a CSI that:

1. Has been determined in accordance with subsection E of this section;

2. Has a value less than or equal to 10; and

3. For a shipment of multiple packages containing fissile material, the sum of the CSIs must be less than or equal to 50 (for shipment on a nonexclusive use conveyance) and less than or equal to 100 (for shipment on an exclusive use conveyance).

E. The value for the CSI must be greater than or equal to the number calculated by the following equation:

$$CSI = 10\left[\frac{grams\ of\ ^{235}\mathrm{U}}{X} + \frac{gram\ of\ ^{233}U}{Y} + \frac{grams\ of\ Pu}{Z}\right]$$

1. The calculated CSI must be rounded up to the first decimal place;

2. The values of X, Y, and Z used in the CSI equation must be taken from Tables 5 or 6, as appropriate;

3. If Table 5 is used to obtain the value of X, then the values for the terms in the equation for uranium-233 and plutonium must be assumed to be zero; and

4. Table 4 values for X, Y, and Z must be used to determine the CSI if:

a. Uranium-233 is present in the package;

b. The mass of plutonium exceeds one percent of the mass of uranium-235;

c. The uranium is of unknown uranium-235 enrichment or greater than 24 weight percent enrichment; or

d. Substances having a moderating effectiveness (i.e., an average hydrogen density greater than H_2O) (e.g., certain hydrocarbon oils or plastics) are present in any form, except as polyethylene used for packing or wrapping.

Table 4
Mass Limits for General License Packages Containing Mixed Quantities of Fissile Material or Uranium-235 of Unknown Enrichment

Fissile material	Fissile material mass mixed with moderating substances having an average hydrogen density less than or equal to H_2O (grams)	Fissile material mass mixed with moderating substances having an average hydrogen density greater than H_2O[a] (grams)
U-235 (X)	60	38
U-233 (Y)	43	27
Pu-239 or Pu-241 (Z)	37	24

[a]When mixtures of moderating substances are present, the lower mass limits shall be used if more than 15 percent of the moderating substance has an average hydrogen density greater than H_2O.

Table 5
Mass Limits for General License Packages Containing Uranium-235 of Known Enrichment

Uranium enrichment in weight percent of U-235 not exceeding	Fissile material mass of U-235 (X) (grams)
24	60
20	63
15	67
11	72
10	76
9.5	78
9	81
8.5	82
8	85
7.5	88
7	90
6.5	93
6	97
5.5	102
5	108
4.5	114
4	120
3.5	132
3	150
2.5	180
2	246
1.5	408
1.35	480
1	1,020
0.92	1,800

12VAC5-481-3050. ~~General License: fissile material, limited moderator per package.~~ (Repealed.)

~~A. A general license is hereby issued to any licensee to transport fissile material, or to deliver fissile material to a carrier for transport, if the material is shipped in accordance with this section.~~

~~B. This general license applies only when all of the following requirements are met:~~

~~1. The package contains no more than a Type A quantity of radioactive material;~~

2. Neither beryllium nor hydrogenous material enriched in deuterium are present;

3. The total mass of graphite present does not exceed 7.7 times the total mass of uranium 235 plus plutonium;

4. Substances having a higher hydrogen density than water, for example certain hydrocarbon oils, are not present, except that polyethylene may be used for packing or wrapping;

5. Uranium 233 is not present, and the amount of plutonium does not exceed 1.0% of the amount of uranium 235;

6. The amount of uranium 235 is limited as follows:

a. If the fissile radionuclides are not uniformly distributed, the maximum amount of uranium 235 per package may not exceed the value given in Table I; or

b. If the fissile radionuclides are distributed uniformly, for example, cannot form a lattice arrangement within the packaging, the maximum amount of uranium 235 per package may not exceed the value given in Table II; and

7. The transport index of each package based on criticality considerations is taken as 10 times the number of grams of uranium 235 in the package divided by the maximum allowable number of grams per package in accordance with Table I or Table II as applicable.

TABLE I
PERMISSIBLE MASS OF URANIUM 235 PER FISSILE MATERIAL PACKAGE (NONUNIFORM DISTRIBUTION)

Uranium Enrichment in Weight Percent of Uranium 235 Not Exceeding	Permissible Maximum Grams of Uranium 235 Per Package
24	40
20	42
15	45
11	48
10	51
9.5	52
9	54
8.5	55
8	57
7.5	59
7	60
6.5	62
6	65
5.5	68
5	72
4.5	76
4	80
3.5	88
3	100
2.5	120
2	164
1.5	272
1.35	320
1	680*
0.92	1,200*

*Pursuant to the agency's agreement with the Nuclear Regulatory Commission, jurisdiction extends only to 350 grams of uranium 235.

TABLE II
PERMISSIBLE MASS OF URANIUM 235 PER FISSILE MATERIAL PACKAGE (UNIFORM DISTRIBUTION)

Uranium Enrichment in Weight Percent of Uranium 235 Not Exceeding	Permissible Maximum Grams of Uranium 235 Per Package
4	84
3.5	92
3	112
2.5	148
2	240
1.5	560*
1.35	800*

*Pursuant to the agency's agreement with the Nuclear Regulatory Commission, jurisdiction extends only to 350 grams of uranium 235.

C. The licensee has a quality assurance program as required by 12VAC5-481-3130.

12VAC5-481-3051. General license: plutonium-beryllium special form material.

A. A general license is issued to any licensee to transport fissile material in the form of plutonium-beryllium (Pu-Be) special form sealed sources, or to deliver Pu-Be sealed sources to a carrier for transport, if the material is shipped in accordance with this section. This material need not be contained in a package that meets the standards of Subparts E and F of 10 CFR Part 71; however, the material must be contained in a Type A package. The Type A package must also meet the DOT requirements of 49 CFR 173.417(a).

B. The general license applies only to a licensee who has a quality assurance program that complies with 12VAC5-481-3130.

C. The general license applies only when a package's contents:

1. Contain no more than a Type A quantity of radioactive material; and

2. Contain less than 1,000 grams of plutonium, provided that: plutonium-239, plutonium-241, or any combination of

these radionuclides, constitutes less than 240 grams of the total quantity of plutonium in the package.

D. The general license applies only to packages labeled with a CSI that:

1. Has been determined in accordance with subsection E of this section;

2. Has a value less than or equal to 100; and

3. For a shipment of multiple packages containing Pu-Be sealed sources, the sum of the CSIs must be less than or equal to 50 (for shipment on a nonexclusive use conveyance) and less than or equal to 100 (for shipment on an exclusive use conveyance).

E. The value for the CSI must be greater than or equal to the number calculated by the following equation:

$$CSI = 10\left[\frac{\text{grams of Pu-239} + \text{grams of Pu-241}}{24}\right]$$

The calculated CSI must be rounded up to the first decimal place.

12VAC5-481-3070. Preliminary determinations.

Prior to the first use of any packaging for the shipment of radioactive material:

1. The licensee shall ascertain that there are no cracks, pinholes, uncontrolled voids, or other defects which could significantly reduce the effectiveness of the packaging;

2. Where the maximum normal operating pressure will exceed 35 kilopascal ~~(5 lb/in^2)~~ (5 lbf/in^2) gauge, the licensee shall test the containment system at an internal pressure at least 50% higher than the maximum normal operating pressure to verify the capability of that system to maintain its structural integrity at that pressure;

3. The licensee shall determine that the packaging has been fabricated in accordance with the design approved by the ~~Nuclear Regulatory Commission~~ NRC; and

4. The licensee shall conspicuously and durably mark the packaging with its model number, serial number, gross weight, and a package identification number as assigned by the ~~Nuclear Regulatory Commission~~ NRC.

12VAC5-481-3080. Routine determinations.

Prior to each shipment of licensed material, the licensee shall determine that:

1. The package is proper for the contents to be shipped;

2. The package is in unimpaired physical condition except for superficial defects such as marks or dents;

3. Each closure device of the packaging, including any required gasket, is properly installed and secured and free of defects;

4. Any system for containing liquid is adequately sealed and has adequate space or other specified provision for expansion of the liquid;

5. Any pressure relief device is operable and set in accordance with written procedures;

6. The package has been loaded and closed in accordance with written procedures;

7. For fissile material, any moderator or neutron absorber, if required, is present and in proper condition;

~~7.~~ 8. Any structural part of the package that could be used to lift or tie down the package during transport is rendered inoperable for that purpose unless it satisfies design requirements specified in 10 CFR 71.45;

~~8.~~ 9. The level of nonfixed radioactive contamination on the external surfaces of each package offered for shipment is ~~as low as reasonably achievable~~ ALARA and within the limits specified in 49 CFR 173.443;

~~a. The level of nonfixed radioactive contamination may be determined by wiping an area of 300 square centimeters of the surface concerned with an absorbent material, using moderate pressure, and measuring the activity on the wiping material. Sufficient measurements must be taken in the most appropriate locations to yield a representative assessment of the removable contamination levels. Except as provided in subdivision 8 b of this section, the amount of radioactivity measured on any single wiping material, when averaged over the surface wiped, must not exceed the limits given in Table III at any time during transport. Other methods of assessment of equal or greater efficiency may be used. When other methods are used, the detection efficiency of the method used must be taken into account and in no case may the removable contamination on the external surfaces of the package exceed 10 times the limits listed in Table III.~~

~~b. In the case of packages transported as exclusive use shipments by rail or highway only, the non-fixed radioactive contamination at any time during transport must not exceed 10 times the levels prescribed in subdivision 8 a of this section. The levels at the beginning of transport must not exceed the levels in subdivision 8 a;~~

~~TABLE III~~
~~NONFIXED (REMOVABLE) EXTERNAL RADIOACTIVE CONTAMINATION WIPE LIMITS~~

~~Beta and gamma emitters and low toxicity alpha emitters~~	~~0.4~~	~~10-5~~	~~22~~
~~All other alpha emitting radionuclides~~	~~0.04~~	~~10-6~~	~~2.2~~

~~9.~~ 10. External radiation levels around the package and around the vehicle, if applicable, will not exceed ~~two millisievert per hour (200 mrem/hr) at any point on the external surface of the package at any time during transportation. The transport index shall not exceed 10.0~~ the limits specified in 10 CFR 71.47 at any time during transportation; and

~~10. For a package transported in exclusive use by rail, highway or water, radiation levels external to the package may exceed the limits specified in subdivision 9 of this section, but shall not exceed any of the following:~~

~~a. 2 millisievert per hour (200 mrem/hr) on the accessible external surface of the package unless the following conditions are met, in which case the limit is 10 millisievert per hour (1000 mrem/hr);~~

~~(1) The shipment is made in a closed transport vehicle;~~

~~(2) Provisions are made to secure the package so that its position within the vehicle remains fixed during transportation; and~~

~~(3) There are no loading or unloading operations between the beginning and end of the transportation.~~

~~b. Two millisievert per hour (200 mrem/hr) at any point on the outer surface of the vehicle, including the top and underside of the vehicle, or, in the case of a flat bed style vehicle, with a personnel barrier, at any point on the vertical planes projected from the outer edges of the vehicle, on the upper surface of the load (or enclosure, if used), and on the lower external surface of the vehicle;~~

~~c. 0.1 millisievert per hour (10 mrem/hr) at any point two meters from the vertical planes represented by the outer lateral surfaces of the vehicle, or, in the case of a flat bed style vehicle, at any point two meters from the vertical planes projected from the outer edges of the vehicle; and~~

~~d. 0.02 millisievert per hour (2 mrem/hr) in any normally occupied positions of the vehicle, except that this provision does not apply to private motor carriers when persons occupying these positions are provided with special health supervision, personnel radiation exposure monitoring devices, and training in accordance with 12VAC5-481-2270; and~~

~~11. A package must be prepared for transport so that in still air at 38°C (100°F) and in the shade, no accessible surface of a package would have a temperature exceeding 50°C (122°F) in a nonexclusive use shipment or 85°C (185°F) in an exclusive use shipment. Accessible package surface temperatures shall not exceed these limits at any time during transportation.~~

~~12. A package may not incorporate a feature intended to allow continuous venting during transport.~~

11. Accessible package surface temperatures will not exceed the limits specified in 10 CFR 71.43(g) at any time during transportation.

12VAC5-481-3090. Air transport of plutonium.

Notwithstanding the provisions of any general licenses and notwithstanding any exemptions stated directly in this part or included indirectly by citation of the ~~United States Department of Transportation~~ DOT regulations, as may be applicable, the licensee shall assure that plutonium in any form is not transported by air, or delivered to a carrier for air transport, unless:

1. The plutonium is contained in a medical device designed for individual human application;

2. The plutonium is contained in a material in which the specific activity is ~~not greater than 70 becquerel per gram (0.002 %v(508)%E2%vCi/g/gm) of material~~ less than or equal to the activity concentration values for plutonium specified in Table A-2 of 12VAC5-481-3770 and in which the radioactivity is essentially uniformly distributed;

3. The plutonium is shipped in a single package containing no more than an A_2 quantity of plutonium in any isotope or form and is shipped in accordance with 12VAC5-481-2980;

4. The plutonium is shipped in a package specifically authorized, in the ~~certificate of compliance~~ CoC, issued by the ~~Nuclear Regulatory Commission~~ NRC, for the shipment of plutonium by air and the licensee requires, through special arrangement with the carrier, compliance with 49 CFR 175.704, the ~~United States Department of Transportation~~ DOT regulations applicable to the air transport of plutonium.

12VAC5-481-3091. Opening instructions.

Before delivery of a package to a carrier for transport, the licensee shall ensure that any special instructions needed to safely open the package have been sent to, or otherwise made available to, the consignee for the consignee's use in accordance with 12VAC5-481-900.

12VAC5-481-3110. Reports.

The licensee shall report to the agency within 30 days:

1. Any instance in which there is significant reduction in the effectiveness of any packaging during use;

2. Details of any defects with safety significance in the packaging after first use, with the means employed to repair the defects and prevent their recurrence; or

3. Instances in which the conditions of approval in the ~~certificate of compliance~~ CoC were not observed in making a shipment.

12VAC5-481-3120. Advance notification of transport of nuclear waste.

A. Prior to the transport of any nuclear waste outside of the confines of the licensee's facility or other place of use or storage, or prior to the delivery of any nuclear waste to a carrier for transport, each licensee shall provide advance notification of such transport to the governor, or governor's designee, ~~of each state within or through which the waste will be transported~~ and the agency.

B. Advance notification is required only when:

1. The nuclear waste is required to be in Type B packaging for transportation;

2. The nuclear waste is being transported ~~into, within, or~~ through ~~a state~~ Virginia enroute to a disposal facility or to a collection point for transport to a disposal facility; and

3. The quantity of licensed material in a single package exceeds:

a. 3000 times the ~~A1~~ A_1 value of the radionuclides as specified in ~~Table A-1 of Appendix A to Part 71 - Determination of A_1 and A_2 (10 CFR 71, 69 FR 3800, January 26, 2004) for special form radioactive material~~ 12VAC5-481-3770;

b. 3000 times the ~~A2~~ A_2 value of the radionuclides as specified in ~~Table A-1 of Appendix A to Part 71 - Determination of A_1 and A_2 (10 CFR 71, 69 FR 3800, January 26, 2004) for normal form radioactive material~~ 12VAC5-481-3770; or

c. 1000 terabecquerel ~~(27,000 Ci)~~ (27,000 curies).

C. Each advance notification required by subsection A of this section shall contain the following information:

1. The name, address, and telephone number of the shipper, carrier, and receiver of the shipment;

2. A description of the nuclear waste contained in the shipment as required by 49 CFR 172.202 and 172.203(d);

3. The point of origin of the shipment and the seven-day period during which departure of the shipment is estimated to occur;

4. The seven-day period during which arrival of the shipment at state boundaries is estimated to occur;

5. The destination of the shipment, and the seven-day period during which arrival of the shipment is estimated to occur; and

6. A point of contact with a telephone number for current shipment information.

D. The notification required by subsection A of this section shall be made in writing to the office of ~~each appropriate~~ the governor, or governor's designee, and to the agency. A notification delivered by mail must be postmarked at least seven days before the beginning of the seven-day period during which departure of the shipment is estimated to occur. A notification delivered by messenger must reach the office of the governor, or governor's designee and the agency, at least four days before the beginning of the seven-day period during which departure of the shipment is estimated to occur. A copy of the notification shall be retained by the licensee for three years.

E. The licensee shall notify ~~each appropriate~~ the governor, or governor's designee, and the agency of any changes to schedule information provided pursuant to subsection A of this section. Such notification shall be by telephone to a responsible individual in the office of the governor, or governor's designee, ~~of the appropriate state or states~~ and the agency. The licensee shall maintain for three years a record of the name of the individual contacted.

F. Each licensee who cancels a nuclear waste shipment, for which advance notification has been sent, shall send a cancellation notice, identifying the advance notification that is being canceled, to the governor, or governor's designee, ~~of each appropriate state~~ and to the agency. A copy of the notice shall be retained by the licensee for three years.

Article 5
Quality Assurance

12VAC5-481-3130. Quality assurance ~~requirements~~.

~~A. Unless otherwise authorized by the agency, each licensee shall establish, maintain, and execute a quality assurance program to verify by procedures such as checking, auditing, and inspection that deficiencies, deviations, and defective material and equipment relating to the shipment of packages containing radioactive material are promptly identified and corrected.~~

~~B. The licensee shall identify the material and components to be covered by the quality assurance program.~~

~~C. Each licensee shall document the quality assurance program by written procedures or instructions and shall carry out the program in accordance with those procedures throughout the period during which packaging is used.~~

~~D. Prior to the use of any package for the shipment of radioactive material, each licensee shall obtain approval by the agency of its quality assurance program.~~

~~E. The licensee shall maintain sufficient written records to demonstrate compliance with the quality assurance program. Records of quality assurance pertaining to the use of a package for shipment of radioactive material shall be maintained for a period of three years after shipment.~~

A. Quality assurance requirements apply to the design, purchase, fabrication, handling, shipping, storing, cleaning, assembly, inspection, testing, operation, maintenance, repair, and modification of components of packaging that are important to safety. Quality assurance comprises all those planned and systematic actions necessary to provide adequate confidence that a system or component will perform satisfactorily in service. Quality assurance includes quality control, which comprises those quality assurance actions related to control of the physical characteristics and quality of the material or component to predetermined requirements. The licensee, certificate holder, and applicant for a CoC are responsible for the quality assurance requirements as they apply to design, fabrication, testing, and modification of packaging. Each licensee is responsible for the quality assurance provision that applies to its use of packaging for the shipment of licensed material subject to this chapter.

B. Each licensee, certificate holder and applicant for a CoC shall establish, maintain, and execute a quality assurance program satisfying each of that applicable criteria of this section, 10 CFR Part 71, Subpart H and satisfying any specific provisions that are applicable to the licensee's activities including procurement of packaging. The licensee, certificate holder, and applicant for CoC shall execute the applicable criteria in a graded approach to an extent that is commensurate with the quality assurance requirement's importance to safety.

C. Before the use of any package for the shipment of licensed material subject to this rule, each licensee shall obtain NRC approval of its quality assurance program.

D. A program for transport container inspection and maintenance limited to radiographic exposure devices, source changers, or packages transporting these devices and meeting the requirements of 12VAC5-481-1270, is deemed to satisfy the requirements of 12VAC5-481-3000 and subsection B of this section.

E. The licensee, certificate holder, and applicant for a CoC shall be responsible for the establishment and execution of the quality assurance program. The licensee, certificate holder, and applicant for a CoC may delegate to others, such as contractors, agents, or consultants, the work of establishing and executing the quality assurance program, or any part of the quality assurance program, but shall retain responsibility for the program. The licensee shall clearly establish and delineate, in writing, the authority and duties of persons and organizations performing activities affecting the safety-related functions of structures, systems, and components. These activities include performing the functions associated with attaining quality objectives and the quality assurance functions. While the term licensee is used in these criteria, the requirements are applicable to whatever design, fabrication, assembly, and testing of the package is accomplished with respect to a package before the time a package is issued.

F. The quality assurance functions are:

1. Assuring that an appropriate quality assurance program is established and effectively executed; and

2. Verifying, by procedures such as checking, auditing, and inspection, that activities affecting the safety-related functions have been performed correctly.

G. The persons and organizations performing quality assurance functions must have sufficient authority and organizational freedom to:

1. Identify quality problems;

2. Initiate, recommend, or provide solutions; and

3. Verify implementation of solutions.

Part XIV
Radiation Safety Requirements for Wireline Service Operations and Subsurface Tracer Studies

Article 1
Purpose and Scope

12VAC5-481-3140. Purpose.

The regulations in this part establish radiation safety requirements for using sources of radiation for wireline service operations including mineral-logging, radioactive markers, and subsurface tracer studies. The requirements of this part are in addition to, and not in substitution for, the requirements of Parts I (12VAC5-481-10 et seq.), II (12VAC5-481-260 et seq.), III (12VAC5-481-380 et seq.), ~~IX (12VAC5-481-2140 et seq.),~~ IV (12VAC5-481-600 et seq.), and X (12VAC5-481-2250 et seq.) of this chapter.

12VAC5-481-3151. Licensing.

A. The agency will approve an application for a specific license for the use of licensed material in well logging if the applicant meets the following requirements:

1. The applicant satisfies the general requirements specified in 12VAC5-481-440 and 12VAC5-481-450.

2. The applicant shall develop a program for training logging supervisors and logging assistants and submit to the agency a description of this program that specifies:

a. Initial training;

b. On-the-job training;

c. Annual safety reviews provided by the licensee;

d. Means the applicant will use to demonstrate the logging supervisor's knowledge and understanding of and

ability to comply with the agency's regulations and licensing requirements and the applicant's operating and emergency procedures; and

e. Means the applicant will use to demonstrate the logging assistant's knowledge and understanding of and ability to comply with the applicant's operating and emergency procedures.

3. The applicant shall submit to the agency written operating and emergency procedures as described in 12VAC5-481-3280 or an outline or summary of the procedures that includes the important radiation safety aspects of the procedures.

4. The applicant shall establish and submit to the agency its program for annual inspections of the job performance of each logging supervisor to ensure that the agency's regulations, license requirements, and the applicant's operating and emergency procedures are followed. Inspection records shall be retained for three years after each annual internal inspection.

5. The applicant shall submit a description of its overall organizational structure as it applies to the radiation safety responsibilities in well logging, including specified delegations of authority and responsibility.

6. If an applicant wants to perform leak testing of sealed sources, the applicant shall identify the manufacturers and the model numbers of the leak test kits to be used. If the applicant wants to analyze its own wipe samples, the applicant shall establish procedures to be followed and submit a description of these procedures to the agency. The description must include the following:

a. Instruments to be used;

b. Methods of performing the analysis; and

c. Pertinent experience of the person who will analyze the wipe samples.

12VAC5-481-3160. ~~Prohibition~~ Agreement with well owner.

No licensee shall perform wireline service operations with a sealed source(s) unless, prior to commencement of the operation, the licensee has a written agreement with the ~~well operator~~ well operator, ~~well owner~~ well owner, drilling contractor, or land owner that:

1. In the event a sealed source is lodged downhole, a reasonable effort at recovery will be made; ~~and~~

2. No person may attempt to recover a sealed source in a manner which, in the licensee's opinion, could result in its rupture; and

~~2.~~ 3. In the event a decision is made to abandon the sealed source downhole, the requirements of 12VAC5-481-3370 C shall be met.

12VAC5-481-3200. Radiation survey instruments.

A. The licensee or registrant shall maintain sufficient calibrated and operable radiation survey instruments at each field station to make physical radiation surveys as required by this part and by ~~12VAC5-481-640~~ Part IV (12VAC5-481-600 et seq.). Instrumentation shall be capable of measuring ~~0.1 milliroentgen (25.8 nanocoulombs/kg)~~ 0.001 mSv (0.1 mrem) per hour through at least ~~50 milliroentgens (12.9 microcoulombs/kg)~~ 0.5 mSv (50 mrem) per hour. ~~Survey instruments acquired before September 20, 2006, and capable of measuring 0.1 milliroentgen (25.8 nanocoulombs/kg) per hour through at least 20 milliroentgens (5.16 microcoulombs/kg) per hour also satisfies this requirement five years after September 20, 2006~~.

B. Each radiation survey instrument shall be calibrated:

1. At intervals not to exceed six months and after each instrument servicing;

2. For linear scale instruments, at two points located approximately 25% and 75% of full-scale on each scale; for logarithmic scale instruments, at midrange of each decade, and at two points of at least one decade; and for digital instruments, at appropriate points; and

3. So that accuracy within 20% of the true radiation level can be demonstrated on each scale.

C. Calibration records shall be maintained for a period of ~~two~~ three years ~~for inspection by the agency~~.

12VAC5-481-3210. Leak testing of sealed sources.

A. Requirements. Each licensee using sealed sources of radioactive material shall have the sources tested for leakage. Records of leak test results shall be kept in units of ~~microcuries (Bq)~~ becquerels (microcuries) and maintained for ~~inspection by the agency for six months~~ three years after the ~~next required~~ leak test is performed ~~or until transfer or disposal of the sealed source~~.

B. Method of Testing. Tests for leakage shall be performed only by persons specifically authorized to perform such tests by the agency, the ~~United States Nuclear Regulatory Commission (NRC)~~ NRC, ~~an~~ or another agreement state~~, or a licensing state~~. The test sample shall be taken from the surface of the source, source holder, or from the surface of the device in which the source is stored or mounted and on which one might expect contamination to accumulate. The test sample shall be analyzed for radioactive contamination, and the analysis shall be capable of detecting the presence of ~~0.005 microcurie (185 Bq)~~ 185 Bq (0.0005 µCi) of radioactive material on the test sample.

C. Interval of Testing. Each sealed source ~~of radioactive material~~ (except an energy compensated source (ECS)) shall be tested at intervals not to exceed six months. Each ECS that is not exempt in subsection E of this section must be tested at intervals not to exceed three years. In the absence of a certificate from a transferor indicating that a test has been made prior to the transfer, the sealed source shall not be put into use until tested. If, for any reason, it is suspected that a sealed source may be leaking, it shall be removed from service immediately and tested for leakage as soon as practical.

D. Leaking or Contaminated Sources. If the test reveals the presence of ~~0.005 microcurie (185 Bq)~~ 185 Bq (0.005 µCi) or more of leakage or contamination, the licensee shall immediately withdraw the source from use and shall cause it to be decontaminated, repaired, or disposed of in accordance with these regulations. The licensee shall check the equipment associated with the leaking source for radioactive contamination and, if contaminated, have it decontaminated or disposed of in accordance with these regulations. A report describing the equipment involved, the test results, and the corrective action taken shall be filed with the agency within five days of receiving the test results.

E. Exemptions. The following sources are exempted from the periodic leak test requirements of subsections A through D of this sectioon:

1. Hydrogen-3 sources;

2. Sources of radioactive material with a half-life of 30 days or less;

3. Sealed sources of radioactive material in gaseous form;

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

5. Sources of alpha-emitting radioactive material with an activity of ~~10 microcuries (0.370 MBq)~~ 0.37 MBq (10 µCi) or less.

12VAC5-481-3220. ~~Quarterly~~ Physical inventory.

Each licensee or registrant shall conduct a ~~quarterly~~ semi-annual physical inventory to account for all sources of radiation. Records of inventories shall be maintained for ~~two~~ three years from the date of the inventory ~~for inspection by the agency~~ and shall include the quantities and kinds of sources of radiation, the location ~~where sources of radiation are assigned,~~ the date of the inventory, and the name of the individual conducting the inventory.

12VAC5-481-3230. Utilization records.

Each licensee or registrant shall maintain current records, which shall be kept available ~~for inspection by the agency~~ for ~~two~~ three years from the date of the recorded event, showing the following information for each source of radiation:

1. Make, model number, and a serial number or a description of each source of radiation used;

2. The identity of the well-logging supervisor ~~or field unit to whom assigned~~ responsible for the source and the logging assistant present;

3. Locations where used and dates of use; and

4. In the case of tracer materials and radioactive markers, the utilization record shall indicate the radionuclide and activity used in a particular well.

12VAC5-481-3240. Design, performance, and certification criteria for sealed sources used in downhole operations.

A. Each sealed source, except those containing radioactive material in gaseous form, and ECSs used in downhole operations ~~and manufactured after one year after September 20, 2006~~, shall ~~be certified by the manufacturer, or other testing organization acceptable to the agency, to~~ meet the following minimum criteria:

1. Be of doubly encapsulated construction;

2. Contain radioactive material whose chemical and physical forms are as insoluble and nondispersible as practical; and

3. ~~Has been individually pressure tested to at least 24,656 pounds per square inch absolute (170 MN/m^2) without failure.~~ Certified by one of the following methods:

a. 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 subdivision 3 b or c of this subsection;

b. For a sealed source manufactured after July 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"; or

c. 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:

(1) Temperature. The test source must be held at -40°C for 20 minutes, 600°C for 1 hour, and then be subject to a thermal shock test with a temperature drop from 600°C to 20°C within 15 seconds.

(2) 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.

(3) Vibrations test. The test source must be subject to a vibration from 25 Hz to 500 Hz at 5 g amplitude for 30 minutes.

(4) 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.

(5) Pressure test. The test source must be subject to an external pressure of 1.695×10^7 pascals (24,600 pounds per square inch absolute).

~~B. For sealed sources, except those containing radioactive material in gaseous form, acquired after one year after September 20, 2006, in the absence of a certificate from a transferor certifying that an individual sealed source meets the requirements of 12VAC5-481-3240, the sealed source shall not be put into use until such determinations and testing have been performed.~~

~~C. Each sealed source, except those containing radioactive material in gaseous form, used in downhole operations after two years after September 20, 2006, shall be certified by the manufacturer, or other testing organization acceptable to the agency, as meeting the sealed source performance requirements for oil well logging as contained in the American National Standard N43.6, "Classification of Sealed Radioactive Sources," (formerly N542, ANSI/NBS 126) in effect on September 20, 2006.~~

~~D.~~ B. Certification documents shall be maintained for inspection by the agency for a period of two years after source disposal. If the source is abandoned downhole, the certification documents shall be maintained until the agency authorizes disposition.

C. Energy Compensated Source (ECS). Licensee use of an ECS, which may contain no greater than 3.7 MBq (100 µCi), is exempt from this part, except the following:

1. For well-logging applications with a surface casing for protecting fresh water aquifers, use of the ECS is only subject to the requirements of 12VAC5-481-3210, 12VAC5-481-3220 and 12VAC5-481-3230.

2. For well-logging applications without a surface casing for protecting fresh water aquifers, use of the ECS is only subject to the requirements of 12VAC5-481-3160, 12VAC5-481-3210, 12VAC5-481-3220, 12VAC5-481-3230, subsection D of this section and 12VAC5-481-3370.

3. ECSs must be registered with the NRC under 10 CFR 32.210 or with an agreement state.

D. Use of a sealed source in a well without a surface casing. The licensee may use a sealed source in a well without a surface casing for protecting fresh water aquifers only if the licensee follows a procedure for reducing the probability of the source becoming lodged in the well. The procedure must be approved by the agency pursuant to 12VAC5-481-3151 A 3.

12VAC5-481-3241. Tritium neutron generator target sources.

A. Use of a tritium neutron generator target source, containing quantities not exceeding 1,110 GBg (30 curies) and in a well with a surface casing to protect fresh water aquifers, is subject to the requirements of this part except 12VAC5-481-3160, 12VAC5-481-3240 and 12VAC5-481-3370.

B. Use of a tritium neutron generator target source, containing quantities exceeding 1,110 GBg (30 curies) or in a well without a surface casing to protect fresh water aquifers, is subject to the requirements of this part except 12VAC5-481-3240.

12VAC5-481-3250. Labeling.

A. Each source, source holder, or logging tool containing radioactive material shall bear a durable, legible, and clearly visible marking or label, that has, as a minimum, the standard radiation caution symbol, without the conventional color requirement, and the following wording:

DANGER or CAUTION

RADIOACTIVE MATERIAL

This labeling shall be on the smallest component transported as a separate piece of equipment.

B. Each transport container shall have permanently attached to it a durable, legible, and clearly visible label which has, as a minimum, the standard radiation caution symbol and the following wording:

DANGER or CAUTION

RADIOACTIVE MATERIAL

NOTIFY CIVIL AUTHORITIES (OR NAME OF COMPANY)

C. Uranium sinker bars used in well-logging applications shall be legibly impressed with the following words:

CAUTION

RADIOACTIVE DEPLETED URANIUM

NOTIFY CIVIL AUTHORITIES (OR NAME OF COMPANY) IF FOUND

12VAC5-481-3260. Inspection and maintenance.

A. Each licensee shall visually check source holders, logging tools, and source handling tools, for defects before each use to ensure that the equipment is in good working condition and that required labeling is present. If defects are found, the equipment must be removed from service until

repaired, and a record must be made listing: the date of check, name of inspector, equipment involved, defects found, and repairs made. These records must be retained for three years after the defect is found.

~~A~~ B. Each licensee or registrant shall conduct, at intervals not to exceed six months, a program of inspection and maintenance of source holders, logging tools, source handling tools, storage containers, transport containers, and injection tools to assure proper labeling and physical condition. Records of inspection and maintenance shall be maintained for a period of ~~two~~ three years ~~for inspection by the agency~~.

~~B.~~ C. If any inspection conducted pursuant to subsection ~~A~~ B of this section reveals damage to labeling or components critical to radiation safety, the device shall be removed from service until repairs have been made.

~~C.~~ D. If a sealed source is stuck in the source holder, the licensee shall not perform any operation, such as drilling, cutting, or chiseling, on the source holder unless the licensee is specifically approved by the agency, ~~Nuclear Regulatory Commission~~ NRC, ~~an~~ or another agreement state~~, or a licensing state~~ to perform this operation.

~~D.~~ E. The repair, opening, or modification of any sealed source shall be performed only by persons specifically authorized to do so by the agency, the ~~Nuclear Regulatory Commission~~ NRC, ~~an~~ or another agreement state~~, or a licensing state~~.

12VAC5-481-3261. Radioactive markers.

The licensee may use radioactive markers in wells only if the individual markers contain quantities of licensed material not exceeding the quantities specified in 12VAC5-481-3730. The use of markers is subject only to the requirements of 12VAC5-481-3220.

Article 4
Requirements for Personal Safety

12VAC5-481-3270. Training requirements.

A. No licensee ~~or registrant~~ shall permit any individual to act as a logging supervisor as defined in this part until such individual has:

1. Received~~, in a course recognized by the agency, the Nuclear Regulatory Commission, an agreement state, or a licensing state,~~ instruction in the ~~subjects outlined in section 39.61(e)(1)(vi) of Part 39 Licenses and Radiation Safety Requirements for Well Logging (10 CFR Part 39, 52 FR 8234, March 17, 1987)~~ following and demonstrated an understanding thereof~~;~~ :

a. Fundamentals of radiation safety including:

(1) Characteristics of radiation;

(2) Units of radiation dose and quantity of radioactivity;

(3) Hazards of exposure to radiation;

(4) Levels of radiation from licensed material;

(5) Methods of controlling radiation dose (time, distance, and shielding); and

(6) Radiation safety practices, including prevention of contamination, and methods of decontamination;

b. Radiation detection instruments including:

(1) Use, operation, calibration, and limitations of radiation survey instruments;

(2) Survey techniques; and

(3) Use of personnel monitoring equipment;

c. Equipment to be used including:

(1) Operation of equipment, including source handling equipment and remote handling tools;

(2) Storage, control, and disposal of licensed material; and

(3) Maintenance of equipment;

d. The requirements of pertinent Virginia regulations; and

e. Case histories of accidents in well logging;

2. ~~Read and received~~ Received copies of and instruction in the regulations contained in this part and the applicable sections of Parts I (12VAC5-481-10 et seq.), IV (12VAC5-481-600 et seq.), and X (12VAC5-481-2250 et seq.) of this chapter or their equivalent, conditions of appropriate license ~~or certificate of registration~~, and the licensee's ~~or registrant's~~ operating and emergency procedures, and demonstrated an understanding thereof; ~~and~~

3. Demonstrated competence to use sources of radiation, related handling tools, and radiation survey instruments which will be used on the job by a field evaluation; and

4. Demonstrated understanding of subdivisions 1 and 2 of this subsection by successfully passing a written test.

B. No licensee or registrant shall permit any individual to ~~assist in the handling of sources of radiation~~ act as a logging assistant until such individual has:

1. Received instruction in the applicable sections of Parts I (12VAC5-481-10 et seq.), IV (12VAC5-481-600 et seq.) and X (12VAC5-481-2250 et seq.) of this chapter or their equivalent;

~~1. Read or received~~ 2. Received copies of, and instruction in the licensee's ~~or registrant's~~ operating and emergency procedures ~~and demonstrated an understanding thereof~~; ~~and~~

3. Demonstrated understanding of subdivisions 1 and 2 of this subsection by successfully passing a written or oral test; and

~~2.~~ 4. Demonstrated competence to use, under the personal supervision of the logging supervisor, the sources of radiation, related handling tools, and radiation survey instruments that will be used on the job.

C. The licensee shall provide safety reviews at least once during each calendar year.

~~C.~~ D. The licensee ~~or registrant~~ shall maintain employee training records for ~~inspection by the agency for two~~ three years following termination of the individual's employment.

12VAC5-481-3290. Personnel monitoring.

A. No licensee ~~or registrant~~ shall permit any individual to act as a logging supervisor or ~~to assist in the handling of sources of radiation~~ a logging assistant unless each such individual wears either a film badge ~~or a thermoluminescent dosimeter (TLD)~~, OSL or TLD. Each film badge, OSL or TLD shall be assigned to and worn by only one individual. Film badges must be replaced at least monthly and OSLs or TLDs replaced at least quarterly. After replacement, each film badge, OSL or TLD must be promptly processed.

B. Personnel monitoring records shall be maintained for inspection until the agency authorizes disposition.

Article 5
Precautionary Procedures in Logging and Subsurface Tracer Studies

12VAC5-481-3300. Security.

~~During each logging or tracer application, the logging supervisor or other designated employee shall maintain direct surveillance of the operation to protect against unauthorized or unnecessary entry into a restricted area, as defined in Part I (12VAC5-481-10 et seq.) of this chapter.~~

A. A logging supervisor must be physically present at a temporary job site whenever licensed materials are being handled or are not stored and locked in a vehicle or storage place. The logging supervisor may leave the job site to obtain assistance if a source becomes lodged in a well.

B. During well logging, except when radiation sources are below ground or in shipping or storage containers, the logging supervisor or other individual designated by the logging supervisor must maintain direct surveillance of the operation to prevent unauthorized entry into a restricted area as defined in 12VAC5-481-10.

12VAC5-481-3340. Radiation surveys and contamination control.

A. Radiation surveys or calculations shall be made and recorded for each area where radioactive materials are used and stored.

B. Radiation surveys shall be made and recorded for the radiation levels in occupied positions and on the exterior of each vehicle used to transport radioactive material. Such surveys shall include each source of radiation or combination of sources to be transported in the vehicle.

C. If the sealed source assembly is removed from the logging tool before departing the jobsite, the logging tool detector shall be energized, or a survey meter used, to assure that the logging tool is free of contamination.

D. Radiation surveys shall be made and recorded at the jobsite or well-head for each tracer operation, except those using hydrogen-3, carbon-14, and sulfur-35. These surveys shall include measurements of radiation levels before and after the operation.

E. Records required pursuant to subsections A through D of this section shall include the dates, the identification of individual(s) making the survey, the identification of survey instrument(s) used, and an exact description of the location of the survey. Records of these surveys shall be maintained for ~~inspection by the agency for two~~ three years after completion of the survey.

F. If the licensee detects evidence that a sealed source has ruptured or licensed materials have caused contamination, the licensee shall initiate immediately the emergency procedures required by 12VAC5-481-3280 and contact the agency immediately.

G. During efforts to recover a sealed source lodged in the well, the licensee shall continuously monitor, with an appropriate radiation detection instrument or a logging tool with a radiation detector, the circulating fluids from the well, if any, to check for contamination resulting from damage to the sealed source.

H. If contamination results from the use of licensed material in well logging, the licensee shall decontaminate all work area equipment and personnel before release from the site or release for unrestricted use.

12VAC5-481-3350. Documents and records required at field stations.

Each licensee ~~or registrant~~ shall maintain~~, for inspection by the agency,~~ the following documents and records for the specific devices and sources used at the field station:

1. Appropriate license, certificate of registration, or equivalent document(s);

2. Operating and emergency procedures;

3. ~~Applicable regulations~~ Copy of Part IV (12VAC5-481-600 et seq.), Part X (12VAC5-481-2250 et seq.) and this part;

4. Records of the latest survey instrument calibrations pursuant to 12VAC5-481-3200;

5. Records of the latest leak test results pursuant to 12VAC5-481-3210;

6. Records of ~~quarterly~~ physical inventories required pursuant to 12VAC5-481-3220;

7. Utilization records required pursuant to 12VAC5-481-3230;

8. Records of inspection and maintenance required pursuant to 12VAC5-481-3260;

9. Survey records required pursuant to 12VAC5-481-3340; and

10. Training records required pursuant to 12VAC5-481-3270.

12VAC5-481-3400. General technical requirements for facilities using therapeutic radiation machines.

A. ~~Protection surveys~~ Surveys.

1. The registrant shall ensure that radiation ~~protection~~ surveys of all new facilities, and existing facilities not previously surveyed are performed with an operable radiation measurement survey instrument calibrated in accordance with 12VAC5-481-3440. The radiation ~~protection~~ survey shall be performed by, or under the direction of, a radiation therapy physicist or a private inspector and shall verify that, with the therapeutic radiation machine in a "BEAM-ON" condition, with the largest clinically available treatment field and with a scattering phantom in the useful beam of radiation:

a. Radiation levels in restricted areas are not likely to cause personnel exposures in excess of the limits specified in 12VAC5-481-640 ~~A~~; and

b. Radiation levels in unrestricted areas do not exceed the limits specified in 12VAC5-481-720 ~~A and B~~.

2. In addition to the requirements of 12VAC5-481-3400 A 1, a radiation ~~protection~~ survey shall also be performed prior to any subsequent medical use and:

a. After making any change in the treatment room shielding;

b. After making any change in the location of the therapeutic radiation machine within the treatment room;

c. After relocating the therapeutic radiation machine; or

d. Before using the therapeutic radiation machine in a manner that could result in increased radiation levels in areas outside the external beam radiation therapy treatment room.

3. The survey record shall indicate all instances where the facility, in the opinion of the radiation therapy physicist or a private inspector, is in violation of applicable regulations. The survey record shall also include: the date of the measurements; the reason the survey is required; the manufacturer's name; the model number and serial number of the therapeutic radiation machine; the instrument(s) used to measure radiation levels; a plan of the areas surrounding the treatment room that were surveyed; the measured dose rate at several points in each area expressed in microsieverts or millirems per hour; the calculated maximum level of radiation over a period of one week for each restricted and unrestricted area; and the signature of the individual responsible for conducting the survey;

4. If the results of the surveys required by subdivision 1 or 2 of this subsection indicate any radiation levels in excess of the respective limit specified in subdivision 1 of this subsection, the registrant shall lock the control in the "OFF" position and not use the unit:

a. Except as may be necessary to repair, replace, or test the therapeutic radiation machine, the therapeutic radiation machine shielding, or the treatment room shielding; or

b. Until the registrant has received a specific exemption from the agency.

B. Modification of radiation therapy unit or room before beginning a treatment program. If the survey required by subsection A of this section indicates that an individual in an unrestricted area may be exposed to levels of radiation greater than those permitted by 12VAC5-481-720 ~~A and B~~, before beginning the treatment program the registrant shall:

1. Either equip the unit with beam direction interlocks or add additional radiation shielding to ensure compliance with 12VAC5-481-720 ~~A and B~~;

2. Perform the survey required by subsection A of this section again; and

3. Include in the report required by subsection D of this section the results of the initial survey, a description of the modification made to comply with subdivision 1 of this subsection, and the results of the second survey; or

4. Request and receive a registration amendment under 12VAC5-481-720 ~~C~~ that authorizes radiation levels in unrestricted areas greater than those permitted by 12VAC5-481-720 ~~A and B~~.

C. Dosimetry equipment.

1. The registrant shall have a calibrated dosimetry system available for use. The system shall have been calibrated by the National Institute for Standards and Technology

(NIST) or by an American Association of Physicists in Medicine (AAPM) Accredited Dosimetry Calibration Laboratory (ADCL). The calibration shall have been performed within the previous 24 months and after any servicing that may have affected system calibration.

a. For beams with energies greater than one MV (1 MeV), the dosimetry system shall have been calibrated for Cobalt-60;

b. For beams with energies equal to or less than one MV (1 MeV), the dosimetry system shall have been calibrated at an energy (energy range) appropriate for the radiation being measured;

2. The registrant shall have available for use a dosimetry system for quality assurance check measurements. To meet this requirement, the system may be compared with a system that has been calibrated in accordance with subdivision C 1 of this section. This comparison shall have been performed within the previous 12 months and after each servicing that may have affected system calibration. The quality assurance check system may be the same system used to meet the requirement in subdivision C 1 of this section;

3. The registrant shall maintain a record of each dosimetry system calibration, intercomparison, and comparison for the duration of the license and/or registration. For each calibration, intercomparison, or comparison, the record shall include: the date; the model numbers and serial numbers of the instruments that were calibrated, inter-compared, or compared as required by subdivisions C 1 and 2 of this section; the correction factors that were determined; the names of the individuals who performed the calibration, intercomparison, or comparison; and evidence that the intercomparison was performed by, or under the direct supervision and in the physical presence of, a radiation therapy physicist.

D. Reports of external beam radiation therapy surveys and measurements. The registrant for any therapeutic radiation machine subject to 12VAC5-481-3420 or 12VAC5-481-3430 shall furnish a copy of the records required in subsections A and B of this section to the agency within 30 days following completion of the action that initiated the record requirement.

12VAC5-481-3430. Therapeutic radiation machines -- photon therapy systems (500 kV and above) and electron therapy systems (500 kV and above).

A. Possession of survey instrument(s). Each facility location authorized to use a therapeutic radiation machine in accordance with this section shall possess appropriately calibrated portable monitoring equipment. As a minimum, such equipment shall include a portable radiation measurement survey instrument capable of measuring dose rates over the range 10 mSv (1 mrem) per hour to 10 mSv (1000 mrem) per hour. The survey instrument(s) shall be operable and calibrated in accordance with 12VAC5-481-3440.

B. Leakage radiation outside the maximum useful beam in photon and electron modes.

1. The absorbed dose due to leakage radiation (excluding neutrons) at any point outside the maximum sized useful beam, but within a circular plane of radius two meters which is perpendicular to and centered on the central axis of the useful beam at the nominal treatment distance (i.e. patient plane), shall not exceed a maximum of 0.2% and an average of 0.1% of the absorbed dose on the central axis of the beam at the nominal treatment distance. Measurements shall be averaged over an area not exceeding 100 square centimeters at a minimum of 16 points uniformly distributed in the plane;

2. Except for the area defined in subdivision 1 of this subsection, the absorbed dose due to leakage radiation (excluding neutrons) at one meter from the electron path between the electron source and the target or electron window shall not exceed 0.5% of the absorbed dose on the central axis of the beam at the nominal treatment distance. Measurements shall be averaged over an area not exceeding 100 square centimeters;

3. For equipment manufactured after September 20, 2006, the neutron absorbed dose outside the useful beam shall be in compliance with International Electrotechnical Commission (IEC) Document 601-2-1 (most current revision); and

4. For each therapeutic radiation machine, the registrant shall determine, or obtain from the manufacturer, the leakage radiation existing at the positions specified in subdivisions 1 through 3 of this subsection for the specified operating conditions. Records on leakage radiation measurements shall be maintained at the installation for inspection by the agency.

C. Leakage radiation through beam limiting devices.

1. Photon radiation. All adjustable or interchangeable beam limiting devices shall attenuate the useful beam such that at the nominal treatment distance, the maximum absorbed dose anywhere in the area shielded by the beam limiting device(s) shall not exceed 2.0% of the maximum absorbed dose on the central axis of the useful beam measured in a 10 centimeter by 10 centimeter radiation field, or for multileaf collimators, shall not exceed manufacturer's specifications;

2. Electron radiation. All adjustable or interchangeable electron applicators shall attenuate the radiation, including but not limited to photon radiation generated by electrons incident on the beam limiting device and electron applicator and other parts of the radiation head, such that

the absorbed dose in a plane perpendicular to the central axis of the useful beam at the nominal treatment distance shall not exceed:

a. A maximum of 2.0% and average of 0.5% of the absorbed dose on the central axis of the useful beam at the nominal treatment distance. This limit shall apply beyond a line seven centimeters outside the periphery of the useful beam; and

b. A maximum of 10% of the absorbed dose on the central axis of the useful beam at the nominal treatment distance. This limit shall apply beyond a line two centimeters outside the periphery of the useful beam.

3. Measurement of leakage radiation.

a. Photon radiation. Measurements of leakage radiation through the beam limiting devices shall be made with the beam limiting devices closed and any residual aperture blocked by at least two-tenth value layers of suitable absorbing material. In the case of overlapping beam limiting devices, the leakage radiation through each set shall be measured independently at the depth of maximum dose. Measurements shall be made using a radiation detector of area not exceeding 10 square centimeters;

b. Electron radiation. Measurements of leakage radiation through the electron applicators shall be made with the electron beam directed into the air and using a radiation detector of area up to but not exceeding one square centimeter suitably protected against radiation which has been scattered from material beyond the radiation detector. Measurements shall be made using one centimeter of water equivalent build up material.

D. Filters/wedges.

1. Each wedge filter that is removable from the system shall be clearly marked with an identification number. For removable wedge filters, the nominal wedge angle shall appear on the wedge or wedge tray (if permanently mounted to the tray). If the wedge or wedge tray is significantly damaged, the wedge transmission factor shall be redetermined;

2. If the absorbed dose rate information required by subsection I of this section relates exclusively to operation with a field flattening filter or beam scattering foil in place, such foil or filter shall be removable only by the use of tools;

3. For equipment manufactured after September 20, 2006, that utilizes wedge filters, interchangeable field flattening filters, or interchangeable beam scattering foils:

a. Irradiation shall not be possible until a selection of a filter or a positive selection to use "no filter" has been made at the treatment control panel, either manually or automatically;

b. An interlock system shall be provided to prevent irradiation if the filter selected is not in the correct position;

c. A display shall be provided at the treatment control panel showing the wedge filter(s), interchangeable field flattening filter(s), and/or interchangeable beam scattering foil(s) in use; and

d. An interlock shall be provided to prevent irradiation if any filter and/or beam scattering foil selection operation carried out in the treatment room does not agree with the filter and/or beam scattering foil selection operation carried out at the treatment control panel.

E. Stray radiation in the useful beam. For equipment manufactured after September 20, 2006, the registrant shall determine during acceptance testing, or obtain from the manufacturer, data sufficient to ensure that X-ray stray radiation in the useful electron beam, absorbed dose at the surface during X-ray irradiation and stray neutron radiation in the useful X-ray beam are in compliance with International Electrotechnical Commission (IEC) Document 601-2-1 (most current revision).

F. Beam monitors. All therapeutic radiation machines subject to this section shall be provided with redundant beam monitoring systems. The sensors for these systems shall be fixed in the useful beam during treatment to indicate the dose monitor unit rate.

1. Equipment manufactured after September 20, 2006, shall be provided with at least two independently powered integrating dose meters. Alternatively, common elements may be used if the production of radiation is terminated upon failure of any common element.

2. Equipment manufactured on or before September 20, 2006, shall be provided with at least one radiation detector. This detector shall be incorporated into a useful beam monitoring system;

3. The detector and the system into which that detector is incorporated shall meet the following requirements:

a. Each detector shall be removable only with tools and, if movable, shall be interlocked to prevent incorrect positioning;

b. Each detector shall form part of a beam monitoring system from whose readings in dose monitor units the absorbed dose at a reference point can be calculated;

c. Each beam monitoring system shall be capable of independently monitoring, interrupting, and terminating irradiation; and

d. For equipment manufactured after September 20, 2006, the design of the beam monitoring systems shall ensure that the:

(1) Malfunctioning of one system shall not affect the correct functioning of the other system(s); and

(2) Failure of either system shall terminate irradiation or prevent the initiation of radiation.

e. Each beam monitoring system shall have a legible display at the treatment control panel. For equipment manufactured after September 20, 2006, each display shall:

(1) Maintain a reading until intentionally reset;

(2) Have only one scale and no electrical or mechanical scale multiplying factors;

(3) Utilize a design such that increasing dose is displayed by increasing numbers; and

(4) In the event of power failure, the beam monitoring information required in subdivision 3 e (3) of this subsection displayed at the control panel at the time of failure shall be retrievable in at least one system for a 20 minute period of time.

G. Beam symmetry.

1. Bent-beam linear accelerators subject to this section shall be provided with auxiliary device(s) to monitor beam symmetry;

2. The device(s) referenced in subdivision 1 of this subsection shall be able to detect field asymmetry greater than 10%; and

3. The device(s) referenced in subdivision 1 of this subsection shall be configured to terminate irradiation if the specifications in subdivision 2 of this subsection cannot be maintained.

H. Selection and display of dose monitor units.

1. Irradiation shall not be possible until a new selection of a number of dose monitor units has been made at the treatment control panel;

2. The preselected number of dose monitor units shall be displayed at the treatment control panel until reset manually for the next irradiation;

3. After termination of irradiation, it shall be necessary to reset the dosimeter display before subsequent treatment can be initiated; and

4. For equipment manufactured after September 20, 2006, after termination of irradiation, it shall be necessary for the operator to reset the preselected dose monitor units before irradiation can be initiated.

I. Air kerma rate/absorbed dose rate. For equipment manufactured after September 20, 2006, a system shall be provided from whose readings the air kerma rate or absorbed dose rate at a reference point can be calculated. (The radiation detectors specified in subsection F of this section may form part of this system.) In addition:

1. The dose monitor unit rate shall be displayed at the treatment control panel;

2. If the equipment can deliver under any conditions an air kerma rate or absorbed dose rate at the nominal treatment distance more than twice the maximum value specified by the manufacturer, a device shall be provided that terminates irradiation when the air kerma rate or absorbed dose rate exceeds a value twice the specified maximum. The dose rate at which the irradiation will be terminated shall be a record maintained by the registrant;

3. If the equipment can deliver under any fault condition(s) an air kerma rate or absorbed dose rate at the nominal treatment distance more than 10 times the maximum value specified by the manufacturer, a device shall be provided to prevent the air kerma rate or absorbed dose rate anywhere in the radiation field from exceeding twice the specified maximum value and to terminate irradiation if the excess absorbed dose at the nominal treatment distance exceeds ~~four~~ 4 Gy (400 rad); and

4. For each therapeutic radiation machine, the registrant shall determine, or obtain from the manufacturer, the maximum value(s) specified in subdivisions 2 and 3 of this subsection for the specified operating conditions. Records of these maximum value(s) shall be maintained at the installation for inspection by the agency.

J. Termination of irradiation by the beam monitoring system or systems during stationary beam radiation therapy.

1. Each primary system shall terminate irradiation when the preselected number of dose monitor units has been detected by the system;

2. If the original design of the equipment included a secondary dose monitoring system, that system shall be capable of terminating irradiation when not more than 15% or 40 dose monitor units above the preselected number of dose monitor units set at the control panel has been detected by the secondary dose monitoring system; and

3. For equipment manufactured after September 20, 2006, an indicator on the control panel shall show which monitoring system has terminated irradiation.

K. Termination of irradiation. It shall be possible to terminate irradiation and equipment movement or go from an interruption condition to termination condition at any time from the operator's position at the treatment control panel.

L. Interruption of irradiation. If a therapeutic radiation machine has an interrupt mode, it shall be possible to interrupt irradiation and equipment movements at any time from the treatment control panel. Following an interruption it shall be possible to restart irradiation by operator action without any reselection of operating conditions. If any change is made of a preselected value during an interruption, irradiation and equipment movements shall be automatically terminated.

M. Timer. A suitable irradiation control device shall be provided to terminate the irradiation after a pre-set time interval.

1. A timer shall be provided which has a display at the treatment control panel. The timer shall have a pre-set time selector and an elapsed time indicator;

2. The timer shall be a cumulative timer that activates with an indication of "BEAM-ON" and retains its reading after irradiation is interrupted or terminated. After irradiation is terminated and before irradiation can be reinitiated, it shall be necessary to reset the elapsed time indicator;

3. The timer shall terminate irradiation when a preselected time has elapsed, if the dose monitoring systems have not previously terminated irradiation.

N. Selection of radiation type. Equipment capable of both X-ray therapy and electron therapy shall meet the following additional requirements:

1. Irradiation shall not be possible until a selection of radiation type (X-rays or electrons) has been made at the treatment control panel;

2. The radiation type selected shall be displayed at the treatment control panel before and during irradiation;

3. An interlock system shall be provided to ensure that the equipment can principally emit only the radiation type that has been selected;

4. An interlock system shall be provided to prevent irradiation with X-rays, except to obtain an image, when electron applicators are fitted;

5. An interlock system shall be provided to prevent irradiation with electrons when accessories specific for X-ray therapy are fitted; and

6. An interlock system shall be provided to prevent irradiation if any selected operations carried out in the treatment room do not agree with the selected operations carried out at the treatment control panel.

O. Selection of energy. Equipment capable of generating radiation beams of different energies shall meet the following requirements:

1. Irradiation shall not be possible until a selection of energy has been made at the treatment control panel;

2. The nominal energy value selected shall be displayed at the treatment control panel until reset manually for the next irradiation. After termination of irradiation, it shall be necessary to reset the nominal energy value selected before subsequent treatment can be initiated;

3. Irradiation shall not be possible until the appropriate flattening filter or scattering foil for the selected energy is in its proper location; and

4. For equipment manufactured after September 20, 2006, the selection of energy shall be in compliance with International Electrotechnical Commission (IEC) Document 601-2-1.

P. Selection of stationary beam radiation therapy or moving beam radiation therapy. Therapeutic radiation machines capable of both stationary beam radiation therapy and moving beam radiation therapy shall meet the following requirements:

1. Irradiation shall not be possible until a selection of stationary beam radiation therapy or moving beam radiation therapy has been made at the treatment control panel;

2. The mode of operation shall be displayed at the treatment control panel;

3. An interlock system shall be provided to ensure that the equipment can operate only in the mode that has been selected;

4. An interlock system shall be provided to prevent irradiation if any selected parameter in the treatment room does not agree with the selected parameter at the treatment control panel;

5. Moving beam radiation therapy shall be controlled to obtain the selected relationships between incremental dose monitor units and incremental movement. For equipment manufactured after September 20, 2006:

a. An interlock system shall be provided to terminate irradiation if the number of dose monitor units delivered in any 10 degrees of rotation or one cm of linear motion differs by more than 20% from the selected value;

b. Where angle terminates the irradiation in moving beam radiation therapy, the dose monitor units delivered shall differ by less than 5.0% from the dose monitor unit value selected;

c. An interlock shall be provided to prevent motion of more than five degrees or one cm beyond the selected limits during moving beam radiation therapy;

d. An interlock shall be provided to require that a selection of direction be made at the treatment control panel in all units that are capable of both clockwise and counter-clockwise moving beam radiation therapy.

e. Moving beam radiation therapy shall be controlled with both primary position sensors and secondary position sensors to obtain the selected relationships between incremental dose monitor units and incremental movement.

6. Where the beam monitor system terminates the irradiation in moving beam radiation therapy, the termination of irradiation shall be as required by 12VAC5-481-3430 J; and

7. For equipment manufactured after September 20, 2006, an interlock system shall be provided to terminate irradiation if movement:

a. Occurs during stationary beam radiation therapy; or

b. Does not start or stops during moving beam radiation therapy unless such stoppage is a pre-planned function.

Q. Facility design requirements for therapeutic radiation machines operating above 500 kV. In addition to shielding adequate to meet requirements of 12VAC5-481-3450, the following design requirements are made:

1. Protective barriers. All protective barriers shall be fixed, except for access doors to the treatment room or movable beam interceptors;

2. Control panel. In addition to other requirements specified in Part XV (12VAC5-481-3380 et seq.) of this chapter, the control panel shall also:

a. Be located outside the treatment room;

b. Provide an indication of whether electrical power is available at the control panel and if activation of the radiation is possible;

c. Provide an indication of whether radiation is being produced; and

d. Include an access control (locking) device that will prevent unauthorized use of the therapeutic radiation machine;

3. Viewing systems. Windows, mirrors, closed-circuit television or an equivalent viewing system shall be provided to permit continuous observation of the patient following positioning and during irradiation and shall be so located that the operator may observe the patient from the treatment control panel. The therapeutic radiation machine shall not be used for patient irradiation unless at least one viewing system is operational;

4. Aural communications. Provision shall be made for continuous aural communication between the patient and the operator at the control panel. The therapeutic radiation machine shall not be used for irradiation of patients unless continuous aural communication is possible;

5. Room entrances. Treatment room entrances shall be provided with warning lights in a readily observable position near the outside of all access doors, which will indicate when the useful beam is "ON" and when it is "OFF";

6. Entrance interlocks. Interlocks shall be provided such that all access controls are activated before treatment can be initiated or continued. If the radiation beam is interrupted by any access control, it shall not be possible to restore the machine to operation without resetting the access control and reinitiating irradiation by manual action at the control panel;

7. Beam interceptor interlocks. If the shielding material in any protective barrier requires the presence of a beam interceptor to ensure compliance with 12VAC5-481-720 ~~A and B~~, interlocks shall be provided to prevent the production of radiation, unless the beam interceptor is in place, whenever the useful beam is directed at the designated barrier(s);

8. Emergency cutoff switches. At least one emergency power cutoff switch shall be located in the radiation therapy room and shall terminate all equipment electrical power including radiation and mechanical motion. This switch is in addition to the termination switch required by subsection K of this section. All emergency power cutoff switches shall include a manual reset so that the therapeutic radiation machine cannot be restarted from the unit's control console without resetting the emergency cutoff switch;

9. Safety interlocks. All safety interlocks shall be designed so that any defect or component failure in the safety interlock system prevents or terminates operation of the therapeutic radiation machine; and

10. Surveys for residual radiation. Surveys for residual activity shall be conducted on all therapeutic radiation machines capable of generating photon and electron energies above 10 MV prior to machining, removing from treatment room, or working on therapeutic radiation machine components which may have become activated due to photo-neutron production.

R. Radiation therapy physicist support.

1. The services of a radiation therapy physicist shall be required in facilities having therapeutic radiation machines with energies of 500 kV and above. The radiation therapy physicist shall be responsible for:

a. Full calibration(s) required by subsection T of this section and ~~protection~~ surveys required by 12VAC5-481-3400 A;

b. Supervision and review of dosimetry;

c. Beam data acquisition and transfer for computerized dosimetry, and supervision of its use;

d. Quality assurance, including quality assurance check review required by subdivision U 5 of this section.

e. Consultation with the authorized user in treatment planning, as needed; and

f. Performance of calculations/assessments regarding misadministrations.

2. If the radiation therapy physicist is not a full-time employee of the registrant, the operating procedures required by subsection S of this section shall also specifically address how the radiation therapy physicist is to be contacted for problems or emergencies, as well as the specific actions, if any, to be taken until the radiation therapy physicist can be contacted.

S. Operating procedures.

1. No individual, other than the patient, shall be in the treatment room during treatment or during any irradiation for testing or calibration purposes;

2. Therapeutic radiation machines shall not be made available for medical use unless the requirements of 12VAC5-481-3400 A, and subsections T and U of this section have been met;

3. Therapeutic radiation machines, when not in operation, shall be secured to prevent unauthorized use;

4. When adjustable beam limiting devices are used, the position and shape of the radiation field shall be indicated by a light field.

5. If a patient must be held in position during treatment, mechanical supporting or restraining devices shall be used; and

6. A copy of the current operating and emergency procedures shall be maintained at the therapeutic radiation machine control console.

T. Acceptance testing, commissioning and full calibration measurements.

1. Acceptance testing, commissioning and full calibration of a therapeutic radiation machine subject to this section shall be performed by, or under the direct supervision of, a radiation therapy physicist.

2. Acceptance testing and commissioning shall be performed in accordance with "AAPM Code of Practice for Radiotherapy Accelerators: Report of AAPM Radiation Therapy Task Group 45" and shall be conducted before the first medical use following installation or reinstallation of the therapeutic radiation machine.

3. Full calibration shall include measurement of all parameters required by Table II of "Comprehensive QA for Radiation Oncology: Report of AAPM Radiation Therapy Committee Task Group 40" and shall be performed in accordance with "AAPM Code of Practice for Radiotherapy Accelerators: Report of AAPM Radiation Therapy Task Group 45". Although it shall not be necessary to complete all elements of a full calibration at the same time, all parameters (for all energies) shall be completed at intervals not exceeding 12 calendar months, unless a more frequent interval is required in Table II.

4. The radiation therapy physicist shall perform all elements of a full calibration necessary to determine that all parameters are within acceptable limits:

a. Whenever quality assurance check measurements indicate that the radiation output differs by more than 5.0% from the value obtained at the last full calibration and the difference cannot be reconciled. Therapeutic radiation machines with multienergy and/or multimode capabilities shall only require measurements for those modes and/or energies that are not within their acceptable range; and

b. Following any component replacement, major repair, or modification of components that could significantly affect the characteristics of the radiation beam. If the repair, replacement or modification does not affect all modes and/or energies, measurements shall be performed on the effected mode/energy that is in most frequent clinical use at the facility. The remaining energies/modes may be validated with quality assurance check procedures against the criteria in subdivision 4 a of this subsection.

5. The registrant shall maintain a record of each calibration in an auditable form for the duration of the registration. The record shall include: the date of the calibration; the manufacturer's name, model number and serial number for the therapeutic radiation machine; the model numbers and serial numbers of the instruments used to calibrate the therapeutic radiation machine; and the signature of the radiation therapy physicist responsible for performing the calibration.

U. Periodic quality assurance checks.

1. Periodic quality assurance checks shall be performed on all therapeutic radiation machines subject to this section at intervals not to exceed those specified in "Comprehensive QA for Radiation Oncology: Report of AAPM Radiation Therapy Committee Task Group 40";

2. To satisfy the requirement of subdivision 1 of this subsection, quality assurance checks shall include determination of central axis radiation output and a representative sampling of periodic quality assurance checks contained in "Comprehensive QA for Radiation Oncology: Report of AAPM Radiation Therapy Committee Task Group 40". Representative sampling shall include all

referenced periodic quality assurance checks in an interval not to exceed 12 consecutive calendar months;

3. The registrant shall use a dosimetry system that has been inter-compared within the previous 12 months with the dosimetry system described in 12VAC5-481-3400 C 1 to make the periodic quality assurance checks required in subdivision 2 of this subsection;

4. The registrant shall perform periodic quality assurance checks required by subdivision 1 of this subsection in accordance with procedures established by the radiation therapy physicist;

5. The registrant shall review the results of each periodic radiation output check according to the following procedures:

a. The authorized user and radiation therapy physicist shall be immediately notified if any parameter is not within its acceptable tolerance. The therapeutic radiation machine shall not be made available for subsequent medical use until the radiation therapy physicist has determined that all parameters are within their acceptable tolerances;

b. If all quality assurance check parameters appear to be within their acceptable ranges, the quality assurance check shall be reviewed and signed by either the authorized user or radiation therapy physicist within three treatment days; and

c. The radiation therapy physicist shall review and sign the results of each radiation output quality assurance check at intervals not to exceed one month.

6. Therapeutic radiation machines subject to this section shall have safety quality assurance checks listed in "Comprehensive QA for Radiation Oncology: Report of AAPM Radiation Therapy Committee Task Group 40" performed at intervals not to exceed one week;

7. To satisfy the requirement of subdivision 6 of this subsection, safety quality assurance checks shall ensure proper operation of:

a. Electrical interlocks at each external beam radiation therapy room entrance;

b. Proper operation of the "BEAM-ON", interrupt and termination switches;

c. Beam condition indicator lights on the access doors, control console, and in the radiation therapy room;

d. Viewing systems;

e. Electrically operated treatment room door(s) from inside and outside the treatment room;

f. At least one emergency power cutoff switch. If more than one emergency power cutoff switch is installed and not all switches are tested at once, each switch shall be tested on a rotating basis. Safety quality assurance checks of the emergency power cutoff switches may be conducted at the end of the treatment day in order to minimize possible stability problems with the therapeutic radiation machine.

8. The registrant shall promptly repair any system identified in subdivision 7 of this subsection that is not operating properly; and

9. The registrant shall maintain a record of each quality assurance check required by subdivisions 1 and 7 of this subsection for three years. The record shall include: the date of the quality assurance check; the manufacturer's name, model number, and serial number of the therapeutic radiation machine; the manufacturer's name, model number and serial number for the instrument(s) used to measure the radiation output of the therapeutic radiation machine; and the signature of the individual who performed the periodic quality assurance check.

12VAC5-481-3440. Calibration of survey instruments.

A. The registrant shall ensure that the survey instruments used to show compliance with Part XV (12VAC5-481-3380 et seq.) of this chapter have been calibrated before first use, at intervals not to exceed 12 months, and following repair.

B. To satisfy the requirements of subsection A of this section, the registrant shall:

1. Calibrate all required scale readings up to 10 mSv (1000 mrem) per hour with an appropriate radiation source that is traceable to the National Institute of Standards and Technology (NIST);

2. Calibrate at least two (2) points on each scale to be calibrated. These points should be at approximately 1/3 and 2/3 of full-scale; and

C. To satisfy the requirements of subsection B of this section, the registrant shall:

1. Consider a point as calibrated if the indicated dose rate differs from the calculated dose rate by not more than 10%; and

2. Consider a point as calibrated if the indicated dose rate differs from the calculated dose rate by not more than 20% if a correction factor or graph is conspicuously attached to the instrument.

D. The registrant shall retain a record of each calibration required in subsection A of this section for three years. The record shall include:

1. A description of the calibration procedure; and

2. A description of the source used and the certified dose rates from the source, and the rates indicated by the

instrument being calibrated, the correction factors deduced from the calibration data, the signature of the individual who performed the calibration, and the date of calibration.

E. The registrant may obtain the services of individuals licensed by the agency, the ~~Nuclear Regulatory Commission~~ NRC, ~~an~~ or another agreement state~~, or a licensing state~~ to perform calibrations of survey instruments. Records of calibrations that contain information required by subsection D of this section shall be maintained by the registrant.

12VAC5-481-3480. Exemptions.

A. Persons who receive, own, possess, use, process, transfer, distribute, or dispose of TENORM are exempt from the requirements of this part (12VAC5-481-3460 et seq.) of this chapter with respect to any combination of ~~Ra-226~~ radium-226 and ~~Ra-288~~ radium-228 if the materials contain, or are contaminated at, concentrations less than 185 ~~becquerel per kilogram~~ Bq/kg (5 pCi/gm) excluding natural background. This does not apply to consumer or retail products that are discussed in 12VAC5-481-3560 C and 12VAC5-481-3570. Using purposeful dilution to render TENORM waste exempt shall not be allowed without prior agency approval.

B. Persons who receive products or materials containing TENORM distributed in accordance with a specific license issued by the agency pursuant to 12VAC5-481-3540 1, or to an equivalent license issued by another licensing state, are exempt from these regulations with regard to those products or materials.

C. The distribution, including custom blending, possession, and use of fertilizers containing TENORM, is exempt from the requirements of this part.

D. TENORM waste regulated by CERCLA (The Comprehensive Environmental Response, Compensation, and Liability Act) or RCRA (Resources Conservation and Recovery Act) are exempt from this part.

E. The transportation and storage incident to transportation are governed by other parts of these regulations.

12VAC5-481-3490. Standards for ~~Radiation Protection~~ radiation protection for TENORM.

A. No person licensed under 12VAC5 481-3530 or 12VAC5-481-3540 shall conduct operations, use, or transfer TENORM in a manner such that a member of the public will receive an annual total effective dose equivalent in excess of ~~1 millisievert per year (100 mrem/yr.)~~ 1mSv (100 mrem) per year from all licensed sources including TENORM.

B. Persons subject to a license under this part shall comply with radiation protection standards set out in Part IV (12VAC5-481-600 et seq.) of this chapter.

C. Doses from indoor radon and its progeny shall not be included in total effective dose equivalent calculations.

D. No person shall release TENORM for unrestricted use in such a manner that the reasonably maximally exposed individual will receive an annual total effective dose equivalent from the released TENORM in excess of ~~1 millisievert per year (100 mrem/yr.)~~ 1mSv (100 mrem) per year excluding natural background.

12VAC5-481-3510. Release for ~~Unrestricted Use~~ unrestricted use.

Each person subject to a license under this part shall:

1. Not transfer or release for unrestricted use facilities or equipment contaminated with TENORM in excess of levels in Table ~~1 in this part~~ 6.

Table ~~1~~ 6.
Acceptable Surface Contamination Levels[1] for TENORM.

	AVERAGE[2,3,6]	MAXIMUM[2,4,6]	REMOVABLE[2,3,5,6]
Alpha	5,000 dpm/100 cm^2	15,000 dpm/100 cm^2	1,000 dpm/100 cm^2
Beta-gamma	5,000 dpm/100 cm^2	15,000 dpm/100 cm^2	1,000 dpm/100 cm^2

[1]Where surface contamination by both alpha and beta-gamma emitting nuclides exists, the limits established for alpha and beta-gamma emitting nuclides should apply independently.

[2]As used in this table, dpm (disintegrations per minute) means the rate of emission by radioactive material as determined by correcting the counts per minute observed by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation.

[3]Measurements of average contamination level should not be averaged over more than one square meter. For objects of less surface area, the average should be derived for each object.

[4]The maximum contamination level applies to an area of not more than 100 cm^2.

[5]The amount of removable radioactive material per 100 cm^2 of surface area should be determined by wiping that area with dry filter or soft absorbent paper, applying moderate pressure, and assessing the amount of radioactive material on the wipe with an appropriate instrument of known efficiency. When removable contamination on objects of surface area A (where A is less than 100 sq. cm) is determined, the entire surface should be wiped and the contamination level multiplied by 100/A to convert a "per 100 sq. cm" basis.

[6]The average and minimum radiation levels associated with surface contamination resulting from beta-gamma emitters should not exceed 0.2 mrad/hr (2?Gy/hr) at 1 cm, respectively, measured through not more than 7 milligrams per square centimeter of total absorber.

2. Not transfer or release for unrestricted use equipment contaminated with TENORM in excess of a surface gamma radiation level of 200 ~~micro rem per hour~~ µrem/hr at 1 cm excluding natural background; and

3. Not transfer land for unrestricted use where the concentration of ~~Ra-226~~ radium-226 or ~~Ra-228~~ radium-228 in soil averaged over any 100 square meters exceeds the background level by more than 185 ~~Bequerel per kilogram~~ Bq/kg (5 pCi/gm), averaged over any 15 cm layer of soil

below the surface, unless compliance with 12VAC5-481-3490 B through D can be demonstrated.

12VAC5-481-3520. Disposal and ~~Transfer~~ transfer of ~~Waste~~ waste for ~~Disposal~~ disposal.

A. Each person subject to a license under this ~~Rule~~ part shall manage and dispose of wastes containing TENORM:

1. By transfer of the wastes for disposal to a facility licensed under requirements for uranium or thorium byproduct materials in either 40 CFR Part 192 or 10 CFR Part 40 Appendix R;

2. By transfer of the wastes for disposal to a disposal facility licensed by the ~~US Nuclear Regulatory Commission~~ NRC, ~~an~~ or another agreement state~~, or a licensing state~~; or

3. In accordance with alternate methods authorized by the agency upon application or upon the agency's initiative, consistent with 12VAC5-481-3490 and where applicable the Clean Water Act, Safe Drinking Water Act and other requirements of the United States Environmental Protection Agency for disposal of such wastes.

B. Equipment contaminated with TENORM in excess of levels specified in Table ~~1~~ 6 of this part, which is to be disposed of as waste, shall be disposed of:

1. So as to prevent any reintroduction into commerce or unrestricted use; and

2. Within disposal areas specifically designed to meet the criteria of subsection A of this section.

C. Transfers of waste containing TENORM for disposal shall be made only to a person specifically authorized by the ~~Nuclear Regulatory Commission~~ NRC, ~~an~~ or another agreement state ~~or a licensing state~~, to receive such waste.

D. Records of disposal, including manifests, shall be maintained pursuant to the provisions of Part IV (12VAC5-481-600 et seq.) of this chapter.

12VAC5-481-3530. General ~~License~~ license.

A. Subject to the requirements of 12VAC5-481-3490 through 12VAC5-481-3520 and ~~12VAC5-481~~ 12VAC5-481-3540, a general license is hereby issued to possess, own, use, transfer, distribute or dispose of TENORM without regard to quantity.

B. This general license does not authorize the manufacturing of products containing TENORM in concentrations greater than those specified in 12VAC5-481-3480 A nor the receipt and disposal of wastes from other persons.

C. The decontamination of equipment, facilities, and land shall be performed only by persons specifically licensed by the agency, NRC or another ~~licensing~~ agreement state to conduct such work. However, employees or contractors under control and supervision of a general licensee can perform routine maintenance on equipment, facilities, and land owned or controlled by the general licensee. Maintenance that provides a different pathway for exposure than is found in daily operations and that increases the potential for additional exposure is not considered routine.

D. Any person subject to the general license issued by this section shall notify the agency. Such notification shall include:

1. Name and address of the licensee;

2. Location and description of the facility or operation; and

3. Description of the TENORM including estimates of the amount and extent of TENORM.

E. Transfer of material or real property.

1. The transfer of TENORM not exempt from these regulations from one general licensee to another general licensee is authorized if:

a. The equipment and facilities contaminated with TENORM are to be used by the recipient for the same purpose; or

b. The transfer of control or ownership of land contaminated with TENORM includes an annotation of the deed records, or notice to owners of surface and mineral rights, to indicate the presence of TENORM.

2. Transfers not made in accordance with subdivision 1 of this subsection require prior approval by the agency.

3. Transfers made under subdivision 1 of this subsection do not relieve the general licensee who makes the transfer from the responsibilities of assessing the extent of TENORM contamination or material present, informing the general licensee receiving the TENORM of these assessments, and maintaining records required by this chapter.

4. A general licensee intending to transfer material or real property for unrestricted use shall document compliance with the requirements of 12VAC5-481-3510.

F. Distribution of TENORM products between general licensees. The distribution of TENORM products not exempt from these regulations from one general licensee to another general licensee is authorized provided the product is accompanied by labels or manifests which identify the type and amount of TENORM.

G. The ~~Department of Health~~ agency may, by written notice, require any person authorized by a general license to apply for and obtain a specific license. The notice shall state the reason or reasons for requiring a specific license.

12VAC5-481-3560. Requirements for the issuance of specific licenses.

A. A license application will be approved if the agency determines that:

1. The applicant is qualified by reason of training and experience to use the TENORM in question for the purpose requested in accordance with these rules in such a manner as to protect the public health and safety or property;

2. The applicant's proposed equipment, facilities, and procedures are adequate to protect the public health and safety or property;

3. The issuance of the license will not be inimical to the health and safety of the public;

4. The applicant satisfied all applicable special requirements in this part; ~~and~~

5. The applicant has met the financial surety requirements of ~~12VAC5-481-3670.~~ 12VAC5-481-450 C; and

6. The applicant has adequately addressed the following items in the application:

a. Procedures and equipment for monitoring and protecting workers;

b. An evaluation of the radiation levels and concentrations of contamination expected during normal operations;

c. Operating and emergency procedures, including procedures for waste reduction and quality assurance of items released for unrestricted use; and

d. A method for managing the radioactive material removed from contaminated equipment and facilities.

B. An application for a specific license to decontaminate equipment, land, or facilities contaminated with TENORM in excess of the levels set forth in 12VAC5-481-3480 A, 12VAC5-481-3510 2, or Table ~~1 of this part~~ 6, as applicable, and to dispose of the resulting waste will be approved if:

1. The applicant satisfies the general requirements specified in subsection A of this section; and

2. The applicant has adequately addressed the following items in the application:

a. Procedures and equipment for monitoring and protection of workers;

b. An evaluation of the radiation levels and concentrations of contamination expected during normal operations;

c. Operating and emergency procedures, including procedures for waste reduction and quality assurance of items released for unrestricted use; and

d. Method of disposing of the TENORM removed from contaminated equipment, facilities, and/or land.

C. An application for a specific license to transfer materials or manufacture or distribute products containing TENORM to persons exempted from these ~~regulation s~~ regulations pursuant to 12VAC5-481-3530 B will be approved if:

1. The applicant satisfies the general requirements specified in subsection A of this section;

2. The TENORM is not contained in any food, beverage, cosmetic, drug, or other commodity designed for ingestion or inhalation by, or application to, a human being; and

3. The applicant submits sufficient information relating to the design, manufacture, prototype testing, quality control procedures, labeling or marking, and conditions of handling, storage, use, and disposal of the TENORM material or product to demonstrate that the material or product will meet the safety criteria set forth in 12VAC5-481-3570. The information shall include:

a. A description of the material or product and its intended use or uses;

b. The type, quantity, and concentration of TENORM in each material or product;

c. The chemical and physical form of the TENORM in the material or product, and changes in chemical and physical form that may occur during the useful life of the material or product;

d. An analysis of the solubility in water and body fluids of the TENORM in the material or product;

e. The details of manufacture and design of the material or product relating to containment and shielding of the TENORM and other safety features under normal and severe conditions of handling, storage, use, reuse, and disposal of the material or product;

f. The degree of access of human beings to the material or product during normal handling, use, and disposal;

g. The total quantity of TENORM expected to be distributed annually in the material or product;

h. The expected useful life of the material or product;

i. The proposed method of labeling or marking each unit of the material or product with identification of the manufacturer or initial transferor of the product and the radionuclides and quantity of TENORM in the material or product;

j. The procedures for prototype testing of the material or product to demonstrate the effectiveness of the containment, shielding, and other safety features under both normal and severe conditions of handling, storage, use, reuse, and disposal;

k. The results of the prototype testing of the material or product, including any change in the form of the TENORM contained in it, the extent to which the TENORM may be released to the environment, any change in radiation levels, and any other changes in safety features;

l. The estimated external radiation doses and dose commitments relevant to the safety criteria in 12VAC5-481-3570 and the basis for such estimates;

m. A determination that the probabilities with respect to doses referred to in 12VAC5-481-3570 meet the safety criteria;

n. The quality control procedures to be followed in the production of production lots of the material or product, and the quality control standards the material or product will be required to meet; and

o. Any additional information, including experimental studies and tests, required by the agency to facilitate a determination of the radiation safety of the material or product.

D. Notwithstanding the provisions of subdivision 2 of 12VAC5-481-3570, the agency may deny an application for a specific license if the end uses of the product are frivolous or cannot be reasonably foreseen.

12VAC5-481-3580. Table of organ doses.

Part of Body	Column ~~I* Dose~~ I (rem)	Column ~~II*~~ ~~Dose~~ II (rem)	Column ~~III*~~ ~~Dose~~ III (rem)	Column IV (rem)
Whole body; head and trunk; active blood-forming organs; gonads; or lens of eye	~~0.05 mSv (0.005 rem)~~ 0.001	~~5 mSv (0.5 rem)~~ 0.01	~~150 mSv (15 rem)~~ 0.5	15
Hands and forearms; feet and ankles; localized areas of skin averaged over areas no larger than 1 square centimeter	~~0.75 mSv (0.075 rem)~~ 0.015	~~75 mSv (7.5 rem)~~ 0.15	~~2000 mSv (200 rem)~~ 7.5	200
Other organs	~~0.15mSv~~	~~15 mSv (1.5~~ ~~(0.015 rem)~~ 0.003	~~500 mSv~~ ~~rem)~~ 0.03	~~(50 rem)~~ 1.5	

~~*Dose limit is the dose above background from the product.~~

12VAC5-481-3600. Conditions of specific licenses issued under 12VAC5-481-3560.

A. General terms and conditions.

1. Each license issued pursuant to this part shall be subject to all the provisions of the ~~Radiation Control~~ Act ~~(§32.1-227 et seq. of the Code of Virginia)~~, now or hereafter in effect, and to all rules, regulations, and orders of the agency.

2. No license issued or granted under this part and no right to possess or utilize TENORM granted by any license issued pursuant to this part shall be transferred, assigned, or in any manner disposed of, either voluntarily or involuntarily, directly or indirectly, through transfer of control of any license to any person unless the agency shall, after securing full information, find that the transfer is in accordance with the provisions of the ~~Radiation Control~~ Act, and shall give its consent in writing.

3. Each person licensed by the agency pursuant to this part shall confine use and possession of the TENORM licensed to the locations and purposes authorized in the license.

4. Each person licensed by the agency pursuant to this part is subject to the general license provisions of 12VAC5-481-3500, 12VAC5-481-3510, and 12VAC5-481-3520.

5. Each licensee shall:

a. Notify the agency, in writing, immediately following the filing of a voluntary or involuntary petition for bankruptcy under any Chapters of Title II (Bankruptcy) of the United States Code (11 USC) by or against a licensee, an entity (as that term is defined in 11 USC ~~§101 (14))~~ §101 (15)) controlling a licensee or listing the license or licensee as property of the estate; or an affiliate (as that term is defined in 11 USC §101 (2)) of the licensee.

b. Indicate in their bankruptcy notification the bankruptcy court in which the petition for bankruptcy was filed; and the date of the filing of the petition.

B. Quality control, labeling, and reports of transfer. Each person licensed under 12VAC5-481-3560 C shall:

1. Carry out adequate control procedures in the manufacture of the product to assure that each production lot meets the quality control standards approved by the agency;

2. Label or mark each unit so that the manufacturer, processor, producer, or initial transferor of the material or

product and the TENORM in the product can be identified; and

3. Maintain records identifying, by name and address, each person to whom TENORM is transferred for use under 12VAC5-481-3480 B or the equivalent regulations of another licensing state, and stating the kinds, quantities, and uses of TENORM transferred. An annual summary report stating the total quantity of each radionuclide transferred under the specific license shall be filed with the agency. Each report shall cover the year ending December 31, and shall be filed within 90 days thereafter. If no transfers of TENORM have been made pursuant to 12VAC5-481-3560 C during the reporting period, the report shall so indicate.

12VAC5-481-3610. Expiration and ~~Termination~~ termination of ~~Specific Licenses~~ specific licenses.

A. Except as provided in ~~subdivisions~~ subdivision D 6 of this section and 12VAC5-481-3620 B, each specific license shall expire at the end of the specified day in the month and year stated therein.

B. Each licensee shall notify the agency in writing and request termination of the license when the licensee decides to terminate all activities involving TENORM authorized under the license. This notification and request for termination of the license must include the reports and information specified in subdivision D 4 of this section. The licensee is subject to the provisions of subsections D and E of this ~~subsection~~ section, as applicable.

C. No less than 30 days before the expiration date specified in a specific license, the licensee shall either:

1. Submit an application for license renewal under 12VAC5-481-3620; or

2. Notify the agency in writing, under subsection B of this section, if the licensee decides to discontinue all activities involving TENORM.

D. If a licensee does not submit an application for license renewal under 12VAC5-481-3620, the licensee shall, on or before the expiration date specified in the license:

1. Terminate use of TENORM;

2. Remove TENORM contamination consistent with the requirements of 12VAC5-481-3510.

3. Properly dispose of TENORM; and

4. Submit a report of disposal of TENORM and radiation surveys to confirm the absence of TENORM or to establish the levels of residual TENORM contamination. The licensee shall, as appropriate:

a. Report levels of radiation in units of microroentgens per hour of beta and gamma radiation at one centimeter and gamma radiation at one meter from surfaces and report levels of radioactivity in units of disintegrations per minute (or microcuries) per 100 square centimeters removable and fixed on surfaces, microcuries or Becquerel per milliliter in water, and picocuries or becquerels per gram in contaminated solids such as soils or concrete; and

b. Specify the instruments used and certify that each instrument is properly calibrated and tested.

5. If levels of residual activity are less than those established in 12VAC5-481-3510, the licensee shall so certify. If the agency determines that this certification and the information submitted under subdivision 4 of this subsection is adequate and surveys confirm the findings, the agency will notify the licensee in writing that the license is terminated.

6. If levels of residual TENORM are not in conformance with criteria established in 12VAC5-481-3510, the license continues in effect beyond the expiration date, if necessary, with respect to possession of residual TENORM until the agency notifies the licensee in writing that the license is terminated. During this time, the licensee is subject to the provisions of subsection E of this section. In addition to the information submitted under subdivision 4 of this subsection, the licensee shall submit a plan, if appropriate, for decontaminating the location(s) and disposing of this subsection of the residual TENORM.

E. Each licensee who possesses residual TENORM under subdivision D 6 of this section, following the expiration date specified in the license, shall:

1. Be limited to actions involving TENORM related to preparing the locations for release for unrestricted use; and

2. Continue to control entry to restricted areas until the locations are suitable for release for unrestricted use and the agency notifies the licensee in writing that the license is terminated.

12VAC5-481-3650. Modification and revocation of specific licenses.

A. The terms and conditions of all licenses shall be subject to amendment, revision, or modification or the license may be suspended or revoked by reason of amendments to the ~~Radiation Control~~ Act, or by reason of rules, regulations, and orders issued by the agency.

B. Any license may be revoked, suspended, or modified, in whole or in part, for any material false statement in the application or any statement of fact required under provisions of the ~~Radiation Control~~ Act, or because of conditions revealed by such application or statement of fact or any report, record, or inspection or other means which would warrant the agency to refuse to grant a license on an original application, or for violation of, or failure to observe any of the

terms and conditions of the ~~Radiation Control~~ Act, or of the license, or of any rule, regulation, or order of the agency.

C. Except in cases of willfulness or those in which the public health, interest or safety requires otherwise, the agency shall not modify, suspend or revoke a license prior to the institution of proceedings unless facts or conduct that may warrant such action shall have been called to the attention of the licensee in writing and the licensee shall have been accorded an opportunity to demonstrate or achieve compliance with all lawful requirements.

12VAC5-481-3670. ~~Financial surety arrangements.~~ (Repealed.)

~~Pursuant to 32.1-231 of the Code of Virginia, each licensee or applicant for a license under 12VAC5-481-3560 shall post with the agency financial surety, or security, to ensure the protection of the public health and safety and the environment in the event of abandonment, default, or other inability or unwillingness of the licensee to meet the requirements of the Act and these regulations. Financial surety arrangements shall:~~

~~1. An acceptable bond for the purposes of this section shall be a bond issued by a fidelity or surety company authorized to do business in Virginia, a personal bond secured by such collateral as the board may require or a cash bond;~~

~~2. Be in an amount sufficient to meet the applicant's or licensee's obligations under the Act and these regulations and shall be based upon agency-approved cost estimates;~~

~~3. Be established prior to issuance of the license or the commencement of operations to assure that sufficient funds will be available to carry out the decontamination and decommissioning of the facility;~~

~~4. Be continuous for the duration of the license and for a period coincident with the applicant or licensee's responsibility under the Act and these regulations;~~

~~5. Be available in Virginia subject to judicial process and execution in the event required for the purposes set forth; and~~

~~6. Be established within 90 days of September 20, 2006, for licenses in effect on that date.~~

Part XVII
Schedules

12VAC5-481-3680. Assigned protection factors for respirators.

Operating mode		Assigned Protection Factors
I. Air Purifying Respirators (Particulate[b] only)[c]:		
Filtering facepiece disposable[d]	Negative Pressure	(d)
Facepiece, half[e]	Negative Pressure	10
Facepiece, full	Negative Pressure	100
Facepiece, half	Powered air-purifying respirators	50
Facepiece, full	Powered air-purifying respirators	1000
Helmet/hood	Powered air-purifying respirators	1000
Facepiece, loose-fitting	Powered air-purifying respirators	25
II. Atmosphere supplying respirators (particulate, gases and vapors[f]):		
1. Air-line respirator:		
Facepiece, half	Demand	10
Facepiece, half	Continuous Flow	50
Facepiece, half	Pressure Demand	50
Facepiece, full	Demand	100
Facepiece, full	Continuous Flow	1000
Facepiece, full	Pressure Demand	1000
Helmet/hood	Continuous Flow	1000
Facepiece, loose-fitting	Continuous Flow	25
Suit	Continuous Flow	(g)
2. Self-contained breathing Apparatus (SCBA):		
Facepiece, full	Demand	[h]100
Facepiece, full	Pressure Demand	[i]10,000
Facepiece, full	Demand, Recirculating	[h]100
Facepiece, full	Positive Pressure Recirculating	[i]10,000
III. Combination Respirators:		

Any combination of air-purifying and atmosphere-supplying respirators	Assigned protection factor for type and mode of operation as listed above.

[a]These assigned protection factors apply only in a respiratory protection program that meets the requirements of this section. They are applicable only to airborne radiological hazards and may not be appropriate to circumstances when chemical or other respiratory hazards exist instead of, or in addition to, radioactive hazards. Selection and use of respirators for such circumstances must also comply with Department of Labor regulations.

Radioactive contaminants for which the concentration values in Table 1, Column 3 of 12VAC5-481-3690 are based on internal dose due to inhalation may, in addition, present external exposure hazards at higher concentrations. Under these circumstances, limitations on occupancy may have to be governed by external dose limits.

[b]Air purifying respirators with APF <100 must be equipped with particulate filters that are at least 95% efficient. Air purifying respirators with APF = 100 must be equipped with particulate filters that are at least 99% efficient. Air purifying respirators with APFs >100 must be equipped with particulate filters that are at least 99.97% efficient.

[c]The licensee may apply to VDH for the use of an APF greater than 1 for absorbent cartridges as protection against airborne radioactive gases and vapors (e.g., radioiodine).

[d]Licensees may permit individuals to use this type of respirator who have not been medically screened or fit tested on the device provided that no credit be taken for their use in estimating intake or dose. It is also recognized that it is difficult to perform an effective positive or negative pressure pre-use user seal check on this type of device. All other respiratory protection program requirements listed in 12VAC5-481-820 apply. An assigned protection factor has not been assigned for these devices. However, an APF equal to 10 may be used if the licensee can demonstrate a fit factor of at least 100 by use of a validated or evaluated, qualitative or quantitative fit test.

[e]Under-chin type only. No distinction is made in this section between elastomeric half-masks with replaceable cartridges and those designed with the filter medium as an integral part of the facepiece (e.g., disposable or reusable disposable). Both types are acceptable so long as the seal area of the latter contains some substantial type of seal-enhancing material such as rubber or plastic, the two or more suspension straps are adjustable, the filter medium is at least 95 percent efficient and all other requirements of this section are met.

[f]The assigned protection factors for gases and vapors are not applicable to radioactive contaminants that present an absorption or submersion hazard. For tritium oxide vapor, approximately one-third of the intake occurs by absorption through the skin so that an overall protection factor of 3 is appropriate when atmosphere-supplying respirators are used to protect against tritium oxide. Exposure to radioactive noble gases is not considered a significant respiratory hazard, and protective actions for these contaminants should be based on external (submersion) dose considerations.

[g]No NIOSH approval schedule is currently available for atmosphere supplying suits. This equipment may be used in an acceptable respiratory protection program as long as all the other minimum program requirements, with the exception of fit testing, are met (i.e., 12VAC5-481-820).

[h]The licensee should implement institutional controls to assure that these devices are not used in areas immediately dangerous to life or health (IDLH).

[i]This type of respirator may be used as an emergency device in unknown concentrations for protection against inhalation hazards. External radiation hazards and other limitations to permitted exposure such as skin absorption shall be taken into account in these circumstances. This device may not be used by any individual who experiences perceptible outward leakage of breathing gas while wearing the device.

12VAC5-481-3690. Annual Limits on Intake (ALI) and Derived Air Concentrations (DACs) of radionuclides for occupational exposure; effluent concentrations; concentration.

The following regulation, Annual Limits on Intake (ALI)s and Derived Air Concentrations (DACs) of Radionuclides for Occupational Exposure; Effluent Concentrations; Concentrations for Release to Sewerage, 10 CFR Part 20 - Appendix B, is applicable in the Commonwealth of Virginia.

12VAC5-481-3700. Quantities of licensed materials requiring labeling.

Radionuclide	Abbreviation	Quantity (μCi)
Hydrogen-3	H-3	1,000
Beryllium-7	Be-7	1,000
Beryllium-10	Be-10	1
Carbon-11	C-11	1,000
Carbon-14	C-14	100
Fluorine-18	F-18	1,000
Sodium-22	Na-22	10
Sodium-24	Na-24	100
Magnesium-28	Mg-28	100
Aluminum-26	Al-26	10
Silicon-31	Si-31	1,000
Silicon-32	Si-32	1

Phosphorus-32	P-32	10	Iron-59	Fe-59	10
Phosphorus-33	P-33	100	Iron-60	Fe-60	1
Sulfur-35	S-35	100	Cobalt-55	Co-55	100
Chlorine-36	Cl-36	10	Cobalt-56	Co-56	10
Chlorine-38	Cl-38	1,000	Cobalt-57	Co-57	100
Chlorine-39	Cl-39	1,000	Cobalt-58m	Co-58m	1,000
Argon-39	Ar-39	1,000	Cobalt-58	Co-58	100
Argon-41	Ar-41	1,000	Cobalt-60m	Co-60m	1,000
Potassium-40	K-40	100	Cobalt-60	Co-60	1
Potassium-42	K-42	1,000	Cobalt-61	Co-61	1,000
Potassium-43	K-43	1,000	Cobalt-62m	Co-62m	1,000
Potassium-44	K-44	1,000	Nickel-56	Ni-56	100
Potassium-45	K-45	1,000	Nickel-57	Ni-57	100
Calcium-41	Ca-41	100	Nickel-59	Ni-59	100
Calcium-45	Ca-45	100	Nickel-63	Ni-63	100
Calcium-47	Ca-47	100	Nickel-65	Ni-65	1,000
Scandium-43	Sc-43	1,000	Nickel-66	Ni-66	10
Scandium-44m	Sc-44m	100	Copper-60	Cu-60	1,000
Scandium-44	Sc-44	100	Copper-61	Cu-61	1,000
Scandium-46	Sc-46	10	Copper-64	Cu-64	1,000
Scandium-47	Sc-47	100	Copper-67	Cu-67	1,000
Scandium-48	Sc-48	100	Zinc-62	Zn-62	100
Scandium-49	Sc-49	1,000	Zinc-63	Zn-63	1,000
Titanium-44	Ti-44	1	Zinc-65	Zn-65	10
Titanium-45	Ti-45	1,000	Zinc-69m	Zn-69m	100
Vanadium-47	V-47	1,000	Zinc-69	Zn-69	1,000
Vanadium-48	V-48	100	Zinc-71m	Zn-71m	1,000
Vanadium-49	V-49	1,000	Zinc-72	Zn-72	100
Chromium-48	Cr-48	1,000	Gallium-65	Ga-65	1,000
Chromium-49	Cr-49	1,000	Gallium-66	Ga-66	100
Chromium-51	Cr-51	1,000	Gallium-67	Ga-67	1,000
Manganese-51	Mn-51	1,000	Gallium-68	Ga-68	1,000
Manganese-52m	Mn-52m	1,000	Gallium-70	Ga-70	1,000
Manganese-52	Mn-52	100	Gallium-72	Ga-72	100
Manganese-53	Mn-53	1,000	Gallium-73	Ga-73	1,000
Manganese-54	Mn-54	100	Germanium-66	Ge-66	1,000
Manganese-56	Mn-56	1,000	Germanium-67	Ge-67	1,000
Iron-52	Fe-52	100	Germanium-68	Ge-68	10
Iron-55	Fe-55	100	Germanium-69	Ge-69	1,000

Germanium-71	Ge-71	1,000	Krypton-88	Kr-88	1,000
Germanium-75	Ge-75	1,000	Rubidium-79	Rb-79	1,000
Germanium-77	Ge-77	1,000	Rubidium-81m	Rb-81m	1,000
Germanium-78	Ge-78	1,000	Rubidium-81	Rb-81	1,000
Arsenic-69	As-69	1,000	Rubidium-82m	Rb-82m	1,000
Arsenic-70	As-70	1,000	Rubidium-83	Rb-83	100
Arsenic-71	As-71	100	Rubidium-84	Rb-84	100
Arsenic-72	As-72	100	Rubidium-86	Rb-86	100
Arsenic-73	As-73	100	Rubidium-87	Rb-87	100
Arsenic-74	As-74	100	Rubidium-88	Rb-88	1,000
Arsenic-76	As-76	100	Rubidium-89	Rb-89	1,000
Arsenic-77	As-77	100	Strontium-80	Sr-80	100
Arsenic-78	As-78	1,000	Strontium-81	Sr-81	1,000
Selenium-70	Se-70	1,000	Strontium-83	Sr-83	100
Selenium-73m	Se-73m	1,000	Strontium-85m	Sr-85m	1,000
Selenium-73	Se-73	100	Strontium-85	Sr-85	100
Selenium-75	Se-75	100	Strontium-87m	Sr-87m	1,000
Selenium-79	Se-79	100	Strontium-89	Sr-89	10
Selenium-81m	Se-81m	1,000	Strontium-90	Sr-90	0.1
Selenium-81	Se-81	1,000	Strontium-91	Sr-91	100
Selenium-83	Se-83	1,000	Strontium-92	Sr-92	100
Bromine-74m	Br-74m	1,000	Yttrium-86m	Y-86m	1,000
Bromine-74	Br-74	1,000	Yttrium-86	Y-86	100
Bromine-75	Br-75	1,000	Yttrium-87	Y-87	100
Bromine-76	Br-76	100	Yttrium-88	Y-88	10
Bromine-77	Br-77	1,000	Yttrium-90m	Y-90m	1,000
Bromine-80m	Br-80m	1,000	Yttrium-90	Y-90	10
Bromine-80	Br-80	1,000	Yttrium-91m	Y-91m	1,000
Bromine-82	Br-82	100	Yttrium-91	Y-91	10
Bromine-83	Br-83	1,000	Yttrium-92	Y-92	100
Bromine-84	Br-84	1,000	Yttrium-93	Y-93	100
Krypton-74	Kr-74	1,000	Yttrium-94	Y-94	1,000
Krypton-76	Kr-76	1,000	Yttrium-95	Y-95	1,000
Krypton-77	Kr-77	1,000	Zirconium-86	Zr-86	100
Krypton-79	Kr-79	1,000	Zirconium-88	Zr-88	10
Krypton-81	Kr-81	1,000	Zirconium-89	Zr-89	100
Krypton-83m	Kr-83m	1,000	Zirconium-93	Zr-93	1
Krypton-85m	Kr-85m	1,000	Zirconium-95	Zr-95	10
Krypton-85	Kr-85	1,000	Zirconium-97	Zr-97	100
Krypton-87	Kr-87	1,000	Niobium-88	Nb-88	1,000

Niobium-89m (66 min)	Nb-89m	1,000
Niobium-89 (122 min)	Nb-89	1,000
Niobium-90	Nb-90	100
Niobium-93m	Nb-93m	10
Niobium-94	Nb-94	1
Niobium-95m	Nb-95m	100
Niobium-95	Nb-95	100
Niobium-96	Nb-96	100
Niobium-97	Nb-97	1,000
Niobium-98	Nb-98	1,000
Molybdenum-90	Mo-90	100
Molybdenum-93m	Mo-93m	100
Molybdenum-93	Mo-93	10
Molybdenum-99	Mo-99	100
Molybdenum-101	Mo-101	1,000
Technetium-93m	Tc-93m	1,000
Technetium-93	Tc-93	1,000
Technetium-94m	Tc-94m	1,000
Technetium-94	Tc-94	1,000
Technetium-96m	Tc-96	1,000
Technetium-96	Tc-96	100
Technetium-97m	Tc-97m	100
Technetium-97	Tc-97	1,000
Technetium-98	Tc-98	10
Technetium-99m	Tc-99m	1,000
Technetium-99	Tc-99	100
Technetium-101	Tc-101	1,000
Technetium-104	Tc-104	1,000
Ruthenium-94	Ru-94	1,000
Ruthenium-97	Ru-97	1,000
Ruthenium-103	Ru-103	100
Ruthenium-105	Ru-105	1,000
Ruthenium-106	Ru-106	1
Rhodium-99m	Rh-99m	1,000
Rhodium-99	Rh-99	100
Rhodium-100	Rh-100	100
Rhodium-101m	Rh-101m	1,000
Rhodium-101	Rh-101	10
Rhodium-102m	Rh-102m	10
Rhodium-102	Rh-102	10
Rhodium-103m	Rh-103m	1,000
Rhodium-105	Rh-105	100
Rhodium-106m	Rh-106m	1,000
Rhodium-107	Rh-107	1,000
Palladium-100	Pd-100	100
Palladium-101	Pd-101	1,000
Palladium-103	Pd-103	100
Palladium-107	Pd-107	10
Palladium-109	Pd-109	100
Silver-102	Ag-102	1,000
Silver-103	Ag-103	1,000
Silver-104m	Ag-104m	1,000
Silver-104	Ag-104	1,000
Silver-105	Ag-105	100
Silver-106m	Ag-106m	100
Silver-106	Ag-106	1,000
Silver-108m	Ag-108m	1
Silver-110m	Ag-110m	10
Silver-111	Ag-111	100
Silver-112	Ag-112	100
Silver-115	Ag-115	1,000
Cadmium-104	Cd-104	1,000
Cadmium-107	Cd-107	1,000
Cadmium-109	Cd-109	1
Cadmium-113m	Cd-113m	0.1
Cadmium-113	Cd-113	100
Cadmium-115m	Cd-115m	10
Cadmium-115	Cd-115	100
Cadmium-117m	Cd-117m	1,000
Cadmium-117	Cd-117	1,000
Indium-109	In-109	1,000
Indium-110 (69.1 min.)	In-110	1,000
Indium-110 (4.9h)	In-110	1,000
Indium-111	In-111	100
Indium-112	In-112	1,000
Indium-113m	In-113m	1,000
Indium-114m	In-114m	10
Indium-115m	In-115m	1,000

Indium-115	In-115	100	Tellurium-116	Te-116	1,000
Indium-116m	In-116m	1,000	Tellurium-121m	Te-121m	10
Indium-117m	In-117m	1,000	Tellurium-121	Te-121	100
Indium-117	In-117	1,000	Tellurium-123m	Te-123m	10
Indium-119m	In-119m	1,000	Tellurium-123	Te-123	100
Tin-110	Sn-110	100	Tellurium-125m	Te-125m	10
Tin-111	Sn-111	1,000	Tellurium-127m	Te-127m	10
Tin-113	Sn-113	100	Tellurium-127	Te-127	1,000
Tin-117m	Sn-117m	100	Tellurium-129m	Te-129m	10
Tin-119m	Sn-119m	100	Tellurium-129	Te-129	1,000
Tin-121m	Sn-121m	100	Tellurium-131m	Te-131m	10
Tin-121	Sn-121	1,000	Tellurium-131	Te-131	100
Tin-123m	Sn-123m	1,000	Tellurium-132	Te-132	10
Tin-123	Sn-123	10	Tellurium-133m	Te-133m	100
Tin-125	Sn-125	10	Tellurium-133	Te-133	1,000
Tin-126	Sn-126	10	Tellurium-134	Te-134	1,000
Tin-127	Sn-127	1,000	Iodine-120m	I-120m	1,000
Tin-128	Sn-128	1,000	Iodine-120	I-120	100
Antimony-115	Sb-115	1,000	Iodine-121	I-121	1,000
Antimony-116m	Sb-116m	1,000	Iodine-123	I-123	100
Antimony-116	Sb-116	1,000	Iodine-124	I-124	10
Antimony-117	Sb-117	1,000	Iodine-125	I-125	1
Antimony-118m	Sb-118m	1,000	Iodine-126	I-126	1
Antimony-119	Sb-119	1,000	Iodine-128	I-128	1,000
Antimony-120 (16 min.)	Sb-120	1,000	Iodine-129	I-129	1
			Iodine-130	I-130	10
Antimony-120 (5.76d)	Sb-120	100	Iodine-131	I-131	1
Antimony-122	Sb-122	100	Iodine-132m	I-132m	100
Antimony-124m	Sb-124m	1,000	Iodine-132	I-132	100
Antimony-124	Sb-124	10	Iodine-133	I-133	10
Antimony-125	Sb-125	100	Iodine-134	I-134	1,000
Antimony-126m	Sb-126m	1,000	Iodine-135	I-135	100
Antimony-126	Sb-126	100	Xenon-120	Xe-120	1,000
Antimony-127	Sb-127	100	Xenon-121	Xe-121	1,000
Antimony-128 (10.4 min.)	Sb-128	1,000	Xenon-122	Xe-122	1,000
			Xenon-123	Xe-123	1,000
Antimony-128 (9.01h)	Sb-128	100	Xenon-125	Xe-125	1,000
Antimony-129	Sb-129	100	Xenon-127	Xe-127	1,000
Antimony-130	Sb-130	1,000	Xenon-129m	Xe-129m	1,000
Antimony-131	Sb-131	1,000	Xenon-131m	Xe-131m	1,000

Xenon-133m	Xe-133m	1,000	Cerium-135	Ce-135	100
Xenon-133	Xe-133	1,000	Cerium-137m	Ce-137m	100
Xenon-135m	Xe-135m	1,000	Cerium-137	Ce-137	1,000
Xenon-135	Xe-135	1,000	Cerium-139	Ce-139	100
Xenon-138	Xe-138	1,000	Cerium-141	Ce-141	100
Cesium-125	Cs-125	1,000	Cerium-143	Ce-143	100
Cesium-127	Cs-127	1,000	Cerium-144	Ce-144	1
Cesium-129	Cs-129	1,000	Praseodymium-136	Pr-136	1,000
Cesium-130	Cs-130	1,000	Praseodymium-137	Pr-137	1,000
Cesium-131	Cs-131	1,000	Praseodymium-138m	Pe-138m	1,000
Cesium-132	Cs-132	100	Praseodymium-139	Pe-139	1,000
Cesium-134m	Cs-134m	1,000	Praseodymium-142m	Pe-142m	1,000
Cesium-134	Cs-134	10	Praseodymium-142	Pe-142	100
Cesium-135m	Cs-135m	1,000	Praseodymium-143	Pe-143	100
Cesium-135	Cs-135	100	Praseodymium-144	Pe-144	1,000
Cesium-136	Cs-136	10	Praseodymium-145	Pe-145	100
Cesium-137	Cs-137	10	Praseodymium-147	Pe-147	1,000
Cesium-138	Cs-138	1,000	Neodymium-136	Nd-136	1,000
Barium-126	Ba-126	1,000	Neodymium-138	Nd-138	100
Barium-128	B-128	100	Neodymium-139m	Nd-139m	1,000
Barium-131m	Ba-131m	1,000	Neodymium-139	Nd-139	1,000
Barium-131	Ba-131	100	Neodymium-141	Nd-141	1,000
Barium-133m	Ba-133m	100	Neodymium-147	Nd-147	100
Barium-133	Ba-133	100	Neodymium-149	Nd-149	1,000
Barium-135m	Ba-135m	100	Neodymium-151	Nd-151	1,000
Barium-139	Ba-139	1,000	Promethium-141	Pm-141	1,000
Barium-140	Ba-140	100	Promethium-143	Pm-143	100
Barium-141	Ba-141	1,000	Promethium-144	Pm-144	10
Barium-142	Ba-142	1,000	Promethium-145	Pm-145	10
Lanthanum-131	La-131	1,000	Promethium-146	Pm-146	1
Lanthanum-132	La-132	100	Promethium-147	Pm-147	10
Lanthanum-135	La-135	1,000	Promethium-148m	Pm-148m	10
Lanthanum-137	La-137	10	Promethium-148	Pm-148	10
Lanthanum-138	La-138	100	Promethium-149	Pm-149	100
Lanthanum-140	La-140	100	Promethium-150	Pm-150	1,000
Lanthanum-141	La-141	100	Promethium-151	Pm-151	100
Lanthanum-142	La-142	1,000	Samarium-141m	Sm-141m	1,000
Lanthanum-143	La-143	1,000	Samarium-141	Sm-141	1,000
Cerium-134	Ce-134	100	Samarium-142	Sm-142	1,000

Samarium-145	Sm-145	100	Terbium-156	Tb-156	100
Samarium-146	Sm-146	1	Terbium-157	Tb-157	10
Samarium-147	Sm-147	100	Terbium-158	Tb-158	1
Samarium-151	Sm-151	10	Terbium-160	Tb-160	10
Samarium-153	Sm-153	100	Terbium-161	Tb-161	100
Samarium-155	Sm-155	1,000	Dysprosium-155	Dy-155	1,000
Samarium-156	Sm-156	1,000	Dysprosium-157	Dy-157	1,000
Europium-145	Eu-145	100	Dysprosium-159	Dy-159	100
Europium-146	Eu-146	100	Dysprosium-165	Dy-165	1,000
Europium-147	Eu-147	100	Dysprosium-166	Dy-166	100
Europium-148	Eu-148	10	Holmium-155	Ho-155	1,000
Europium-149	Eu-149	100	Holmium-157	Ho-157	1,000
Europium-150 (12.62h)	Eu-150	100	Holmium-159	Ho-159	1,000
			Holmium-161	Ho-161	1,000
Europium-150 (34.2y)	Eu-150	1	Holmium-162m	Ho-162m	1,000
Europium-152m	Eu-152m	100	Holmium-162	Ho-162	1,000
Europium-152	Eu-152	1	Holmium-164m	Hp-164m	1,000
Europium-154	Eu-154	1	Holmium-164	Ho-164	1,000
Europium-155	Eu-155	10	Holmium-166m	Ho-166m	1
Europium-156	Eu-156	100	Holmium-166	Ho-166	100
Europium-157	Eu-157	100	Holmium-167	Ho-167	1,000
Europium-158	Eu-158	1,000	Erbium-161	Er-161	1,000
Gadolinium-145	Gd-145	1,000	Erbium-165	Er-165	1,000
Gadolinium-146	Gd-146	10	Erbium-169	Er-169	100
Gadolinium-147	Gd-147	100	Erbium-171	Er-171	100
Gadolinium-148	Gd-148	0.001	Erbium-172	Er-172	100
Gadolinium-149	Gd-149	100	Thulium-162	Tm-162	1,000
Gadolinium-151	Gd-151	10	Thulium-166	Tm-166	100
Gadolinium-152	Gd-152	100	Thulium-167	Tm-167	100
Gadolinium-153	Gd-153	10	Thulium-170	Tm-170	10
Gadolinium-159	Gd-159	100	Thulium-171	Tm-171	10
Terbium-147	Tb-147	1,000	Thulium-172	Tm-172	100
Terbium-149	Tb-149	100	Thulium-173	Tm-173	100
Terbium-150	Tb-150	1,000	Thulium-175	Tm-175	1,000
Terbium-151	Tb-151	100	Ytterbium-162	Yb-162	1,000
Terbium-153	Tb-153	1,000	Ytterbium-166	Yb-166	100
Terbium-154	Tb-154	100	Ytterbium-167	Yb-167	1,000
Terbium-155	Tb-155	1,000	Ytterbium-169	Yb-169	100
Terbium-156m (5.0h)	Tb-156m	1,000	Ytterbium-175	Yb-175	100
Terbium-156m (24.4h)	Tb-156m	1,000	Ytterbium-177	Yb-177	1,000

Ytterbium-178	Yb-178	1,000	Tantalum-182	Ta-182	10
Lutetium-169	Lu-169	100	Tantalum-183	Ta-183	100
Lutetium-170	Lu-170	100	Tantalum-184	Ta-184	100
Lutetium-171	Lu-171	100	Tantalum-185	Ta-185	1,000
Lutetium-172	Lu-172	100	Tantalum-186	Ta-186	1,000
Lutetium-173	Lu-173	10	Tungsten-176	W-176	1,000
Lutetium-174m	Lu-174m	10	Tungsten-177	W-177	1,000
Lutetium-174	Lu-174	10	Tungsten-178	W-178	1,000
Lutetium-176m	Lu-176m	1,000	Tungsten-179	W-179	1,000
Lutetium-176	Lu-176	100	Tungsten-181	W-181	1,000
Lutetium-177m	Lu-177m	10	Tungsten-185	W-185	100
Lutetium-177	Lu-177	100	Tungsten-187	W-187	100
Lutetium-178m	Lu-178m	1,000	Tungsten-188	W-188	10
Lutetium-178	Lu-178	1,000	Rhenium-177	Re-177	1,000
Lutetium-179	Lu-179	1,000	Rhenium-178	Re-178	1,000
Hafnium-170	Hf-170	100	Rhenium-181	Re-181	1,000
Hafnium-172	Hf-172	1	Rhenium-182 (12.7h)	Re-182	1,000
Hafnium-173	Hf-173	1,000	Rhenium-182 (64.0h)	Re-182	100
Hafnium-175	Hf-175	100	Rhenium-184m	Re-184m	10
Hafnium-177m	Hf-177m	1,000	Rhenium-184	Re-184	100
Hafnium-178m	Hf-178m	0.1	Rhenium-186m	Re-186m	10
Hafnium-179m	Hf-179m	10	Rhenium-186	Re-186	100
Hafnium-180m	Hf-180m	1,000	Rhenium-187	Re-187	1,000
Hafnium-181	Hf-181	10	Rhenium-188m	Re-188m	1,000
Hafnium-182m	Hf-182m	1,000	Rhenium-188	Re-188	100
Hafnium-182	Hf-182	0.1	Rhenium-189	Re-189	100
Hafnium-183	Hf-183	1,000	Osmium-180	Os-180	1,000
Hafnium-184	Hf-184	100	Osmium-181	Os-181	1,000
Tantalum-172	Ta-172	1,000	Osmium-182	Os-182	100
Tantalum-173	Ta-173	1,000	Osmium-185	Os-185	100
Tantalum-174	Ta-174	1,000	Osmium-189m	Os-189m	1,000
Tantalum-175	Ta-175	1,000	Osmium-191m	Os-191m	1,000
Tantalum-176	Ta-176	100	Osmium-191	Os-191	100
Tantalum-177	Ta-177	1,000	Osmium-193	Os-193	100
Tantalum-178	Ta-178	1,000	Osmium-194	Os-194	1
Tantalum-179	Ta-179	100	Iridium-182	Ir-182	1,000
Tantalum-180m	Ta-180m	1,000	Iridium-184	Ir-184	1,000
Tantalum-180	Ta-180	100	Iridium-185	Ir-185	1,000
Tantalum-182m	Ta-182m	1,000	Iridium-186	Ir-186	100

Iridium-187	Ir-187	1,000
Iridium-188	Ir-188	100
Iridium-189	Ir-189	100
Iridium-190m	Ir-190m	1,000
Iridium-190	Ir-190	100
Iridium-192 (73.8d)	Ir-192	1
Iridium-192m (1.4 min.)	Ir-192m	10
Iridium-194m	Ir-194m	10
Iridium-194	Ir-194	100
Iridium-195m	Ir-195m	1,000
Iridium-195	Ir-95	1,000
Platinum-186	Pt-186	1,000
Platinum-188	Pt-188	100
Platinum-189	Pt-189	1,000
Platinum-191	Pt-191	100
Platinum-193m	Pt-193m	100
Platinum-193	Pt-193	1,000
Platinum-195m	Pt-195m	100
Platinum-197m	Pt-197m	1,000
Platinum-197	Pt-197	100
Platinum-199	Pt-199	1,000
Platinum-200	Pt-200	100
Gold-193	Au-193	1,000
Gold-194	Au-194	100
Gold-195	Au-195	10
Gold-198m	Au-198m	100
Gold-198	Au-198	100
Gold-199	Au-199	100
Gold-200m	Au-200m	100
Gold-200	Au-200	1,000
Gold-201	Au-201	1,000
Mercury-193m	Hg-193m	100
Mercury-193	Hg-193	1,000
Mercury-194	Hg-194	1
Mercury-195m	Hg-195m	100
Mercury-195	Hg-195	1,000
Mercury-197m	Hg-197m	100
Mercury-197	Hg-197	1,000
Mercury-199m	Hg-199m	1,000
Mercury-203	Hg-203	100
Thallium-194m	Tl-194m	1,000
Thallium-194	Tl-194	1,000
Thallium-195	Tl-195	1,000
Thallium-197	Tl-197	1,000
Thallium-198m	Tl-198m	1,000
Thallium-198	Tl-198	1,000
Thallium-199	Tl-199	1,000
Thallium-200	Tl-200	1,000
Thallium-201	Tl-201	1,000
Thallium-202	Tl-202	100
Thallium-204	Tl-204	100
Lead-195m	Pb-195m	1,000
Lead-198	Pb-198	1,000
Lead-199	Pb-199	1,000
Lead-200	Pb-200	100
Lead-201	Pb-201	1,000
Lead-202m	Pb-202m	1,000
Lead-202	Pb-202	10
Lead-203	Pb-203	1,000
Lead-205	Pb-205	100
Lead-209	Pb-209	1,000
Lead-210	Pb-210	0.01
Lead-211	Pb-211	100
Lead-212	Pb-212	1
Lead-214	Pb-214	100
Bismuth-200	Bi-200	1,000
Bismuth-201	Bi-201	1,000
Bismuth-202	Bi-202	1,000
Bismuth-203	Bi-203	100
Bismuth-205	Bi-205	100
Bismuth-206	Bi-206	100
Bismuth-207	Bi-207	10
Bismuth-210m	Bi-210m	0.1
Bismuth-210	Bi-210	1
Bismuth-212	Bi-212	10
Bismuth-213	Bi-213	10
Bismuth-214	Bi-214	100
Polonium-203	Po-203	1,000
Polonium-205	Po-205	1,000

Polonium-207	Po-207	1,000
Polonium-210	Po-210	0.1
Astatine-207	At-207	100
Astatine-211	At-211	10
Radon-220	Rn-220	1
Radon-222	Rn-222	1
Francium-222	Fr-222	100
Francium-223	Fr-223	100
Radium-223	Ra-223	0.1
Radium-224	Ra-224	0.1
Radium-225	Ra-225	0.1
Radium-226	Ra-226	0.1
Radium-227	Ra-227	1,000
Radium-228	Ra-228	0.1
Actinium-224	Ac-224	1
Actinium-225	Ac-225	0.01
Actinium-226	Ac-226	0.1
Actinium-227	Ac-227	0.001
Actinium-228	Ac-228	1
Thorium-226	Th-226	10
Thorium-227	Th-227	0.01
Thorium-228	Th-228	0.001
Thorium-229	Th-229	0.001
Thorium-230	Th-230	0.001
Thorium-231	Th-231	100
Thorium-232	Th-232	100
Thorium-234	Th-234	10
Thorium-natural		100
Protactinium-227	Pa-227	10
Protactinium-228	Pa-228	1
Protactinium-230	Pa-230	0.1
Protactinium-231	Pa-231	0.001
Protactinium-232	Pa-232	1
Protactinium-233	Pa-233	100
Protactinium-234	Pa-234	100
Uranium-230	U-230	0.01
Uranium-231	U-231	100
Uranium-232	U-232	0.001
Uranium-233	U-233	0.001
Uranium-234	U-234	0.001
Uranium-235	U-235	0.001
Uranium-236	U-236	0.001
Uranium-237	U-237	100
Uranium-238	U-238	100
Uranium-239	U-239	1,000
Uranium-240	U-240	100
Uranium-natural		100
Neptunium-232	Np-232	100
Neptunium-233	Np-233	1,000
Neptunium-234	Np-234	100
Neptunium-235	Np-235	100
Neptunium-236 ($1.15x10^5$y)	Np-236	0.001
Neptunium-236 (22.5h)	Np-236	1
Neptunium-237	Np-237	0.001
Neptunium-238	Np-238	10
Neptunium-239	Np-239	100
Neptunium-240	Np-240	1,000
Plutonium-234	Pu-234	10
Plutonium-235	Pu-235	1,000
Plutonium-236	Pu-236	0.001
Plutonium-237	Pu-237	100
Plutonium-238	Pu-238	0.001
Plutonium-239	Pu-239	0.001
Plutonium-240	Pu-240	0.001
Plutonium-241	Pu-241	0.01
Plutonium-242	Pu-242	0.001
Plutonium-243	Pu-243	1,000
Plutonium-244	Pu-244	0.001
Plutonium-245	Pu-245	100
Americium-237	Am-237	1,000
Americium-238	Am-238	100
Americium-239	Am-239	1,000
Americium-240	Am-240	100
Americium-241	Am-241	0.001
Americium-242m	Am-242m	0.001
Americium-242	Am-242	10
Americium-243	Am-243	0.001

Americium-244m	Am-244m	100
Americium-244	Am-244	10
Americium-245	Am-245	1,000
Americium-246m	Am-246m	1,000
Americium-246	Am-246	1,000
Curium-238	Cm-238	100
Curium-240	Cm-240	0.1
Curium-241	Cm-241	1
Curium-242	Cm-242	0.01
Curium-243	Cm-243	0.001
Curium-244	Cm-244	0.001
Curium-245	Cm-245	0.001
Curium-246	Cm-246	0.001
Curium-247	Cm-247	0.001
Curium-248	Cm-248	0.001
Curium-249	Cm-249	1,000
Berkelium-245	Bk-245	100
Berkelium-246	Bk-246	100
Berkelium-247	Bk-247	0.001
Berkelium-249	Bk-249	0.1
Berkelium-250	Bk-250	10
Californium-244	Cf-244	100
Californium-246	Cf-246	1
Californium-248	Cf-248	0.01
Californium-249	Cf-249	0.001
Californium-250	Cf-250	0.001
Californium-251	Cf-251	0.001
Californium-252	Cf-252	0.001
Californium-253	Cf-253	0.1
Californium-254	Cf-254	0.001
Einsteinium-250	Es-250	100
Einsteinium-251	Es-251	100
Einsteinium-253	Es-253	0.1
Einsteinium-254m	Es-254m	1
Einsteinium-254	Es-254	0.01
Fermium-252	Fm-252	1
Fermium-253	Fm-253	1
Fermium-254	Fm-254	10
Fermium-255	Fm-255	1
Fermium-257	Fm-257	0.01
Mendelevium-257	Md-257	10
Mendelevium-258	Md-258	0.01
Any radionuclide other than alpha emitter radionuclides not listed above, or mixtures of beta emitters of unknown composition		0.01
Any alpha-emitting radionuclide not listed above or mixtures of alpha-emitters of unknown composition		0.001

[1]The quantities listed above were derived by taking 1/10 of the most restrictive ALI listed in table 1, columns 1 and 2 of 10 CFR Part 20, Appendix B, rounding to the nearest factor of 10, and arbitrarily constraining the values listed between 0.001 and 1,000 µCi. Values of 100 µCi have been assigned for radionuclides having a radioactive half-life in excess of 10^9 years (except rhenium, 1000 µCi) to take into account their low specific activity.

NOTE: For purposes of 10 CFR 20.1902(e), 10 CFR 20.1905(a), and 10 CFR 20.2201(a) where there is involved a combination of radionuclides in known amounts, the limit for the combination should be derived as follows: determine, for each radionuclide in the combination, the ratio between the quantity present in the combination and the limit otherwise established for the specific radionuclide when not in combination. The sum of such ratios for all radionuclides in the combination may not exceed "1" (i.e., "unity").

12VAC5-481-3710. Requirements for transfers of low-level radioactive waste intended for disposal at licensed land disposal facilities and manifests.

A. Manifest.

1. A waste generator, waste collector, or waste processor that transports, or offers for transportation, low-level radioactive waste intended for ultimate disposal at a licensed low-level radioactive waste land disposal facility must prepare a manifest reflecting information requested on applicable NRC Forms 540 (Uniform Low-Level Radioactive Waste Manifest (Shipping Paper)) and 541 (Uniform Low-Level Radioactive Waste Manifest (Container and Waste Description)) and, if necessary, on an applicable NRC Form 542 (Uniform Low-Level Radioactive Waste Manifest (Manifest Index and Regional Compact Tabulation)). NRC Forms 540 and 540A must be completed and must physically accompany the pertinent low-level waste shipment.

2. Upon agreement between shipper and consignee, NRC Forms 541, 541A, 542, and 542A may be completed, transmitted, and stored in electronic media with the capability for producing legible, accurate, and complete records on the respective forms.

3. Licensees are not required by the agency, the NRC, or another agreement state to comply with the manifesting requirements of this subpart when they ship:

a. Low-level radioactive waste for processing and expect its return, such as for storage under their license, prior to disposal at a licensed land disposal facility;

b. Low-level radioactive waste that is being returned to the licensee that is the waste generator or generator; or

c. Radioactively contaminated material to a waste processor that becomes the processor's residual waste.

4. For guidance in completing the forms required under subdivision 1 of this subsection, refer to the instructions that accompany the forms. Copies of manifests required by this subpart may be legible carbon copies, photocopies, or computer printouts that reproduce the data in the format of the uniform manifest.

5. NRC Forms 540, 540A, 541, 541A, 542, and 542A, and the accompanying instructions, in hard copy, may be obtained from the Information and Records Management Branch, Office of Information Resources Management, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone (800) 368-5642. The forms are available online at http://www.nrc.gov/reading-rm/doc-collections/forms.

6. This section includes information requirements of the DOT, as codified in 49 CFR Part 172. Information on hazardous, medical, or other waste, required to meet Environmental Protection Agency (EPA) regulations, as codified in 40 CFR Part 259, 261 or elsewhere, is not addressed in this section and must be provided on the required EPA forms. However, the required EPA forms must accompany the uniform low-level radioactive waste manifest required by this section.

B. General information. The shipper of the radioactive waste must provide the following information on the uniform manifest:

1. The name, facility address, and telephone number of the licensee shipping the waste;

2. An explicit declaration indicating whether the shipper is acting as a waste generator, waste collector, waste processor, or a combination of these identifiers for purposes of the manifested shipment; and

3. The name, address, and telephone number, or the name and EPA identification number for the carrier transporting the waste.

C. Shipment information. The shipper of the radioactive waste must provide the following information regarding the waste shipment on the uniform manifest:

1. The date of the waste shipment;

2. The total number of packages or disposal containers;

3. The total disposal volume and disposal weight in the shipment;

4. The total radionuclide activity in the shipment;

5. The activity of each of the radionuclides H-3, C-14, Tc-99, and I-129 contained in the shipment; and

6. The total masses of U-233, U-235, and plutonium in special nuclear material and the total mass of uranium and thorium in source material.

D. Disposal container and waste information. The shipper of the radioactive waste must provide the following information on the uniform manifest regarding the waste and each disposal container of waste in the shipment:

1. An alphabetic or numeric identification that uniquely identifies each disposal container in the shipment;

2. A physical description of the disposal container, including the manufacturer and model of any high integrity container;

3. The volume displaced by the disposal container;

4. The gross weight of the disposal container, including the waste;

5. For waste consigned to a disposal facility, the maximum radiation level at the surface of each disposal container;

6. A physical and chemical description of the waste;

7. The total weight percentage of chelating agent for any waste containing more than 0.1% chelating agent by weight, plus the identity of the principal chelating agent;

8. The approximate volume of waste within a container;

9. The sorbing or solidification media, if any, and the identity of the solidification media vendor and brand name;

10. The identities and activities of individual radionuclides contained in each container, the masses of U-233, U-235, and plutonium in special nuclear material, and the masses of uranium and thorium in source material. For discrete waste types, such as activated materials, contaminated equipment, mechanical filters, sealed source or devices, and wastes in solidification or stabilization media, the identities and activities of individual radionuclides associated with or contained on these waste types within a disposal container must be reported; and

11. The total radioactivity within each container.

E. Uncontainerized waste information. The shipper of the radioactive waste must provide the following information on the uniform manifest regarding a waste shipment delivered without a disposal container:

1. The approximate volume and weight of the waste;

2. A physical and chemical description of the waste;

3. The total weight percentage of chelating agent if the chelating agent exceeds 0.1% by weight, plus the identity of the principal chelating agent;

4. For waste consigned to a disposal facility, the classification of the waste according to 12VAC5-481-2571. Waste not meeting the structural stability requirements of 12VAC5-481-2572 must be identified;

5. The identities and activities of individual radionuclides contained in the waste, the masses of U-233, U-235, and plutonium in special nuclear material, and the masses of uranium and thorium in source material; and

6. For wastes consigned to a disposal facility, the maximum radiation levels at the surface of the waste.

F. Multigenerator disposal container information.

1. This subsection applies to disposal containers enclosing mixtures of waste originating from different generators. The origin of the low-level radioactive waste resulting from a waste processor's activities may be attributable to one or more generators, including waste generators. This subsection also applies to mixtures of wastes shipped in an uncontainerized form, for which portions of the mixture within the shipment originate from different generators.

2. For homogeneous mixtures of waste, such as incinerator ash, the shipper must provide the waste description applicable to the mixture and the volume of the waste attributed to each generator.

3. For heterogeneous mixtures of waste, such as the combined products from a large compactor, the shipper must identify each generator contributing waste to the disposal container and for discrete waste types, such as activated materials, contaminated equipment, mechanical filters, sealed source or devices, and wastes in solidification or stabilization media, the identities and activities of individual radionuclides contained on these waste types within the disposal container. For each generator, the shipper must provide the following:

a. The volume of waste within the disposal container;

b. A physical and chemical description of the waste, including the solidification agent, if any;

c. The total weight percentage of chelating agents for any disposal container containing more than 0.1 percent chelating agent by weight, plus the identity of the principal chelating agent;

d. The sorbing or solidification media, if any, and the identity of the solidification media vendor and brand name if the media is claimed to meet stability requirements in 12VAC5-481-2572; and

e. Radionuclide identities and activities contained in the waste, the masses of U-233, U-235, and plutonium in special nuclear material, and the masses of uranium and thorium in source material, if contained in the waste.

G. Certification. An authorized representative of the waste generator, waste processor, or waste collector must certify by signing and dating the shipment manifest that the transported materials are properly classified, described, packaged, marked, and labeled and are in proper condition for transportation according to the applicable regulations of the DOT and the agency, NRC or another agreement state. A waste collector, in signing the certification, is certifying that nothing has been done to the collected waste that would invalidate the waste generator's certification.

H. Control and tracking; transfers. A licensee that transfers radioactive waste to a land disposal facility or a licensed waste collector must comply with subdivisions 1 through 9 of this subsection. A licensee that transfers waste to a licensed waste processor for waste treatment or repackaging must comply with subdivisions 4 through 9 of this subsection. A licensee shall:

1. Prepare all wastes so that the waste is classified according to 12VAC5-481-2571, and meets the waste characteristics requirements in 12VAC5-481-2572;

2. Label each disposal container of waste, or transport package if potential radiation hazards preclude labeling of the individual disposal container, to identify whether it is Class A waste, Class B waste, Class C waste, or greater than Class C waste, according to 12VAC5-481-2571;

3. Conduct a quality assurance program to ensure compliance with 12VAC5-481-2571 and 12VAC5-481-2572. The program must include management evaluation of audits;

4. Prepare the uniform low-level radioactive waste manifest as required by this part;

5. Forward a copy or electronically transfer the uniform low-level radioactive waste manifest to the intended consignee so that receipt of the manifest precedes the low-level radioactive waste shipment or the manifest is delivered to the consignee with the waste at the time the waste is transferred to the consignee, or both;

6. Include NRC Form 540, and Form 540A if required, with the shipment regardless of the option chosen in subdivision 5 of this subsection;

7. Receive acknowledgment of the receipt of the shipment in the form of a signed copy of NRC Form 540;

8. Retain a copy of or electronically store the uniform low-level radioactive waste manifest and documentation of acknowledgment of receipt as the record of transfer of licensed material as required by Part I (12VAC5-481-10 et

seq.), Part III (12VAC5-481-380 et seq.), Part IV (12VAC5-481-600 et seq.) and Part X (12VAC5-481-2250 et seq.); and

9. For any shipment or any part of a shipment for which acknowledgment of receipt has not been received within the times set forth in this part, conduct an investigation according to subsection L of this section.

I. Control and tracking; prepackaged waste. A waste collector licensee that handles only prepackaged waste must:

1. Acknowledge receipt of the waste from the shipper within one week of receipt by returning a signed copy of NRC Form 540;

2. Prepare a new manifest to reflect consolidated shipments that meet the requirements of this section. The waste collector must ensure that, for each container of waste in the shipment, the manifest identifies the generator of that container of waste;

3. Forward a copy or electronically transfer the uniform low-level radioactive waste manifest to the intended consignee so that receipt of the manifest precedes the low-level radioactive waste shipment or the manifest is delivered to the consignee with the waste at the time the waste is transferred to the consignee, or both;

4. Include NRC Form 540, and 540A if required, with the shipment regardless of the option chosen in subdivision 4 of this subsection;

5. Receive acknowledgment of the receipt of the shipment in the form of a signed copy of NRC Form 540;

6. Retain a copy of or electronically store the uniform low-level radioactive waste manifest and documentation of acknowledgment of receipt as the record of transfer of licensed material as required under Part I (12VAC5-481-10 et seq.), Part III (12VAC5-481-380 et seq.), Part IV (12VAC5-481-600 et seq.) and Part X (12VAC5-481-2250 et seq.);

7. For any shipment or any part of a shipment for which acknowledgment of receipt has not been received within the times set forth in this section, conduct an investigation according to subsection L of this section; and

8. Notify the shipper and the agency when any shipment, or part of a shipment, has not arrived within 60 days after receipt of an advance manifest, unless notified by the shipper that the shipment has been canceled.

J. Control and tracking; treatment or repackaging. A licensed waste processor that treats or repackages waste must:

1. Acknowledge receipt of the waste from the shipper within one week of receipt by returning a signed copy of NRC Form 540;

2. Prepare a new manifest that meets the requirements of this section. Preparation of the new manifest reflects that the waste processor is responsible for meeting these requirements. For each container of waste in the shipment, the manifest must identify the waste generators, the preprocessed waste volume, and the other information as required under subsection F of this section;

3. Prepare all wastes so that the waste is classified according to 12VAC5-481-2571, and meets the waste characteristics requirements in 12VAC5-481-2572;

4. Label each package of waste to identify whether it is Class A waste, Class B waste, or Class C waste, in accordance with 12VAC5-481-2571 and 12VAC5-481-2572;

5. Conduct a quality assurance program to ensure compliance with 12VAC5-481-2571 and 12VAC5-481-2572. The program must include management evaluation of audits;

6. Forward a copy or electronically transfer the uniform low-level radioactive waste manifest to the intended consignee so that receipt of the manifest precedes the low-level radioactive waste shipment or the manifest is delivered to the consignee with the waste at the time the waste is transferred to the consignee, or both;

7. Include NRC Form 540, and Form 540A if required, with the shipment regardless of the option chosen in subdivision 6 of this subsection;

8. Receive acknowledgment of the receipt of the shipment in the form of a signed copy of NRC Form 540;

9. Retain a copy of or electronically store the uniform low-level radioactive waste manifest and documentation of acknowledgment of receipt as the record of transfer of licensed material as required by Part I (12VAC5-481-10 et seq.), Part III (12VAC5-481-380 et seq.), Part IV (12VAC5-481-600 et seq.) and Part X (12VAC5-481-2250 et seq.);

10. For any shipment or any part of a shipment for which acknowledgment of receipt has not been received within the times set forth in this part, conduct an investigation according to subsection L; and

11. Notify the shipper and the agency when any shipment, or part of a shipment, has not arrived within 60 days after receipt of an advance manifest, unless notified by the shipper that the shipment has been canceled.

K. Control and tracking; land disposal facility. A land disposal facility operator shall:

1. Acknowledge receipt of the waste within one week of receipt by returning, as a minimum, a signed copy of NRC Form 540 to the shipper. The shipper to be notified is the

licensee that last possessed the waste and transferred the waste to the operator. If any discrepancy exists between materials listed on the uniform low-level radioactive waste manifest and materials received, copies or electronic transfer of the affected forms must be returned indicating the discrepancy;

2. Maintain copies of all completed manifests and electronically store the information required by 12VAC5-481-2630, until the agency terminates the license; and

3. Notify the shipper and the agency when any shipment, or part of a shipment, has not arrived within 60 days after receipt of an advance manifest, unless notified by the shipper that the shipment has been canceled.

L. Investigation. A shipment or part of a shipment for which acknowledgment is not received within the times set forth in this part must:

1. Be investigated by the shipper if the shipper has not received notification or receipt within 20 days after transfer; and

2. Be traced and reported. The investigation must include tracing the shipment and filing a report with the agency. A licensee that conducts a trace investigation must file a written report with the agency within two weeks of completing the investigation.

12VAC5-481-3720. Exempt concentrations schedule.

		Col. I	Col. II
Element (atomic number)	Isotope	Gas Concentration µCi/ml[1]	Liquid and Solid Concentration µCi/ml[2]
Antimony (51)	Sb-122		3×10^{-4}
	Sb-124		2×10^{-4}
	Sb-125		1×10^{-3}
Argon (18)	A-37	1×10^{-3}	
	A-41	4×10^{-7}	
Arsenic (33)	As-73		5×10^{-3}
	As-74		5×10^{-4}
	As-76		2×10^{-4}
	As-77		8×10^{-4}
Barium (56)	Ba-131		2×10^{-3}
	Ba-140		3×10^{-4}
Beryllium (4)	Be-7		2×10^{-2}
Bismuth (83)	Bi-206		4×10^{-4}
Bromine (35)	Br-82	4×10^{-7}	3×10^{-3}
Cadmium (48)	Cd-109		2×10^{-3}
	Cd-115M		3×10^{-4}
	Cd-115		3×10^{-4}
Calcium (20)	Ca-45		9×10^{-5}
	Ca-47		5×10^{-4}
Carbon (6)	C-14	1×10^{-6}	8×10^{-3}
Cerium (58)	Ce-141		9×10^{-4}
	Ce-143		4×10^{-4}
	Ce-144		1×10^{-4}
Cesium (55)	Cs-131		2×10^{-2}
	Cs-134m		6×10^{-2}
	Cs-134		9×10^{-5}
Chlorine (17)	Cl-38	9×10^{-7}	4×10^{-3}
Chromium (24)	Cr-51		2×10^{-2}
Cobalt (27)	Co-57		5×10^{-3}
	Co-58		1×10^{-3}
	Co-60		5×10^{-4}
Copper (29)	Cu-64		3×10^{-3}
Dysprosium (66)	Dy-165		4×10^{-3}
	Dy-166		4×10^{-4}
Erbium (68)	Er-169		9×10^{-4}
	Er-171		1×10^{-3}
Europium (63)	Eu-152 (9.2 hrs)		6×10^{-4}
	Eu-155		2×10^{-3}
Fluorine (9)	F-18	2×10^{-6}	8×10^{-3}
Gadolinium (64)	Gd-153		2×10^{-3}
	Gd-159		8 x `0^{-4}
Gallium (31)	Ga-72		4×10^{-4}
Germanium (32)	Ge-71		2×10^{-2}
Gold (79)	Au-196		2×10^{-3}
	Au-198		5×10^{-4}
	Au-199		2×10^{-3}
Hafnium (72)	Hf-81		7×10^{-4}
Hydrogen (1)	H-3	5×10^{-6}	3×10^{-2}
Indium (49)	In-113M		1×10^{-2}
	In-114M		2×10^{-4}
Iodine (53)	I-126	3×10^{-9}	2×10^{-5}
	I-131	3×10^{-9}	2×10^{-5}
	I-132	8×10^{-8}	6×10^{-4}
	I-133	1×10^{-8}	7×10^{-5}
	I-134	2×10^{-7}	1×10^{-3}
Iridium (77)	Ir-190		2×10^{-3}
	Ir-192		4×10^{-4}
	Ir-194		3×10^{-4}
Iron (26)	Fe-55		8×10^{-3}

	Fe-59		6×10^{-4}
Krypton (36)	Kr-85M	1×10^{-6}	
	Kr-85	3×10^{-6}	
Lanthanum (57)	La-140		2×10^{-4}
Lead (82)	Pb-203		4×10^{-3}
Lutetium (71)	Lu-177		1×10^{-3}
Manganese (25)	Mn-52		3×10^{-4}
	Mn-54		1×10^{-3}
	Mn-56		1×10^{-3}
Mercury (80)	Hg-197M		2×10^{-3}
	Hg-197		3×10^{-3}
	Hg-203		2×10^{-4}
Molybdenum (42)	Mo-99		2×10^{-3}
Neodymium (60)	Nd-147		6×10^{-4}
	Nd-149		3×10^{-3}
Nickel (28)	Ni-65		1×10^{-3}
Niobium (Columbium) (41)	Nb-95		1×10^{-3}
	Nb-97		9×10^{-3}
Osmium (76)	Os-185		7×10^{-4}
	Os-191M		3×10^{-2}
	Os-191		2×10^{-3}
	Os-193		6×10^{-4}
Palladium (46)	Pd-103		3×10^{-3}
	Pd-109		9×10^{-4}
Phosphorus (15)	P-32		2×10^{-4}
Platinum (78)	Pt-191		1×10^{-3}
	Pt-193M		1×10^{-2}
	Pt-197M		1×10^{-2}
	Pt-197		1×10^{-3}
Potassium (19)	K-42		3×10^{-3}
Praseodymium (59)	Pr-142		3×10^{-4}
	Pr-143		5×10^{-4}
Promethium (61)	Pm-147		2×10^{-3}
	Pm-149		4×10^{-4}
Rhenium (75)	Re-183		6×10^{-3}
	Re-186		9×10^{-4}
	Re-188		6×10^{-4}
Rhodium (45)	Rh-103M		1×10^{-1}
	Rh-105		1×10^{-3}
Rubidium (37)	Rb-86		7×10^{-4}
Ruthenium (44)	Ru-97		4×10^{-4}
	Ru-103		8×10^{-4}
	Ru-105		1×10^{-3}
	Ru-106		1×10^{-4}
Samarium (62)	Sm-153		8×10^{-4}
Scandium (21)	Sc-46		4×10^{-4}
	Sc-47		9×10^{-4}
	Sc-48		3×10^{-4}
Selenium (34)	Se-75		3×10^{-3}
Silicon (14)	Si-31		9×10^{-3}
Silver (47)	Ag-105		1×10^{-3}
	Ag-110M		3×10^{-4}
	Ag-111		4×10^{-4}
Sodium (11)	Na-24		2×10^{-3}
Strontium (38)	Sr-85		1×10^{-4}
	Sr-89		1×10^{-4}
	Sr-91		7×10^{-4}
	Sr-92		7×10^{-4}
Sulfur (16)	S-35	9×10^{-8}	6×10^{-4}
Tantalum (73)	Ta-182		4×10^{-4}
Technetium (43)	Tc-96M		1×10^{-1}
	Tc-96		1×10^{-3}
Tellurium (52)	Te-125M		2×10^{-3}
	Te-125M		6×10^{-4}
	Te-127		3×10^{-3}
	Te-129M		3×10^{-4}
	Te-131M		6×10^{-4}
	Te-132		3×10^{-4}
Terbium (65)	Tb-160		4×10^{-4}
Thallium (81)	Tl-200		4×10^{-3}
	Tl-201		3×10^{-3}
	Tl-202		1×10^{-3}
	Tl-204		1×10^{-3}
Thulium (69)	Tm-170		5×10^{-4}
	Tm-171		5×10^{-3}
Tin (50)	Sn-113		9×10^{-4}
	Sn-125		2×10^{-4}
Tungsten (Wolfram) (74)	W-181		4×10^{-3}
	W-187		7×10^{-4}
Vanadium (23)	V-48		3×10^{-4}
Xenon (54)	Xe-131M	4×10^{-6}	
	Xe-133	3×10^{-6}	
	Xe-135	1×10^{-6}	
Ytterbium (70)	Yb-175		1×10^{-3}
Yttrium (39)	Y-90		2×10^{-4}

	Y-91M		3×10^{-2}
	Y-91		3×10^{-4}
	Y-92		6×10^{-4}
	Y-93		3×10^{-4}
Zinc (30)	Zn-65		1×10^{-3}
	Zn-69M		7×10^{-4}
	Zn-69		2×10^{-2}
Zirconium (40)	Zr-95		6×10^{-4}
	Zr-97		2×10^{-4}
Beta and/or gamma emitting radioactive material not listed above with half-life less than three years		1×10^{-10}	1×10^{-6}

Footnotes:

[1]Values are given only for those materials normally used as gases.

[2]μCi/gm for solids.

NOTE 1: Many radioisotopes disintegrate into isotopes that are also radioactive. In expressing the concentrations, the activity stated is that of the parent isotope and takes into account the daughters.

NOTE 2: For purposes of 12VAC5-481-400 A where there is involved a combination of isotopes, the limit for the combination should be derived as follows:

Determine for each isotope in the product the ratio between the concentration present in the product and the exempt concentration for the specific isotope when not in combination. The sum of such ratios may not exceed "1" (i.e., unity).

Example:

$$\frac{\text{Concentration of Isotope A in product}}{\text{Exempt concentration of Isotope A}} + \frac{\text{Concentration of Isotope B in product}}{\text{Exempt concentration of Isotope B}} \leq 1$$

12VAC5-481-3730. Exempt quantities.

Radioactive material	Microcuries
Antimony 122 (Sb 122)	100
Antimony 124 (Sb 124)	10
Antimony 125 (Sb 125)	10
Arsenic 73 (As 73)	100
Arsenic 74 (As 74)	10
Arsenic 76 (As 76)	10
Arsenic 77 (as 77)	100
Barium 131 (Ba 131)	10
Barium 133 (Ba 133)	10
Barium 140 (Ba 140)	10
Bismuth 210 (Bi 210)	1
Bromine 82 (Br 82)	10
Cadmium109 (Cd 109)	10
Cadmium 115m (Cd 115m)	10
Cadmium115 (Cd 115)	100
Calcium 45 (Ca 45)	10
Calcium 47 (Ca 47)	10
Carbon 14 (C 14)	100
Cerium 141 (Ce 141)	100
Cerium 143 (Ce 143)	100
Cerium 144 (Ce 144)	1
Cesium 129 (Cs 129)	100
Cesium 131 (Cs 131)	1,000
Cesium 134m (Cs 134m)	100
Cesium 134 (Cs 134)	1
Cesium 135 (Cs 135)	10
Cesium 136 (Cs 136)	10
Cesium 137 (Cs 137)	10
Chlorine 36 (Cl 36)	10
Chlorine 38 (Cl 38)	10
Chromium 51 (Cr 51)	1,000
Cobalt 57 (Co 57)	100
Cobalt 58m (Co 58m)	10
Cobalt 58 (Co 58)	10
Cobalt 60 (Co 60)	1
Copper 64 (Cu 64)	100
Dysprosium 165 (Dy 165)	10
Dysprosium 166(Dy 166)	100
Erbium 169 (Er 169)	100
Erbium 171 (Er 171)	100
Europium 152 9.2 h (Eu 152 9.2 h)	100
Europium 152 13 yr (Eu 152 13 yr)	1
Europium 154 (Eu 154)	1
Europium 155(Eu 155)	10
Fluorine 18 (F 18)	1,000
Gadolinium 153 (Gd 153)	10
Gadolinium 159 (Gd 159)	100

Gallium 67 (Ga 67)	100	Molybdenum 99 (Mo 99)	100
Gallium 72 (Ga 72)	10	Neodymium 147 (Nd 147)	100
Germanium 68 (Ge 68)	10	Neodymium 149 (Nd 149)	100
Germanium 71 (Ga 71)	100	Nickel 59 (Ni 59)	100
Gold 195 (Au 195)	10	Nickel 63 (Ni 63)	10
Gold 198 (Au 198)	100	Nickel 65 (Ni 65)	100
Gold 199 (Au 199)	100	Niobium 93m (Nb 93m)	10
Hafnium 181 (Hf 181)	10	Niobium 95 (Nb 95)`	10
Holmium 166 (Ho 166)	100	Niobium 97 (Nb 97)	10
Hydrogen 3 (H3)	1,000	Osmium 185 (Os 185)	10
Indium 111 (In 111)	100	Osmium 191m (Os 191)	100
Indium 113m (In 113m)	100	Osmium 191 (Os 191)	100
Indium 114m(In 114m)	10	Osmium 193 (Os 193)	100
Indium 115m(In 115m)	100	Palladium 103 (Pd 103)	100
Indium 115 (In 115)	10	Palladium 109(Pd 109)	100
Iodine 123 (I 123)	100	Phosphorus 32 (P 32)	10
Iodine 125 (I 125)	1	Platinum 191 (Pt 191)	100
Iodine 126 (I 126)	1	Platinum 193m(Pt 193m)	100
Iodine 129 (I 129)	0,1	Platinum 193 (Pt 193)	100
Iodine 131 (I 131)	1	Platinum 197m(Pt 197m)	100
Iodine 132 (I 132)	10	Platinum 197 (Pt 197)	100
Iodine 133 (I 133)	1	Polonium 210 (Po 210)	0.1
Iodine 134 (I 134)	10	Potassium 42 (K 42)	10
Iodine 135 (I 135)	10	Potassium 43 (K 43)	10
Iridium 192 (Ir 192)	10	Praseodymium 142 (Pr 142)	100
Iridium 194 (Ir 194)	100	Praseodymium 143 (Pr 143)	100
Iron 52 (Fe 52)	10	Promethium 147 (Pm 147)	10
Iron 55 (Fe 55)	100	Promethium 149 (Pm 149)	10
Iron 59 (Fe 59)	10	Rhenium 186 (Re 186)	100
Krypton 85 (Kr 85)	100	Rhenium 188 (Re 188)	100
Krypton 87 (Kr 87)	10	Rhodium 103m (Rh 103m)	100
Lanthanum 140 (La 140)	10	Rhodium 105 (Rh 105)	100
Lutetium 177 (Lu 177)	100	Rubidium 81 (Rb81)	10
Manganese 52 (Mn 52)	10	Rubidium 86 (R86)	10
Manganese 54 (Mn 54)	10	Rubidium 87 (Rb87)	10
Manganese 56 (Mn 56)	10	Ruthenium 97 (Ru 97)	100
Mercury 197m (Hg 197m)	100	Ruthenium 103 (Ru 103)	10
Mercury 197 (Hg 197)	100	Ruthenium 105(Ru 105)	10
Mercury 203 (Hg 203)	10	Ruthenium 106(Ru 106)	1

Samarium 151(Sm 151)	10
Samarium 153(Sm 153)	100
Scandium 46 (Sc 46)	10
Scandium 47 (Sc 47)	100
Scandium 48 (Sc 48)	10
Selenium 75 (Se 75)	10
Silicon 31 (Si 31)	100
Silver 105 (Ag 105)	10
Silver 110m (Ag 110m)	1
Silver 111 (Ag 111)	100
Sodium 22 (Na 22)	10
Sodium 24 (Na 24)	10
Strontium 85 (Sr 85)	10
Strontium 89 (Sr 89)	1
Strontium 90 (Sr 90)	0.1
Strontium 91 (Sr 91)	10
Strontium 92 (Sr 92)	10
Sulphur 35 (S 35)	100
Tantalum 182 (Ta 182)	10
Technetium 96 (Tc 96)	10
Technetium 97m (Tc 97m)	100
Technetium 97 (Tc 97)	100
Technetium 99m (Tc 99m)	100
Technetium 99 (Tc 99)	10
Tellurium 125 m (Te 125 m)	10
Tellurium 127m (Te 127m)	10
Tellurium 127 (Te 127)	100
Tellurium 129m (Te 129m)	10
Tellurium 129 (Te 129)	100
Tellurium 131m (Te 131m)	10
Tellurium 132 (Te 132)	10
Terbium 160 (Tb 160)	10
Thallium 200 (Tl 200)	100
Thallium 201 (Tl 201)	100
Thallium 202 (Tl 202)	100
Thallium 204 (Tl 204)	10
Thulium 170 (Tm 170)	10
Thulium 171 (Tm 171)	10
Tin 113 (Sn 113)	10
Tin 125 (Sn 125)	10
Tungsten 181 (W 181)	10
Tungsten 185 (W 185)	10
Tungsten 187 (W 187)	100
Vanadium 48 (V 48)	10
Xenon 131m (Xe 131m)	1,000
Xenon 133 (Xe 133)	100
Xenon 135 (Xe 135)	100
Ytterbium 175 (Yb 175)	100
Yttrium 87 (Y 87)	10
Yttrium 88 (Y 88)	10
Yttrium 90 (Y 90)	10
Yttrium 91 (Y91)	10
Yttrium 92 (Y92)	100
Yttrium 93 (Y93)	100
Zinc 65 (Zn 65)	10
Zinc 69m (Zn 69m)	100
Zinc 69 (Zn 69)	1,000
Zirconium 93 (Zr 93)	10
Zirconium 95 (Zr 95)	10
Zirconium 97 (Zr 97)	10
Any radioactive material not listed above other than alpha emitting radioactive materials	0.1

12VAC5-481-3740. Quantities of radioactive materials requiring consideration of the need for an emergency plan for responding to a release.

Radioactive material[1]	Release fraction	Quantity (curies)
Actinium-228	0.001	4,000
Americium-241	.001	2
Americium-242	.001	2
Americium-243	.001	2
Antimony-124	.01	4,000
Antimony-126	.01	6,000
Barium-133	.01	10,000
Barium-140	.01	30,000
Bismuth-207	.01	5,000
Bismuth-210	.01	600
Cadmium-109	.01	1,000
Cadmium-113	.01	80
Calcium-45	.01	20,000

Californium-252	.001	g (20 mg)
Carbon-14 (non-carbon dioxide)	.01	50,000
Cerium-141	.01	10,000
Cerium-144	.01	300
Cesium-134	.01	2,000
Cesium-137	.01	3,000
Chlorine-36	.5	100
Chromium-51	.01	300,000
Cobalt-60	.001	5,000
Copper-64	.01	200,000
Curium-242	.001	60
Curium-243	.001	3
Curium-244	.001	4
Curium-245	.001	2
Europium-152	.01	500
Europium-154	.01	400
Europium-155	.01	3,000
Germanium-68	.01	2,000
Gadolinium-153	.01	5,000
Gold-198	.01	30,000
Hafnium-172	.01	400
Hafnium-181	.01	7,000
Holmium-166m	.01	100
Hydrogen-3	.5	20,000
Iodine-125	.5	10
Iodine-131	.5	10
Indium-114m	.01	1,000
Iridium-192	.001	40,000
Iron-55	.01	40,000
Iron-59	.01	7,000
Krypton-85	1.0	6,000,000
Lead-210	.01	8
Manganese-56	.01	60,000
Mercury-203	.01	10,000
Molybdenum-99	.01	30,000
Neptunium-237	.001	2
Nickel-63	.01	20,000
Niobium-94	.01	300
Phosphorus-32	.5	100
Phosphorus-33	.5	1,000
Polonium-210	.01	10
Potassium-42	.01	9,000
Promethium-145	.01	4,000
Promethium-147	.01	4,000
Radium-226	.001	100
Ruthenium-106	.01	200
Samarium-151	.01	4,000
Scandium-46	.01	3,000
Selenium-75	.01	10,000
Silver-110m	.01	1,000
Sodium-22	.01	9,000
Sodium-24	.01	10,000
Strontium-89	.01	3,000
Strontium-90	.01	90
Sulfur-35	.5	900
Technitium-99	.01	10,000
Technitium-99m	.01	400,000
Tellurium-127m	.01	5,000
Tellurium-129m	.01	5,000
Terbium-160	.01	4,000
Thulium-170	.01	4,000
Tin-113	.01	10,000
Tin-123	.01	3,000
Tin-126	.01	1,000
Titanium-44	.01	100
Vanadium-48	.01	7,000
Xenon-133	1.0	900,000
Yttrium-91	.01	2,000
Zinc-65	.01	5,000
Zirconium-93	.01	400
Zirconium-95	.01	5,000
Any other beta-gamma emitter	.01	10,000
Mixed fission products	.01	1,000
Mixed corrosion products	.01	10,000
Contaminated equipment beta-gamma	.001	10,000
Irradiated material, any form other than	.01	1,000

solid noncombustible		
Irradiated material, solid noncombustible	.001	10,000
Mixed radioactive waste, beta-gamma	.01	1,000
Packaged mixed waste, beta-gamma[2]	.001	10,000
Any other alpha emitter	.001	2
Contaminated equipment, alpha	.0001	20
Packaged waste, alpha[2]	.0001	20
Combinations of radioactive materials listed above[1]		

[1]For combinations of radioactive materials, consideration of the need for an emergency plan is required if the sum of the ratios of the quantity of each radioactive material authorized to the quantity listed for that material in this section exceeds one.

[2]Waste packaged in Type B containers does not require an emergency plan.

12VAC5-481-3750. Quantities for use with decommissioning.

Materials	Microcuries
Americium-241	.01
Antimony-122	100
Antimony-124	10
Antimony-125	10
Arsenic-73	100
Arsenic-74	10
Arsenic-76	10
Arsenic-77	100
Barium-131	10
Barium-133	10
Barium-140	10
Bismuth-210	1
Bromine-82	10
Cadmium-109	10
Cadmium-115m	10
Cadmium-115	100
Calcium-45	10
Calcium-47	10
Carbon-14	100
Cerium-141	100
Cerium-143	100
Cerium-144	1
Cesium-131	1,000
Cesium-134m	100
Cesium-134	1
Cesium-135	10
Cesium-136	10
Cesium-137	10
Chlorine-36	10
Chlorine-38	10
Chromium-51	1,000
Cobalt-55	100
Cobalt-56	10
Cobalt-57	100
Cobalt-58m	10
Cobalt-58	10
Cobalt-60	1
Copper-64	100
Dysprosium-165	10
Dysprosium-166	100
Erbium-169	100
Erbium-171	100
Europium-152 9.2h	100
Europium-152 13 yr	1
Europium-154	1
Europium-155	10
Fluorine-18	1,000
Gadolinium-153	10
Gadolinium-159	100
Gallium-72	10
Germanium-71	100
Gold-198	100
Gold-199	100
Hafnium-181	10
Holmium-166	100
Hydrogen-3	1,000
Indium-113m	100
Indium-114m	10
Indium-115m	100

Indium-115	10	Platinum-191	100
Iodine-125	1	Platinum-193m	100
Iodine-126	1	Platinum-193	100
Iodine-129	0.1	Platinum-197m	100
Iodine-131	1	Platinum-197	100
Iodine-132	10	Plutonium-239	.01
Iodine-133	1	Polonium-210	0.1
Iodine-134	10	Potassium-42	10
Iodine-135	10	Praseodymium-142	100
Iridium-192	10	Praseodymium-143	100
Iridium-194	100	Promethium-147	10
Iron-55	100	Promethium-149	10
Iron-59	10	Radium-226	.01
Krypton-85	100	Rhenium-186	100
Krpton-87	10	Rhenium-188	100
Lanthanum-140	10	Rhodium-103m	100
Lutetium-177	100	Rhodium-105	100
Manganese-52	10	Rubidium-86	10
Manganese-54	10	Rubidium-87	10
Manganese-56	10	Ruthenium-97	100
Mercury-197m	100	Ruthenium-103	10
Mercury-197	100	Ruthenium-105	10
Mercury-203	10	Ruthenium-106	1
Molbdenum-99	100	Samarium-151	10
Neodymium-147	100	Samarium-153	100
Neodymium-149	100	Scandium-46	10
Nickel-59	100	Scandium-47	100
Nickel-63	10	Scandium-48	10
Nickel-65	100	Seleium-75	10
Niobium-93m	10	Silicon-31	100
Niobium-95	10	Silver-105	10
Niobium-97	10	Silver-110m	1
Osmium-185	10	Silver-111	100
Osmium-191m	100	Sodium-24	10
Osmium-191	100	Strontium-85	10
Osmium-193	100	Strontium-89	1
Palladium-103	100	Strontium-90	0.1
Palladium-109	100	Strontium-91	10
Phosphorus-32	10	Strontium-92	10

Sulphur-35	100
Tantalum-182	10
Technetium-96	10
Technetium-97m	100
Technetium-97	100
Technetium-99m	100
Technetium-99	10
Tellurium-125m	10
Tellurium127m	10
Tellurium-127	100
Tellurium129m	10
Tellurium-129	100
Tellurium-131m	10
Tellurium-132	10
Terbium-160	10
Thallium-200	100
Thallium-201	100
Thallium-202	100
Thallium-204	10
Throium (natural)[1]	100
Thulium-170	10
Thulium-171	10
Tin-113	10
Tin-125	10
Tungsten-181	10
Tungsten-185	10
Tungsten-187	100
Uranium (natural)[2]	100
Uranium-233	.01
Uranium-234--Uranium-235	.01
Vandium-48	10
Xenon-131m	1,000
Xenon-133	100
Xenon-135	100
Ytterbium-175	100
Yttrium-90	10
Yttrium-91	10
Yttrium-92	100
Yttrium-93	100
Zinc-65	10
Zinc-69m	100
Zinc-69	1,000
Zirconium-93	10
Zirconium-95	10
Zirconium-97	10
Any alpha emitting radionuclide not listed above or mixtures of alpha emitters of unknown composition	.01
Any radionuclide other than alpha emitting radio-nuclides, not listed above or mixtures of beta emitters of unknown composition	.1

[1]Based on alpha disintegration rate of Th-232, Th-230 and their daughter products.

[2]Based on alpha disintegration rate of U-238, U-234, and U-235.

Note: For purposes of § 20.2003, where there is involved a combination of isotopes in known amounts, the limit for the combination should be derived as follows: Determine, for each isotope in the combination, the ratio between the quantity present in the combination and the limit otherwise established for the specific isotope when not in combination. The sum of such ratios for all the isotopes in the combination may not exceed "1" (i.e., "unity").

12VAC5-481-3760. Limits for broad scopes.

Radioactive material	Col. I curies	Col. II curies
Antimony-122	1	0.01
Antimony-124	1	0.01
Antimony-125	1	0.01
Arsenic-73	10	0.1
Arsenic-74	1	0.01
Arsenic-76	1	0.01
Arsenic-77	10	0.1
Barium-131	10	0.1
Barium-140	1	0.01
Beryllium-7	10	0.1
Bismuth-210	0.1	0.001
Bromine-82	10	0.1
Cadmium-109	1	0.01
Cadmium-115m	1	0.01
Cadmium-115	10	0.1

Calcium-45	1	0.01	Indium-114m	1	0.01
Calcium-47	10	0.1	Indium-115m	100	1
Carbon-14	100	1	Indium-115	1	0.01
Cerium-141	10	0.1	Iodine-125	0.1	0.001
Cerium-143	10	0.1	Iodine-126	0.1	0.001
Cerium-144	0.1	0.001	Iodine-129	0.1	0.001
Cesium-131	100	1	Iodine-131	0.1	0.001
Cesium-134m	100	1	Iodine-132	10	0.1
Cesium-134	0.1	0.001	Iodine-133	1	0.01
Cesium-135	1	0.01	Iodine-134	10	0.1
Cesium-136	10	0.1	Iodine-135	1	0.01
Cesium-137	0.1	0.001	Iridium-192	1	0.01
Chlorine-36	1	0.01	Iridium-194	10	0.1
Chlorine-38	100	1	Iron-55	10	0.1
Chromium-51	100	1	Irion-59	1	0.01
Cobalt-57	10	0.1	Krypton-85	100	1
Cobalt-58m	100	1	Krypton-87	10	0.1
Cobalt-58	1	0.01	Lanthanum-140	1	0.01
Cobalt-60	0.1	0.001	Lutelium-177	10	0.1
Copper-64	10	0.1	Manganese-52	1	0.01
Dysprosium-165	100	1	Manganese-54	1	0.01
Dysprosium-166	10	0.1	Manganese-56	10	0.1
Erbium-169	10	0.1	Mercury-197m	10	0.1
Erbium-171	10	0.1	Mercury-197	10	0.1
Europium-152 9.2 h	10	0.1	Mercury-203	1	0.01
Europium-152 13 y	0.1	0.001	Molybdenum-99	10	0.1
Europium-154	0.1	0.001	Neodymium-147	10	0.1
Europium-155	1	0.01	Neodymium-149	10	0.1
Fluorine-18	100	1	Nickel-59	10	0.1
Gadolinium-153	1	0.01	Nickel-63	1	0.01
Gadolinium-159	10	0.1	Nickel-65	10	0.1
Gallium-72	10	0.1	Niobium-93m	1	0.01
Germanium-71	100	1	Niobium-95	1	0.01
Gold-198	10	0.1	Niobium-97	100	1
Gold-199	10	0.1	Osmium-185	1	0.01
Hafnium-181	1	0.01	Osmium-191m	100	1
Holmium-166	10	0.1	Osmium-191	10	0.1
Hydrogen-3	100	1	Osmium-193	10	0.1
Indium-113m	100	1	Palladium-103	10	0.1

Palladium-109	10	0.1	Strontium-91	10	0.1
Phosphorus-32	1	0.01	Strontium-92	10	0.1
Platinum-191	10	0.1	Sulphur-35	10	0.1
Platinum-193m	100	1	Tantalum-182	1	0.01
Platinum-193	10	0.1	Technetium-96	10	0.1
Platinum-197m	100	1	Technetium-97m	10	0.1
Platinum-197	100	.1	Technetium-97	10	0.1
Polonium-210	0.01	0.0001	Technetium-99m	100	1
Potassium-42	1	0.01	Technetium-99	1	0.01
Praseodymium-142	10	0.1	Tellurium-125m	1	0.01
Praseodymium-143	10	0.1	Tellurium-127m	1	0.01
Promethium-147	1	0.01	Tellurium-127	10	0.1
Promethium-149	10	0.1	Tellurium-129m	1	0.01
Radium-226	0.01	0.0001	Tellurim-129	100	1
Rhenium-186	10	0.1	Tellurium-131m	10	0.1
Rhenium-188	10	0.1	Tellurium-132	1	0.01
Rhodium-103m	1,000	10	Terbium-160	1	0.01
Rhodium-105	10	0.1	Thallium-200	10	0.1
Rubidium-86	1	0.01	Thallium-201	10	0.1
Rubidium-87	1	0.01	Thallium-202	10	0.1
Ruthenium-97	100	1	Thallium-204	1	0.01
Ruthenium-103	1	0.01	Thulium-170	1	0.01
Ruthenium-105	10	0.1	Thulium-171	1	0.01
Ruthenium-106	0.1	0.001	Tin-113	1	0.01
Samarium-151	1	0.01	Tin-125	1	0.01
Samarium-153	10	0.1	Tungsten-181	1	0.01
Scandium-46	1	0.01	Tungsten-185	1	0.01
Scandium-47	10	0.1	Tungsten-187	10	0.1
Scandium-48	1	0.01	Vandadium-48	1	0.01
Selenium-75	1	0.01	Xenon-131m	1,000	10
Silicon-31	10	0.1	Xenon-133	100	1
Silver-105	1	0.01	Xenon-135	100	1
Silver-110m	0.1	0.001	Ytterbium-175	10	0.1
Silver-111	10	0.1	Yttrium-90	1	0.01
Sodium-22	0.1	0.001	Yttrium-91	1	0.01
Sodium-24	1	0.01	Yttrium-92	10	0.1
Strontium-85m	1,000	10	Yttrium-93	1	0.01
Strontium-85	1	0.01	Zinc-65	1	0.01
Strontium-89	1	0.01	Zinc-69m	10	0.1
Strontium-90	0.01	0.0001	Zinc-69	100	1

Zirconium-93	1	0.01
Zirconium-95	1	0.01
Zirconium-97	1	0.01
Any radioactive material other than alpha emitting radioactive material not listed above	0.1	0.001

12VAC5-481-3770. Determination of A_1 and A_2.

The following regulation, Determination of A_1 and A_2 (10 CFR Part 71, Appendix A) is applicable in the Commonwealth of Virginia.

12VAC5-481-3780. Nationally tracked source thresholds.

The terabecquerel (TBq) values are the regulatory standard. The curie (Ci) values specified are obtained by converting from the TBq value. The curie values are provided for practical usefulness only and are rounded after conversion.

Radioactive material	Category 1 (TBq)	Category 1 (Ci)	Category 2 (TBq)	Category 2 (Ci)
Actinium-227	20	540	0.2	5.4
Americium-241	60	1,600	0.6	16
Americium-241/Be	60	1,600	0.6	16
Californium-252	20	540	0.2	5.4
Cobalt-60	30	810	0.3	8.1
Curium-244	50	1,400	0.5	14
Cesium-137	100	2,700	1	27
Gadolinium-153	1,000	27,000	10	270
Iridium-192	80	2,200	0.8	22
Plutonium-238	60	1,600	0.6	16
Plutonium-239/Be	60	1,600	0.6	16
Polonium-210	60	1,600	0.6	16
Promethium-147	40,000	1,100,000	400	11,000
Radium-226	40	1,100	0.4	11
Selenium-75	200	5,400	2	54
Strontium-90	1,000	27,000	10	270
Thorium-228	20	540	0.2	5.4
Thorium-229	20	540	0.2	5.4
Thulium-170	20,000	540,000	200	5,400
Ytterbium-169	300	8,100	3	81

VA.R. Doc. No. R08-980; Filed April 14, 2008, 2:16 p.m.

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TITLE 14. INSURANCE

STATE CORPORATION COMMISSION

Proposed Regulation

REGISTRAR'S NOTICE: The State Corporation Commission is exempt from the Administrative Process Act in accordance with §2.2-4002 A 2 of the Code of Virginia, which exempts courts, any agency of the Supreme Court, and any agency that by the Constitution is expressly granted any of the powers of a court of record.

Title of Regulation: **14VAC5-211. Rules Governing Health Maintenance Organizations (amending 14VAC5-211-50, 14VAC5-211-90, 14VAC5-211-100).**

Statutory Authority: §§12.1-13 and 38.2-223 of the Code of Virginia.

Public Hearing Information: A public hearing will be scheduled upon request.

Public Comments: Public comments may be submitted until 5 p.m. on May 30, 2008.

Agency Contact: Jacqueline Cunningham, Deputy Commissioner, Life and Health, State Corporation Commission, Bureau of Insurance, 1300 E. Main Street, P.O. Box 1157, Richmond, VA 23218, telephone (804) 371-9074, FAX (804) 371-9944, or email jackie.cunningham@scc.virginia.gov.

Summary:

The proposed amendments correct an error in a cited section of the Code of Virginia, and amend the regulation to comply with amendments to §38.2-4303 of the Code of Virginia passed by the 2008 General Assembly with regard to deductibles and copayments.

AT RICHMOND, APRIL 17, 2008

COMMONWEALTH OF VIRGINIA

At the relation of the

STATE CORPORATION COMMISSION

CASE NO. INS-2008-00083

Ex Parte: In the matter of
Adopting Revisions to the
Rules Governing Health
Maintenance Organizations

ORDER TO TAKE NOTICE

Section 12.1-13 of the Code of Virginia provides that the State Corporation Commission ("Commission") shall have the power to promulgate rules and regulations in the enforcement and administration of all laws within its jurisdiction, and § 38.2-223 of the Code of Virginia provides that the Commission may issue any rules and regulations necessary or appropriate for the administration and enforcement of Title 38.2 of the Code of Virginia.

The rules and regulations issued by the Commission pursuant to § 38.2-223 of the Code of Virginia are set forth in Title 14 of the Virginia Administrative Code.

The Bureau of Insurance ("Bureau") has submitted to the Commission proposed amendments to Chapter 211 of Title 14 of the Virginia Administrative Code entitled "Rules Governing Health Maintenance Organizations" ("Rules"), which amend the Rules at 14 VAC 5-211-50, 14 VAC 5-211-90 and 14 VAC 5-211-100.

The proposed amendments to the Rules are necessary in Section 50 to correct an error in a cited section of the Code of Virginia, and required in Sections 90 and 100 to comply with amendments to Code of Virginia § 38.2-4303 passed by the 2008 General Assembly with regard to deductibles and copayments.

The Commission is of the opinion that the proposed amendments to 14 VAC 5-211-50, 14 VAC 5-211-90 and 14 VAC 5-211-100 should be considered for adoption.

THEREFORE, IT IS ORDERED THAT:

(1) The proposed amendments to the "Rules Governing Health Maintenance Organizations," which amend the Rules at 14 VAC 5-211-50, 14 VAC 5-211-90 and 14 VAC 5-211-100, be attached hereto and made a part hereof.

(2) All interested persons who desire to comment in support of or in opposition to, or request a hearing to oppose the adoption of the proposed amendments shall file such comments or hearing request on or before May 30, 2008, with the Clerk of the Commission, Document Control Center, P.O. Box 2118, Richmond, Virginia 23218 and shall refer to Case No. INS-2008-00083. Interested persons desiring to submit comments electronically may do so by following the instructions available at the Commission's website: http://www.scc.virginia.gov/case.

(3) If no written request for a hearing on the proposed amendments is filed on or before May 30, 2008, the Commission, upon consideration of any comments submitted in support of or in opposition to the proposed amendments, may adopt the amendments proposed by the Bureau of Insurance.

(4) AN ATTESTED COPY hereof, together with a copy of the proposed amendments, shall be sent by the Clerk of the Commission to the Bureau of Insurance in care of Deputy Commissioner Jacqueline K. Cunningham, who forthwith shall give further notice of the proposed adoption of the amendments by mailing a copy of this Order, together with the proposed amendments, to all insurers licensed by the Commission as health maintenance organizations in the Commonwealth of Virginia, as well as all interested parties.

(5) The Commission's Division of Information Resources forthwith shall cause a copy of this Order, together with the proposed amendments, to be forwarded to the Virginia Registrar of Regulations for appropriate publication in the Virginia Register of Regulations.

(6) The Commission's Division of Information Resources shall make available this Order and the attached proposed amendments on the Commission's website, http://www.scc.virginia.gov/case.

(7) The Bureau of Insurance shall file with the Clerk of the Commission an affidavit of compliance with the notice requirements of paragraph (4) above.

14VAC5-211-50. Financial projections.

The commission may require a health maintenance organization licensed in Virginia to submit to it periodic updates of the projection of operating results required by §38.2-4301 B ~~10~~ 11 of the Code of Virginia. Each update shall also include a complete explanation of any significant variance between actual operating results and the operating results that were forecasted under the projection last submitted to the commission and documentation of all critical assumptions. Critical assumptions include, but are not limited to, enrollment levels, premium rates, provider reimbursements, utilization rates, risk-sharing arrangements with providers, general and administrative expenses, excess and other insurance expenses and recoveries, coordination of benefits, costs of long-term financing, and inflation. The commission may revise or request a revision of any financial projection that it deems to be unreasonable relative to the health maintenance organization's historic performance.

14VAC5-211-90. Copayments.

A. A health maintenance organization may require a ~~reasonable~~ copayment of enrollees as a condition for the receipt of a specific health care service. A copayment shall be shown in the evidence of coverage as either a specified dollar amount or as coinsurance.

B. If the health maintenance organization has an established copayment maximum, it shall keep accurate records of each enrollee's copayment expenses and notify the enrollee when his copayment maximum is reached. The notification shall be given no later than 30 days after the health maintenance organization has processed sufficient claims to determine that the copayment maximum is reached. The health maintenance organization shall not charge additional copayments for the remainder of the contract or calendar year, as appropriate. The health maintenance organization shall also promptly refund to the enrollee all copayments charged after the copayment maximum is reached. Any maximum copayment amount shall be shown in the evidence of coverage as a specified dollar amount, and the evidence of coverage shall clearly state the health maintenance organization's procedure for meeting the requirements of this subsection.

C. The provisions of this subsection shall not apply to any Family Access to Medical Insurance Security (FAMIS) Plan (i) authorized by the United States Centers for Medicare and Medicaid Services pursuant to Title XXI of the Social Security Act (42 USC §1397aa et seq.) and the state plan established pursuant to Chapter 13 (§32.1-351 et seq.) of Title 32.1 of the Code of Virginia and (ii) underwritten by a health maintenance organization.

14VAC5-211-100. Deductibles.

~~A.~~ A health maintenance organization may require an enrollee to pay ~~a reasonable~~ an annual deductible in accordance with §38.2-4303 A 8 of the Code of Virginia.

~~B. Deductibles for basic health care services shall be considered unreasonable in at least the following situations:~~

~~1. When accessibility to health care is adversely affected;~~

~~2. When a health maintenance organization cannot demonstrate an ability to monitor and implement deductible plans;~~

~~3. If the health maintenance organization's Risk Based Capital (RBC) level is in a Company Action Level pursuant to the provisions of §38.2-5503 of the Code of Virginia. The commission shall determine the RBC level from (i) the most recently filed year end RBC Report submitted to the commission, or (ii) the most recently filed quarterly projected RBC Report if the health maintenance organization is on a quarterly projected RBC reporting basis. If at any time a RBC Report is filed with the commission that reports a RBC level below the Company Action Level, the health maintenance organization shall immediately suspend writings of all new deductible policies until a subsequent RBC Report is filed and accepted by the commission that confirms a RBC level above the Company Action Level.~~

VA.R. Doc. No. R08-1240; Filed April 21, 2008, 3:29 p.m.

TITLE 15. JUDICIAL

VIRGINIA STATE BAR

Proposed Regulation

REGISTRAR'S NOTICE: The Virginia State Bar is exempt from the Administrative Process Act in accordance with §2.2-4002 A 2 of the Code of Virginia, which exempts courts, any agency of the Supreme Court, and any agency which by the Constitution is expressly granted any of the powers of a court of record.

Title of Regulation: **15VAC5-80. Regulations under the Virginia Consumer Real Estate Settlement Protection Act (amending 15VAC5-80-50).**

Statutory Authority: §§6.1-2.21 and 6.1-2.25 of the Code of Virginia.

Public Hearing Information: No public hearings are scheduled.

Agency Contact: Mary Yancey Spencer, Deputy Executive Director, Virginia State Bar, 707 E. Main Street, Richmond, VA 23219, telephone (804) 775-0575 or email spencer@vsb.org.

Summary:

The amendment increases the minimum CRESPA surety bond from $100,000 to $200,000 in accordance with Chapter 92 of the 2008 Acts of Assembly.

15VAC5-80-50. Attorney settlement agent compliance.

A. Attorney settlement agent certification. Each attorney settlement agent shall, at the time of initial registration and each subsequent reregistration, certify on the form available from the Bar for that purpose, that the attorney settlement agent has in full force and effect the following insurance and bond coverages, and that such coverages will be maintained in full force and effect throughout the time the attorney settlement agent acts, offers or intends to act in that capacity:

1. A lawyer's professional liability insurance policy issued by a company authorized to write such insurance in Virginia providing first dollar coverage and limits of at least $250,000 per claim covering the licensed attorney acting, offering or intending to act as a settlement agent. The policy may also cover other attorneys practicing in the same firm or legal entity.

2. A blanket fidelity bond or employee dishonesty insurance policy issued by a company authorized to write such bonds or insurance in Virginia providing limits of at least $100,000 covering all other employees of the attorney settlement agent or the legal entity in which the attorney settlement agent practices.

3. A surety bond issued by a company authorized to write such bonds in Virginia, on a form approved by the Virginia State Bar, providing limits of at least ~~$100,000~~ $200,000 covering the licensed attorney acting, offering or intending to act as a settlement agent. A copy of the approved bond form is available from the Bar. The bond may also cover other attorney settlement agents practicing in the same firm or legal entity. The original surety bond must be attached to the attorney settlement agent's certification form and furnished to the Bar; a surety bond on which a law firm is named as principal may be furnished by the firm or any one attorney settlement agent in the firm, with other such attorney settlement agents in the same firm attaching a copy to their forms.

The Bar reserves the right to require other evidence of the above insurance and bond coverages beyond the attorney's certification and surety bond, at its discretion.

An attorney settlement agent who has no employees other than the attorney settlement agent or other licensed owner(s), partner(s), shareholder(s), or member(s) of the legal entity in which the attorney settlement agent practices may apply to the Bar for a waiver of the coverage required in subdivision A 2 of this section, using the waiver request form available from the Bar. Such waiver requests will be acted on by the Executive Committee of the Bar, whose decision shall constitute final action by the agency.

B. Separate fiduciary trust account. Each attorney settlement agent shall maintain one or more separate and distinct fiduciary trust account(s) used only for the purpose of handling funds received in connection with escrow, closing or settlement services. Funds received in connection with real estate transactions not covered by CRESPA may also be deposited in and disbursed from such account(s). All funds received by an attorney settlement agent in connection with escrow, closing or settlement services shall be deposited in and disbursed from the separate fiduciary account(s) in conformity with both the Bar's disciplinary rules and CRESPA. These separate fiduciary trust accounts shall be maintained in the same manner and subject to the same rules as those promulgated by the Bar for other lawyer trust accounts, as well as in conformity with CRESPA. One separate fiduciary trust account may be maintained and used by all attorney settlement agents practicing in the same firm or legal entity.

C. Settlement statements. All settlement statements for escrow, closing and settlement services governed by CRESPA and these regulations shall be in writing and identify, by name and business address, the settlement agent.

D. Complaints against attorney settlement agents. The Bar shall receive complaints and/or investigate alleged violations of CRESPA or these regulations by attorney settlement agents. If, after investigation, the Bar does not have reasonable cause to believe that one or more violations of CRESPA and/or these regulations have occurred, the Bar may dismiss the complaint as unfounded.

If, after investigation, the Bar has reasonable cause to believe that one or more violations have occurred, the following procedures shall apply:

1. The attorney settlement agent shall be notified in writing of the alleged violation(s).

2. The attorney settlement agent shall have 30 days from the date of such notification to respond in writing to the alleged violations. If, after receipt of the response, the Bar no longer has reasonable cause to believe that one or more violations of CRESPA and/or these regulations have occurred, the Bar may dismiss the complaint as unfounded.

3. If the Bar believes the alleged violation presents or presented a risk to consumers protected under CRESPA, the Bar may request a hearing and issue an order requiring the attorney settlement agent to appear at the hearing, whether or not the attorney settlement agent has responded in writing to the notice of alleged violation(s) or the 30-day response time period has lapsed.

4. In conducting investigations of alleged violations of CRESPA and/or these regulations by attorney settlement agents, the Bar, by Bar Counsel, shall have the authority to issue summonses or subpoenas to compel the attendance of witnesses and the production of documents necessary and material to any inquiry.

5. The following shall be applicable to hearings on alleged violations of CRESPA and/or these regulations:

a. Hearings shall be held before the disciplinary board within 60 days of the issuance of the Bar's order to appear.

b. The standard of proof of violations of CRESPA or these regulations shall be clear and convincing evidence.

c. Hearings shall be conducted in the same manner as attorney misconduct hearings as set out in Rules of Court, Part Six, Section IV, Paragraph 13.

d. Agreed dispositions may be entered into in the same manner as agreed dispositions at the disciplinary board in attorney misconduct cases.

e. The attorney settlement agent's prior disciplinary record and prior record of violations of CRESPA and/or these regulations shall be made available to the

disciplinary board during the sanction stage of a hearing. The prior record of violations of CRESPA and/or these regulations may be made available to Bar subcommittees, district committees, the disciplinary board or a three-judge circuit court prior to the imposition of any sanction for attorney misconduct.

f. If the attorney settlement agent is found to have violated CRESPA and/or these regulations, the attorney settlement agent may be subject to the following penalties, at the disciplinary board's discretion:

(1) A penalty not exceeding $5,000 for each violation;

(2) Revocation or suspension of the attorney settlement agent's registration; and

(3) Any other sanction available to the disciplinary board in attorney disciplinary proceedings under the rules of the Virginia Supreme Court, including, but not limited to, revocation or suspension of the attorney settlement agent's license to practice law.

6. The disciplinary board shall assess costs in accordance with the same rules and procedures that apply to the imposition of costs in attorney misconduct cases.

7. All matters and proceedings pertaining to alleged violations of CRESPA and/or these regulations are public. Related attorney misconduct cases shall be heard by the disciplinary board together with alleged violations of CRESPA and/or these regulations. Any related disability issues shall be heard by the disciplinary board separately.

8. The Clerk of the Disciplinary System of the Bar shall maintain files and records pertaining to ended cases involving alleged violations of CRESPA and/or these regulations. The clerk shall follow the same file destruction policies that are utilized in attorney misconduct cases.

9. The Bar may proceed against an attorney settlement agent for alleged violations of CRESPA and/or these regulations notwithstanding that the attorney settlement agent has resigned from the practice of law, surrendered his license to practice law in the Commonwealth of Virginia or had his license to practice law in the Commonwealth of Virginia revoked.

10. An appeal from an order of the disciplinary board imposing sanctions under CRESPA and/or these regulations shall be conducted in accordance with the provisions of Rules of Court, Part Six, Section IV, Paragraph 13 pertaining to an appeal of an order of the disciplinary board imposing sanctions upon findings of attorney misconduct.

VA.R. Doc. No. R08-1272; Filed April 14, 2008, 2:54 p.m.

STATE AIR POLLUTION CONTROL BOARD

Dominion Virginia City Hybrid Energy Center

The State Air Pollution Control Board, at its meeting on March 20, 2008, voted to assume authority over the Prevention of Significant Deterioration (PSD) and Maximum Achievable Control Technology (MACT) permits for the proposed Dominion Virginia City Hybrid Energy Center to be located in Wise County, Virginia. At that time, some members of the board stated that additional information was needed before any final action could be taken on the permits. Further, the members stated that their additional information requests would be made public and there would be an opportunity for the public to provide information in response to the individual member's requests.

The department is opening a 30-day comment period on the documents prepared by individual board members. A web page has been established on the department's website for the purpose of making the documents available and posting comments received. The link to the Dominion Virginia City Hybrid Energy Center is: http://www.deq.virginia.gov/info/vchec.html. Each paper submitted by a board member is available at the above site.

Comment Period: Begins April 15, 2008, and ends at 5 p.m. on May 16, 2008.

How to submit comments:

1. Email comments to: vchec@deq.virginia.gov.

2. Send comments to: Dominion Virginia City Hybrid Energy Center, c/o Cindy M. Berndt, Department of Environmental Quality, P.O. Box 1105, Richmond, VA 23218.

Guidelines for submitting information:

1. Information will be posted to the website daily.

2. The name and affiliation of the submitter must be clearly identified with the submission.

3. If possible, documents submitted with the email should be in "portable document format" or PDF.

4. Research material, articles or other information produced by a source who is not the submitter must include a cover page explaining what the material is and identifying the author of the material.

5. Documents may be submitted as email attachments.

Posting of comments:

1. Comments will be posted on a daily basis.

2. The department reserves the right to exclude from the website any information with inappropriate content. The definition of inappropriate content includes, but is not limited to, comments that (i) have restrictions on use or publication; (ii) are considered slanderous or libelous upon review by legal staff; (iii) contain profane, vulgar or obscene language or images; (iv) come from a source that cannot be verified; or (v) are clearly unrelated to the topics to which the website is dedicated.

3. Copyright material will not be posted on the website. A link to copyright material may be posted if the submitter provides the web address for the material. In cases where the presence of copyright protection is unclear, the material will be posted only if the submitter obtains written authorization from the author agreeing to the posting. Email does constitute written authorization.

4. All comments will be included in the public comment file. However, in the event similar comments are received from multiple submitters, the department will post only a sample of the comments.

5. The department will not post comments received that are not germane to the permits before the board.

DEQCAST:

The department has added the VCHEC comment webpage to the topics for email alerts from DEQCast. To be alerted to postings to the VCHEC comment webpage, go to: www.deq.virginia.gov/lists/ to create a free account.

Contact Information: Cindy Berndt, Regulatory Coordinator, Department of Environmental Quality, P.O. Box 1105, Richmond, VA 23218, telephone (804) 698-4378, or FAX (804) 698-4346, or email cmberndt@deq.virginia.gov.

DEPARTMENT OF CONSERVATION AND RECREATION

Total Maximum Daily Load - Spring Creek, Little Sandy Creek, Bush River, Briery Creek, Saylers Creek

The Department of Environmental Quality and the Department of Conservation and Recreation seek written and oral comments from interested persons on the development of an implementation plan (IP) for bacteria total maximum daily loads (TMDLs) on the following impaired stream segments - 5.5 miles of Spring Creek, 7.35 miles of Little Sandy Creek, 0.78 mile of Bush River, 9.94 miles of Briery Creek and 8.9 miles of the Saylers Creek in Prince Edward and Amelia Counties. TMDLs of these five segments were included in the TMDL study completed for the Appomattox River Basin. The TMDLs were approved by the EPA on August 8, 2004, a copy of which can be found on DEQ's website at http://www.deq.virginia.gov/tmdl.

Section 62.1-44.19:7 C of the Code of Virginia requires the development of an IP for approved TMDLs. The IP should provide measurable goals and the date of expected

achievement of water quality objectives. The IP should also include the corrective actions needed and their associated costs, benefits and environmental impacts.

The second public meeting on the development of the IP for the above impaired segments will be held on Thursday, June 5, 2008, at 7 p.m. at the USDA Service Center, 100 Dominion Drive, Farmville, VA 23901.

The public comment period will end on July 7, 2008. A fact sheet on the development of an IP for the above impaired segments is available upon request. Questions or information requests should be addressed to Ram Gupta with the Virginia Department of Conservation and Recreation. Written comments and inquiries should include the name, address, and telephone number of the person submitting the comments and should be sent to Ram Gupta, Department of Conservation and Recreation, 101 North 14th St., 11th Floor, Monroe Building, Richmond, Virginia 23219, telephone (804) 371-0991 or email ram.gupta@dcr.virginia.gov.

DEPARTMENT OF ENVIRONMENTAL QUALITY

Total Maximum Daily Load - Waters in Accomack County

Purpose of notice: To extend the public comment period for the draft TMDLs for Holdens Creek, Sandy Bottom Branch, Unnamed Tributary to Sandy Bottom Branch, Unnamed Tributary to Pitts Creek, and Petit Branch all located in Accomack County.

Description of study: The Virginia Department of Environmental Quality (DEQ) has been working to identify sources of pollution in Holdens Creek, Sandy Bottom Branch, Unnamed Tributary to Sandy Bottom Branch, Unnamed Tributary to Pitts Creek, and Petit Branch all located in Accomack County.

Petit Branch (VAT-D02R-01), Holdens Creek (VAT-C10E-01), Sandy Bottom Branch (VAT-C10R-02), and Unnamed Tributary to Sandy Bottom Branch (VAT-C10R-01), were identified in Virginia's 1998 303(d) TMDL Priority List and Report as impaired due to violations of the state's water quality standard for bacteria and do not support the recreation use. Segment VAT-C09R-01 of Unnamed Tributary to Pitts Creek was listed in Virginia's 1998 303(d) TMDL Priority List and Report because it did not support the aquatic life use due to violations of the dissolved oxygen water quality standard.

During the study, the sources of pollutants have been identified and total maximum daily loads, or TMDLs, developed for the impaired waters. A TMDL is the total amount of a pollutant a water body can contain and still meet water quality standards. To restore water quality, contamination levels must be reduced to the TMDL amount.

How a decision is made: The development of a TMDL includes public meetings and a public comment period once the study report is drafted. After public comments have been considered and addressed, DEQ will submit the TMDL report to the U.S. Environmental Protection Agency for approval.

How to comment: DEQ accepts written comments by email, fax or postal mail. Written comments should include the name, address and telephone number of the person commenting and be received by DEQ during the comment period, May 12, 2008, to May 28, 2008. DEQ also accepts written and oral comments at the public meeting announced in this notice.

To review draft TMDL report: The draft TMDL report on the impaired waters is available from the contact below or on the DEQ website at http://www.deq.virginia.gov/tmdl.

Contact for additional information: Jennifer Howell, Regional TMDL Coordinator, Virginia Department of Environmental Quality, Tidewater Regional Office, 5636 Southern Blvd., Virginia Beach, VA 23462, telephone (757) 518-2111, FAX (757) 518-2003, or email jshowell@deq.virginia.gov.

Total Maximum Daily Load - Bull Creek in Buchanan County, Virginia

Purpose of notice: To extend the public comment period for the draft Bull Creek TMDL.

Description of study: The Department of Environmental Quality has been working to identify sources of pollutants affecting the aquatic organisms in the waters of Bull Creek. Bull Creek is in Buchanan County and flows along Route 609 to Levisa Fork downstream of Grundy, Virginia. The "impaired" stream segments are estimated to be approximately 16.9 miles including Bull Creek, from the headwaters to the confluence with Levisa Fork, and all tributaries; Belcher Branch, Deel Fork, Burnt Poplar Branch, Big Branch, Starr Branch, Jess Fork, and Convict Hollow. The stream is impaired for failing to meet the aquatic life use based on violations of the general standard for aquatic organisms.

During the study, the pollutants impairing the aquatic community have been identified and total maximum daily loads, or TMDLs, developed for the impaired waters. A TMDL is the total amount of a pollutant a water body can contain and still meet water quality standards. To restore water quality, contamination levels must be reduced to the TMDL amount.

How a decision is made: The development of a TMDL includes public meetings and a public comment period once the study report is drafted. After public comments have been considered and addressed, DEQ will submit the TMDL report to the U.S. Environmental Protection Agency for approval.

How to comment: DEQ accepts written comments by email, fax or postal mail. Written comments should include the name, address and telephone number of the person commenting and be received by DEQ during the comment period, May 12, 2008, to May 28, 2008. DEQ also accepts written and oral comments at the public meeting announced in this notice.

To review draft TMDL report: The draft TMDL report on the impaired waters is available from the contact below or on the DEQ website at www.deq.virginia.gov/tmdl.

Contact for additional information: Shelley D. Williams, Regional TMDL Coordinator, Virginia Department of Environmental Quality, Southwest Regional Office, 355 Deadmore Street, P.O. Box 1688, Abingdon, VA 24212-1688, telephone (276) 676-4845, FAX (276) 676-4899, or email sdwilliams@deq.virginia.gov.

Total Maximum Daily Load - Mill Creek and Powhatan Creek, James City County

Purpose of notice: To extend the public comment period for the draft TMDLs for Mill Creek and Powhatan Creek located in James City County.

Description of study: The Virginia Department of Environmental Quality (DEQ) has been working to identify sources of pollution in Mill Creek and Powhatan Creek.

Mill Creek was identified in Virginia's 2002 Water Quality Assessment 305(b) Report. Sufficient exceedances of Virginia's water quality standards for fecal coliform and enterococci bacteria assessed segment VAT-G10E-03 as not supporting the recreation use.

Powhatan Creek has two segments that have been identified as impaired and do not support the recreation use. Segment VAT-G10E-01 was listed in Virginia's 1998 303(d) TMDL Priority List and Report because of violations of the fecal coliform and enterococci water quality standard. In the 2002 Water Quality Assessment 305(b) Report, segment VAT-G10R-02 was documented as impaired due to violations of the state's water quality standard for fecal coliform bacteria.

During the study, the sources of bacteria have been identified and total maximum daily loads, or TMDLs, developed for the impaired waters. A TMDL is the total amount of a pollutant a water body can contain and still meet water quality standards. To restore water quality, contamination levels must be reduced to the TMDL amount.

How a decision is made: The development of a TMDL includes public meetings and a public comment period once the study report is drafted. After public comments have been considered and addressed, DEQ will submit the TMDL report to the U.S. Environmental Protection Agency for approval.

How to comment: DEQ accepts written comments by email, fax or postal mail. Written comments should include the name, address and telephone number of the person commenting and be received by DEQ during the comment period, May 12, 2008, to May 28, 2008. DEQ also accepts written and oral comments at the public meeting announced in this notice.

To review draft TMDL report: The draft TMDL report on the impaired waters is available from the contact below or on the DEQ website at http://www.deq.virginia.gov/tmdl.

Contact for additional information: Jennifer Howell, Regional TMDL Coordinator, Virginia Department of Environmental Quality, Tidewater Regional Office, 5636 Southern Blvd, Virginia Beach, VA 23462, telephone (757) 518-2111, FAX (757) 518-2003, or email jshowell@deq.virginia.gov.

Total Maximum Daily Load - North Fork and South Fork Pound Rivers

Purpose of notice: To extend the public comment period for the draft report for the North and South Fork Pound River in Southwest Virginia.

Description of study: The Department of Environmental Quality has been working to identify sources of pollutants affecting the aquatic organisms in the waters of the North and South Fork Pound Rivers. The South Fork Pound River flows along Route 671 and confluences with the North Fork Pound River in the Town of Pound along Business Route 23. The "impaired" stream segments are estimated to total approximately 7.64 miles. The stream is impaired for failing to meet the aquatic life use based on violations of the general standard for aquatic organisms.

During the study, the pollutants impairing the aquatic community will be identified and total maximum daily loads, or TMDLs, developed for the impaired waters. A TMDL is the total amount of a pollutant a water body can contain and still meet water quality standards. To restore water quality, contamination levels must be reduced to the TMDL amount.

How a decision is made: The development of a TMDL includes public meetings and a public comment period once the study report is drafted. After public comments have been considered and addressed, DEQ will submit the TMDL report to the U.S. Environmental Protection Agency for approval.

How to comment: DEQ accepts written comments by email, fax or postal mail. Written comments should include the name, address and telephone number of the person commenting and be received by DEQ during the comment period, May 12, 2008, to May 28, 2008. DEQ also accepts written and oral comments at the public meeting announced in this notice.

To review draft TMDL report: The draft TMDL report on the impaired waters is available the contact below or on the DEQ website at www.deq.virginia.gov/tmdl.

Contact for additional information: Shelley Williams, Regional TMDL Coordinator, Virginia Department of Environmental Quality, Southwest Regional Office, 355 Deadmore Street, P.O. Box 1688, Abingdon, VA 24212-1688, telephone (276) 676-4845, FAX (276) 676-4899, or email sdwilliams@deq.virginia.gov.

Total Maximum Daily Load - Parker Creek, Accomack County

Purpose of notice: To extend the public comment period for the draft TMDLs for Parker Creek located in Accomack County.

Description of study: The Virginia Department of Environmental Quality (DEQ) has been working to identify sources of pollution in Parker Creek located in Accomack County, Virginia.

Parker Creek was identified in Virginia's 1998 303(d) TMDL Priority List and Report. The aquatic life use was not being met due to poor health in the benthic biological community. The impaired benthic segment (TMDL ID VAT-D03R-01) is located in the free-flowing freshwater portion and extends 2.03 miles ending at the tidal interface.

During the study, the pollutants impairing the aquatic community have been identified and total maximum daily loads, or TMDLs, developed for the impaired waters. A TMDL is the total amount of a pollutant a water body can contain and still meet water quality standards. To restore water quality, contamination levels must be reduced to the TMDL amount.

How a decision is made: The development of a TMDL includes public meetings and a public comment period once the study report is drafted. After public comments have been considered and addressed, DEQ will submit the TMDL report to the U.S. Environmental Protection Agency for approval.

How to comment: DEQ accepts written comments by email, fax or postal mail. Written comments should include the name, address and telephone number of the person commenting and be received by DEQ during the comment period, May 12, 2008, to May 28, 2008. DEQ also accepts written and oral comments at the public meeting announced in this notice.

To review draft TMDL Report: The draft TMDL report on the impaired waters is available from the contact below or on the DEQ website at http://www.deq.virginia.gov/tmdl.

Contact for additional information: Jennifer Howell, Regional TMDL Coordinator, Virginia Department of Environmental Quality. Tidewater Regional Office, 5636 Southern Blvd., Virginia Beach, VA 23462, telephone (757) 518-2111, FAX (757) 518-2003, or email jshowell@deq.virginia.gov.

DEPARTMENT OF FORENSIC SCIENCE

Regulations for the Approval of Field Tests for Detection of Drugs

In accordance with 6VAC40-30, the Regulations for the Approval of Field Tests for Detection of Drugs, and under the authority of the Code of Virginia, the following field tests for detection of drugs are approved field tests:

O D V INCORPORATED
13386 INTERNATIONAL PARKWAY
JACKSONVILLE, FLORIDA 32218-2383

ODV NarcoPouch

Drug or Drug Type:	Manufacturer's Field Test:
Heroin	902 – Marquis Reagent
Amphetamine	902 – Marquis Reagent
Methamphetamine	902 – Marquis Reagent
3,4–Methylenedioxymethamphetamine (MDMA)	902 – Marquis Reagent
Cocaine Hydrochloride	904 or 904B – Cocaine HCl and Base Reagent
Cocaine Base	904 or 904B – Cocaine HCl and Base Reagent
Barbiturates	905 – Dille-Koppanyi Reagent
Lysergic Acid Diethylamide (LSD)	907 – Ehrlich's (Modified) Reagent
Marijuana	908 – Duquenois – Levine Reagent
Hashish Oil	908 – Duquenois – Levine Reagent
Marijuana	909 – K N Reagent
Hashish Oil	909 – K N Reagent
Phencyclidine (PCP)	914 – PCP Methaqualone Reagent

Heroin	922 – Opiates Reagent
Methamphetamine	923 – Methamphetamine/Ecstasy Reagent
3,4–Methylenedioxymethamphetamine (MDMA)	923 – Methamphetamine/Ecstasy Reagent
Heroin	924 – Mecke's (Modified) Reagent
Diazepam	925 – Valium/Ketamine Reagent
Ketamine	925 – Valium/Ketamine Reagent
Ephedrine	927 – Ephedrine Reagent
gamma – Hydroxybutyrate (GHB)	928 – GHB Reagent

ODV NarcoTest

Drug or Drug Type:	Manufacturer's Field Test:
Heroin	7602 – Marquis Reagent
Amphetamine	7602 – Marquis Reagent
Methamphetamine	7602 – Marquis Reagent
3,4–Methylenedioxymethamphetamine (MDMA)	7602 – Marquis Reagent
Barbiturates	7605 – Dille-Koppanyi Reagent
Lysergic Acid Diethylamide (LSD)	7607 – Ehrlich's (Modified) Reagent
Marijuana	7608 – Duquenois Reagent
Hashish Oil	7608 – Duquenois Reagent
Marijuana	7609 – K N Reagent
Hashish Oil	7609 – K N Reagent
Cocaine Hydrochloride	7613 – Scott (Modified) Reagent
Cocaine Base	7613 – Scott (Modified) Reagent
Phencyclidine (PCP)	7614 – PCP Methaqualone Reagent
Heroin	7622 – Opiates Reagent
Methamphetamine	7623– Methamphetamine/Ecstasy Reagent
3,4–Methylenedioxymethamphetamine (MDMA)	7623– Methamphetamine/Ecstasy Reagent
Heroin	7624 – Mecke's Reagent
Diazepam	7625 – Valium/Ketamine Reagent
Ketamine	7625 – Valium/Ketamine Reagent
Ephedrine	7627 – Chen's Reagent - Ephedrine
gamma – Hydroxybutyrate (GHB)	7628 – GHB Reagent

SIRCHIE FINGERPRINT LABORATORIES
100 HUNTER PLACE
YOUNGSVILLE, NORTH CAROLINA 27596

Drug or Drug Type:	Manufacturer's Field Test:
NARK	
Narcotic Alkaloids	1 – Mayer's Reagent
Heroin	1 – Mayer's Reagent
Morphine	1 – Mayer's Reagent
Amphetamine	1 – Mayer's Reagent
Methamphetamine	1 – Mayer's Reagent
Opium Alkaloids	2 – Marquis Reagent
Heroin	2 – Marquis Reagent
Morphine	2 – Marquis Reagent
Amphetamine	2 – Marquis Reagent
Methamphetamine	2 – Marquis Reagent
3,4–Methylenedioxymethamphetamine (MDMA)	2 – Marquis Reagent
Meperidine (Demerol) (Pethidine)	2 – Marquis Reagent
Heroin	3 – Nitric Acid
Morphine	3 – Nitric Acid
Cocaine Hydrochloride	4 – Cobalt Thiocyanate Reagent
Cocaine Base	4 – Cobalt Thiocyanate Reagent
Procaine	4 – Cobalt Thiocyanate Reagent
Tetracaine	4 – Cobalt Thiocyanate Reagent

Barbiturates	5 – Dille-Koppanyi Reagent
Heroin	6 – Mandelin Reagent
Morphine	6 – Mandelin Reagent
Amphetamine	6 – Mandelin Reagent
Methamphetamine	6 – Mandelin Reagent
Lysergic Acid Diethylamide (LSD)	7 – Ehrlich's Reagent
Marijuana	8 – Duquenois Reagent
Hashish	8 – Duquenois Reagent
Hashish Oil	8 – Duquenois Reagent
Tetrahydrocannabinol (THC)	8 – Duquenois Reagent
Marijuana	9 – NDB (Fast Blue B Salt) Reagent
Hashish	9 – NDB (Fast Blue B Salt) Reagent
Hashish Oil	9 – NDB (Fast Blue B Salt) Reagent
Tetrahydrocannabinol (THC)	9 – NDB (Fast Blue B Salt) Reagent
Cocaine Base	13 – Cobalt Thiocyanate/Crack Test

NARK II

Drug or Drug Type:	Manufacturer's Field Test:
Narcotic Alkaloids	01 – Marquis Reagent
Heroin	01 – Marquis Reagent
Morphine	01 – Marquis Reagent
Amphetamine	01 – Marquis Reagent
Methamphetamine	01 – Marquis Reagent
3,4–Methylenedioxymethamphetamine (MDMA)	01 – Marquis Reagent
Morphine	02 – Nitric Acid
Heroin	02 – Nitric Acid
Barbiturates	03 – Dille-Koppanyi Reagent
Lysergic Acid Diethylamide (LSD)	04 – Ehrlich's Reagent
Marijuana	05 – Duquenois – Levine Reagent
Hashish	05 – Duquenois – Levine Reagent
Hashish Oil	05 – Duquenois – Levine Reagent
Tetrahydrocannabinol (THC)	05 – Duquenois – Levine Reagent
Cocaine Hydrochloride	07 – Scott's (Modified) Reagent
Cocaine Base	07 – Scott's (Modified) Reagent
Phencyclidine (PCP)	09 – Phencyclidine Reagent
Opiates	10 – Opiates Reagent
Heroin	10 – Opiates Reagent
Morphine	10 – Opiates Reagent
Heroin	11 – Mecke's Reagent
3,4–Methylenedioxymethamphetamine (MDMA)	11 – Mecke's Reagent
Pentazocine	12 – Talwin/ Pentazocine Reagent
Ephedrine	13 – Ephedrine Reagent
Diazepam	14 – Valium Reagent
Methamphetamine	15 – Methamphetamine (Secondary Amines Reagent)
Narcotic Alkaloids	19 – Mayer's Reagent
Heroin	19 – Mayer's Reagent
Morphine	19 – Mayer's Reagent
Amphetamine	19 – Mayer's Reagent
Methamphetamine	19 – Mayer's Reagent

ARMOR HOLDINGS, INCORPORATED
13386 INTERNATIONAL PARKWAY
JACKSONVILLE, FLORIDA 32218-2383

NIK

Drug or Drug Type:	Manufacturer's Field Test:
Heroin	Test A 6071 – Marquis Reagent

Amphetamine	Test A 6071 – Marquis Reagent
Methamphetamine	Test A 6071 – Marquis Reagent
3,4–Methylenedioxymethamphetamine (MDMA)	Test A 6071 – Marquis Reagent
Morphine	Test B 6072 – Nitric Acid Reagent
Barbiturates	Test C 6073 – Dille-Koppanyi Reagent
Lysergic Acid Diethylamide (LSD)	Test D 6074 – LSD Reagent System
Marijuana	Test E 6075 – Duquenois – Levine Reagent
Hashish Oil	Test E 6075 – Duquenois – Levine Reagent
Tetrahydrocannabinol	Test E 6075 – Duquenois – Levine Reagent
Cocaine Hydrochloride	Test G 6077 – Scott (Modified) Reagent
Cocaine Base	Test G 6077 – Scott (Modified) Reagent
Cocaine Hydrochloride	6500 or 6501 – Cocaine ID Swab
Cocaine Base	6500 or 6501 – Cocaine ID Swab
Phencyclidine (PCP)	Test J 6079 – PCP Reagent System
Heroin	Test K 6080 – Opiates Reagent
Heroin	Test L 6081 – Brown Heroin Reagent System
gamma – Hydroxybutyrate (GHB)	Test O 6090 – GHB Reagent
Ephedrine	Test Q 6085 – Ephedrine Reagent
Pseudoephedrine	Test Q 6085 – Ephedrine Reagent
Diazepam	Test R 6085 – Valium Reagent
Methamphetamine	Test U 6087 – Methamphetamine Reagent
3,4–Methylenedioxymethamphetamine (MDMA)	Test U 6087 – Methamphetamine Reagent
Methadone	Test W 6088 – Mandelin Reagent System

MISTRAL SECURITY INCORPORATED
7910 WOODMONT AVENUE SUITE 820
BETHESDA, MARYLAND 20814

Drug or Drug Type:	Manufacturer's Field Test:
Heroin	Detect 4 Drugs Aerosol
Amphetamine	Detect 4 Drugs Aerosol
Methamphetamine	Detect 4 Drugs Aerosol
Marijuana	Detect 4 Drugs Aerosol
Hashish Oil	Detect 4 Drugs Aerosol
Methamphetamine	Meth 1 and 2 Aerosol
Heroin	Herosol Aerosol
Marijuana	Cannabispray 1 and 2 Aerosol
Hashish Oil	Cannabispray 1 and 2 Aerosol
Cocaine Hydrochloride	Coca-Test Aerosol
Cocaine Base	Coca-Test Aerosol
Amphetamine	Pen Test Ampoule for Met-Amp-Ket-THC
Methamphetamine	Pen Test Ampoule for Met-Amp-Ket-THC
Ketamine	Pen Test Ampoule for Met-Amp-Ket-THC
Marijuana	Pen Test Ampoule for Met-Amp-Ket-THC
Cocaine	Pen Test Ampoule for Cocaine
Heroin	Pen Test Ampoule for Heroin

JANT PHARMACAL CORPORATION
16255 VENTURA BLVD., #505
ENCINO, CA 91436
Formerly available through:
MILLENNIUM SECURITY GROUP

Accutest IDenta

Drug or Drug Type:	Manufacturer's Field Test:
Marijuana	Marijuana/Hashish (Duquenois-Levine Reagent)
Hashish Oil	Marijuana/Hashish (Duquenois-Levine Reagent)

Heroin	Heroin Step 1 and Step 2
Cocaine Hydrochloride	Cocaine/Crack Step 1 and Step 2
Cocaine Base	Cocaine/Crack Step 1 and Step 2
3,4–Methylenedioxymethamphetamine (MDMA)	MDMA Step 1 and Step 2
Methamphetamine	Methamphetamine Step 1 and Step 2

COZART PLC
92 MILTON PARK
ABINGDON, OXFORDSHIRE ENGLAND OX14 4RY

Drug or Drug Type:	Manufacturer's Field Test:
Cocaine	Cocaine Solid Field Test

LYNN PEAVEY COMPANY
10749 WEST 84TH TERRACE
LEXEXA, KS 66214

QuickCheck

Drug or Drug Type:	Manufacturer's Field Test:
Marijuana	Marijuana – 10120
Marijuana	Marijuana – 10121
Hashish Oil	Marijuana – 10120
Hashish Oil	Marijuana – 10121
Heroin	Marquis – 10123
Heroin	Heroin - 10125
Cocaine Hydrochloride	Cocaine – 10124
Cocaine Base	Cocaine – 10124
Methamphetamine	Meth/Ecstasy – 10122
Methamphetamine	Marquis – 10123
MDMA	Meth/Ecstasy – 10122
MDMA	Marquis - 10123

Regulations for the Approval of Marijuana Field Tests for Detection of Marijuana Plant Material

In accordance with 6VAC40-50, the Regulations for the Approval of Marijuana Field Tests for Detection of Marijuana Plant Material, and under the authority of the Code of Virginia, the following marijuana field tests for detection of marijuana plant material are approved field tests:

ARMOR HOLDINGS, INCORPORATED
13386 INTERNATIONAL PARKWAY
JACKSONVILLE, FLORIDA 32218-2383

NIK

Drug or Drug Type:	Manufacturer's Field Test:
Marijuana	Test E 6075 – Duquenois – Levine Reagent

ODV NarcoPouch

Drug or Drug Type:	Manufacturer's Field Test:
Marijuana	908 – Duquenois – Levine Reagent

SIRCHIE FINGERPRINT LABORATORIES
100 HUNTER PLACE
YOUNGSVILLE, NORTH CAROLINA 27596

NARK II

Drug or Drug Type:	Manufacturer's Field Test:
Marijuana	05 – Duquenois – Levine Reagent

JANT PHARMACAL CORPORATION
16255 VENTURA BLVD., #505
ENCINO, CA 91436
Formerly available through:

MILLENNIUM SECURITY GROUP

Accutest IDenta
Drug or Drug Type:
Marijuana

Regulations for Breath Alcohol Testing

In accordance with 6VAC40-20-90 of the Regulations for Breath Alcohol Testing and under the authority of the Code of Virginia, the following breath test device is approved for use in conducting breath tests:

1. The Intoxilyzer, Model 5000, CD/FG5 [previously listed as the 768VA], simulator monitor, equipped with the Virginia test protocol, manufactured by CMI, Inc., Owensboro, Kentucky, utilizing an external printer.

2. The Intox EC/IR II with the Virginia test protocol, manufactured by Intoximeters, Inc., St. Louis, Missouri utilizing an external printer.

In accordance with 6VAC40-20-100 of the Regulations for Breath Alcohol Testing and under the authority of the Code of Virginia, the following supplies are approved for evidential breath test devices:

Mouthpieces that are compatible with the specific testing device for use in conducting breath tests on approved breath test devices

In accordance with 6VAC40-20-180 of the Regulations for Breath Alcohol Testing and under the authority of the Code of Virginia, the following devices are approved for use as preliminary breath test devices:

1. The ALCO-SENSOR, ALCO-SENSOR II, ALCOSENSOR III, ALCO-SENSOR IV and ALCO-SENSOR FST manufactured by Intoximeters, Inc., St Louis, Missouri.

2. The CMI SD 2 and CMI SD 5, manufactured by Lyon Laboratories, Barry, United Kingdom.

3. The INTOXILYZER 400PA, manufactured by CMI, Inc., Owensboro, Kentucky.

4. The LIFELOC PBA 3000*, LIFELOC FC10, LIFELOC FC10Plus and LIFELOC FC20, manufactured by Lifeloc Inc., Wheat Ridge, Colorado.

Manufacturer's Field Test:
Marijuana/Hashish (Duquenois-Levine Reagent)

*When used in the direct sensing mode only.

5. The ALCOTEST 6510 and ALCOTEST 6810 manufactured by Draeger Safety Diagnostics, Inc., Durango, Colorado.

Contact: Michele M. Gowdy, Department Counsel, Department of Forensic Science, 700 North 5th Street, Richmond, VA 23219, telephone (804) 786-2281, FAX (804) 786-6857.

COMMISSION ON LOCAL GOVERNMENT

Schedule for the Assessment of State and Federal Mandates on Local Governments

Pursuant to the provisions of §§2.2-613 and 15.2-2903(6) of the Code of Virginia, the following schedule, established by the Commission on Local Government and approved by the Secretary of Commerce and Trade and Governor Kaine, represents the timetable that the listed executive agencies will follow in conducting their assessments of certain state and federal mandates that they administer on local governments. Such mandates are either new (in effect for at least 24 months) or newly identified. In conducting these assessments, agencies will follow the process established by EXECUTIVE ORDER 58 which became effective October 11, 2007, succeeding EXECUTIVE MEMORANDUM 1-98. These mandates are abstracted in the CATALOG OF STATE AND FEDERAL MANDATES ON LOCAL GOVERNMENTS published by the Commission on Local Government.

For further information contact Matthew G. Bolster, Senior Policy Analyst, Commission on Local Government (email matthew.bolster@dhcd.virginia.gov or telephone (804) 371-8010) or visit the Commission's website at www.dhcd.virginia.gov.

STATE AND FEDERAL MANDATES ON LOCAL GOVERNMENTS

Approved Schedule of Assessment Periods – July 2008 through June 2009
For Executive Agency Assessment of Cataloged Mandates

AGENCY Mandate Short Title	CATALOG NUMBER	ASSESSMENT PERIOD
EDUCATION, DEPARTMENT OF		
Posting of National Motto/Bill of Rights/Other Documents	SOE.DOE118	7/1/08 to 8/31/08
Charter School Applications	SOE.DOE119	7/1/08 to 8/31/08
Scoliosis Screening	SOE.DOE120	9/1/08 to 10/31/08
Identification of Critical Shortages of Teachers and Administrators	SOE.DOE121	9/1/08 to 10/31/08
Alternatives to Animal Dissection	SOE.DOE122	11/1/08 to 12/31/08
Instructional Requirements in Public Schools	SOE.DOE123	11/1/08 to 12/31/08
Leave Without Pay for School Division Employees	SOE.DOE124	11/1/08 to 12/31/08
Enrollment of Children Placed in Foster Care	SOE.DOE125	11/1/08 to 12/31/08
EMERGENCY MANAGEMENT, DEPARTMENT OF		
Alert and Warning Plans	SPS.VDEM010	1/1/09 to 3/31/09
Local Emergency Management Assessment	SPS.VDEM011	1/1/09 to 3/31/09
State and Local Hazard Mitigation Plans	SPS.VDEM012	7/1/08 to 9/30/08
ENVIRONMENTAL QUALITY, DEPARTMENT OF		
Transportation of Waste on State Waters	SNR.DEQ034	9/1/08 to 11/30/08
Motor Vehicle Emissions Control Program	SNR. DEQ036	8/1/08 to 10/31/08
Local and Regional Water Supply Plans	SNR.DEQ037	8/1/08 to 10/31/08
FORENSIC SCIENCE, DEPARTMENT OF		
DNA Samples Required from Felons	SPS.DFS002	9/1/08 to 11/30/08
Testimony Regarding Identification of Drugs	SPS.DFS003	9/1/08 to 11/30/08
DNA Samples Required Upon Arrest	SPS.DFS004	9/1/08 to 11/30/08
HEALTH, DEPARTMENT OF		
Maintenance of Emergency Medical Services	SHHR.VDH028	7/1/08 to 9/30/08
SOCIAL SERVICES, DEPARTMENT OF		
Family Access to Medical Insurance Security (FAMIS)	SHHR.DSS070	7/1/08 to 9/30/08
Medicare Part D Extra Help	SHHR.DSS071	2/1/09 to 4/30/09
STATE POLICE, DEPARTMENT OF		
Conservator of the Peace	SPS.VSP016	1/1/09 to 3/31/09
Requirement to Report Suspected Aliens	SPS.VSP017	1/1/09 to 3/31/09
TAXATION, DEPARTMENT OF		
Local Tax Administrative Appeals Process	SFIN.TAX010	8/1/08 to 10/31/08
Board of Equalization Appeals Process	SFIN.TAX011	8/1/08 to 10/31/08
TRANSPORTATION, DEPARTMENT OF		
Vegetation Control for Outdoor Advertising Signs	STO.VDOT032	8/1/08 to 10/31/08
Maintenance and Repair of Nonconforming Signs	STO.VDOT033	8/1/08 to 10/31/08
Prohibition on Local Removal of Outdoor Advertising	STO.VDOT034	8/1/0/ to 10/31/08

STATE MENTAL HEALTH, MENTAL RETARDATION AND SUBSTANCE ABUSE SERVICES BOARD

Notice of Periodic Review

Title of Regulation: 12VAC35-180, Regulations to Assure the Protection of Subjects in Human Research

Comment period: May 12, 2008, through June 2, 2008.

The State Mental Health, Mental Retardation and Substance Abuse Services Board is initiating the periodic review of its Regulations to Assure the Protection of Subjects in Human Research, 12VAC35-180. The board is requesting comments on whether there is a need to update or revise the regulations for clarity or consistency with current law or professional practice. The review will be guided by the principles listed in Executive Order 36.

Contact: Wendy Brown, Policy Analyst, Department of Mental Health, Mental Retardation and Substance Abuse Services, P.O. Box 1797, Richmond, VA 23218-1797, telephone (804) 225-2252, FAX (804) 371-2292, or email wendy.brown@co.dmhmrsas.virginia.gov.

VIRGINIA WASTE MANAGEMENT BOARD

Proposed Consent Order - Rappahannock County

Purpose of notice: To seek public comment on a proposed consent order from the Department of Environmental Quality for a facility in Amissville, Rappahannock County, Virginia.

Public comment period: May 13, 2008, to June 11, 2008.

Consent order description: The Waste Management Board proposes to issue a consent order to Rappahannock County to address alleged violations of Virginia's regulations. Rappahannock County operates a landfill located in Amissville, Virginia. The consent order describes a settlement to resolve solid waste violations.

How to comment: DEQ accepts comments from the public by email, fax or postal mail. All comments must include the name, address and telephone number of the person commenting and be received by DEQ within the comment period. The public may review the proposed consent order at the DEQ office named below or on the DEQ website at www.deq.virginia.gov.

Contact for public comments, document requests and additional information: Daniel Burstein, Department of Environmental Quality, Northern Regional Office, 13901 Crown Court, Woodbridge VA 22193, telephone (703) 583-3904, FAX (703) 583-3871, or email dpburstein@deq.virginia.gov.

Designation of a Regional Solid Waste Management Planning Unit

In accordance with the provision of §10.1-1411 of the Code of Virginia, and 9VAC20-130-180 and 9VAC20-130-190 of the Solid Waste Management Planning and Recycling Regulations, Amendment 2, the Director of the Department of Environmental Quality (director) intends to designate a solid waste management region for the local governments of the Region 2000 Services Authority-Solid Waste Management Planning Region. The Region 2000 Services Authority-Solid Waste Management Planning Region is comprised of the Cities of Lynchburg and Bedford, the Counties of Campbell and Nelson and the Towns of Altavista and Brookneal. The Region 2000 Services Authority-Solid Waste Management Planning Region will be designated for the development and/or implementation of a regional solid waste management plan and the maintaining of the recycling rate of solid waste generated within the designated region.

A petition has been received by the Department of Environmental Quality for the designation on behalf of the local governments.

Following the closing date for comments, the director will determine if there is a need for a public hearing to be held in the proposed region prior to the designation. At least 14 days prior to any such public hearing, a notice of the proposed public hearing will appear in a newspaper of general circulation within the proposed solid waste planning unit.

Comment period: Begins April 17, 2008, and ends on May 16, 2008.

Contact Information: Daniel S. Gwinner, Department of Environmental Quality, 629 East Main Street, P.O. Box 1105, Richmond, VA 23218, telephone (804) 698-4218, FAX (804) 698-4327, or email dsgwinner@deq.virginia.gov.

STATE WATER CONTROL BOARD

Proposed Consent Order - Hartland Institute of Health and Education

Purpose of notice: To invite citizens to comment on a proposed consent order for the sewage treatment plant at Hartland Institute of Health and Education in Madison County, Virginia.

Public comment period: May 13, 2008, through June 11, 2008.

Consent order description: The State Water Control Board proposes to issue a consent order to Hartland Institute of Health and Education to address alleged violations of Virginia's State Water Control Law and regulations. Hartland Institute of Health and Education is a not-for-profit organization that operates a sewage treatment plant on site

located in Madison County, Virginia. The consent order describes a settlement to resolve wastewater violations.

How to comment: DEQ accepts comments from the public by email, fax, or postal mail. All comments must include the name, address, and telephone number of the person commenting and be received by DEQ within the comment period. The public may review the proposed consent order at the DEQ office named below or on the DEQ website at www.deq.virginia.gov.

Contact for public comments, document requests, and additional information: Trisha Eyler, Department of Environmental Quality, Northern Virginia Regional Office, 13901 Crown Court, Woodbridge, VA 22193, telephone (703) 583-3829, FAX (703) 583-3871, or email treyler@deq.virginia.gov.

VIRGINIA CODE COMMISSION

Notice to State Agencies

Mailing Address: Virginia Code Commission, 910 Capitol Street, General Assembly Building, 2nd Floor, Richmond, VA 23219.

Filing Material for Publication in the Virginia Register of Regulations

Agencies are required to use the Regulation Information System (RIS) when filing regulations for publication in the Virginia Register of Regulations. The Office of the Virginia Register of Regulations implemented a web-based application called RIS for filing regulations and related items for publication in the Virginia Register. The Registrar's office has worked closely with the Department of Planning and Budget (DPB) to coordinate the system with the Virginia Regulatory Town Hall. RIS and Town Hall complement and enhance one another by sharing pertinent regulatory information.

The Office of the Virginia Register is working toward the eventual elimination of the requirement that agencies file print copies of regulatory packages. Until that time, agencies may file petitions for rulemaking, notices of intended regulatory actions and general notices in electronic form only; however, until further notice, agencies must continue to file print copies of proposed, final, fast-track and emergency regulatory packages.

ERRATA

SAFETY AND HEALTH CODES BOARD

Title of Regulation: **16VAC25-90. Federal Identical General Industry Standards.**

Publication: 24:16 VA.R. 2261-2262 April 14, 2008.

Correction to Final Regulation:

Page 2261, Title of Regulation, line 2, change "adding" to "amending"

VA.R. Doc. No. R08-1222

Titles of Regulations: **16VAC25-90. Federal Identical General Industry Standards.**

16VAC25-100. Federal Identical Shipyard Employment Standards.

16VAC25-120. Federal Identical Marine Terminals Standards.

16VAC25-175. Federal Identical Construction Industry Standards.

Publication: 24:16 VA.R. 2263 April 14, 2008.

Correction to Final Regulation:

Page 2263, in each of the Titles of Regulations, line 2, change "adding" to "amending"

VA.R. Doc. No. R08-1223

JOINT BOARDS OF NURSING AND MEDICINE

Title of Regulation: **18VAC90-30. Regulations Governing the Licensure of Nurse Practitioners.**

Publication: 21:21 VA.R. 2909-2912 June 27, 2005.

Correction to Final Regulation:

Page 2910, based on amendments made in 21:11 VA.R. 1414-1416 February 7, 2005, that became effective on March 9, 2005, 18VAC90-30-80 A 2 and 3 should read:

2. Submit evidence of a graduate degree in nursing or in the appropriate nurse practitioner specialty from an educational program designed to prepare nurse practitioners that is an approved program as defined in 18VAC90-30-10;

3. Submit evidence of professional certification that is consistent with the specialty area of the applicant's educational preparation issued by an agency accepted by the boards as identified in 18VAC90-30-90;

VA.R. Doc. No. R04-237; Filed April 25, 2008, 2:28 p.m.

Title of Regulation: **18VAC90-30. Regulations Governing the Licensure of Nurse Practitioners.**

Publication: 22:26 VA.R. 4175-4177 September 4, 2006.

Correction to Final Regulation:

Page 4177, based on amendments made in 21:11 VA.R. 1414-1416 February 7, 2005, that became effective on March 9, 2005, 18VAC90-30-80 A 2 and 3 should read:

2. Submit evidence of a graduate degree in nursing or in the appropriate nurse practitioner specialty from an educational program designed to prepare nurse practitioners that is an approved program as defined in 18VAC90-30-10;

3. Submit evidence of professional certification that is consistent with the specialty area of the applicant's educational preparation issued by an agency accepted by the boards as identified in 18VAC90-30-90;

VA.R. Doc. No. R06-324; Filed April 25, 2008, 2:28 p.m.

DEPARTMENT OF TRANSPORTATION

Title of Regulation: **24VAC30-72. Access Management Regulations.**

Publication: 24:17 VA.R. 2456-2467 April 28. 2008.

Corrections to Final Regulation:

Page 2456, column 2, Title of Regulation, line 2, after "Regulations" insert ": Principal Arterials"

Page 2458, column 2, chapter title, line 2, after "REGULATIONS" insert ": PRINCIPAL ARTERIALS"

Page 2461, column 1, 24VAC30-72-30, subsection C should read, "C. The commissioner shall annually update and publish maps of the Commonwealth on the VDOT website that show all highways with a functional classification as a principal arterial."

VA.R. Doc. No. R08-96; Filed May 1, 2008, 4:37 p.m.