Shawn Smith - Virginia NRC draft application

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Janet,

Two CDROMs with Virginia's draft application for the NRC Agreement Program were prepared. The two copies will go into the mail tomorrow.

I received your voice mail from Friday, August 18, and spoke to Dennis about the package. I was apprehensive about the contents of the package; however, after reviewing it over the weekend I concluded that one could not provide more substantive information until we have an established program with full staffing and revised regulations.

Attached are the cross walk and the narrative.

Looking forward to your staff's comments.

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Junk Mail settings when this message was delivered

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ENCLOSURE 3

VIRGINIA DIVISON OF RADIOLOIGCAL HEALTH NARRATIVE

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I. HISTORY AND OVERVIEW

Introduction

The Commonwealth of Virginia seeks to enter into an Agreement with the Nuclear Regulatory Commission (NRC) for the purpose of assuming regulatory authority over reactor-produced (byproduct) radioactive materials, source materials and special nuclear materials in quantities not sufficient to form a critical mass. In addition the Commonwealth seeks to retain regulatory authority over those materials transferred to the NRC by the Energy Policy Act of 2005. The following Division of Radiological Health (DRH) history and overview has been developed to provide supporting information for the application to become an 'Agreement State'. Virginia proposes to become the 35th Agreement State in January 2008.

History of Virginia Division of Radiological Health

Protection against radiation hazards was first recognized as necessary in the late 1950's by the Virginia Department of Health (VDH). Personnel already on staff worked part-time performing safety surveys for medical and dental offices upon request.

In 1958 the Virginia Legislature passed a law limiting the use of shoe-fitting fluoroscopic machines. Also in 1958 the U.S. Public Health Service cooperated with Virginia in establishing air and water radiation monitoring programs which expanded in 1960 to include surveillance in the vicinity of the nuclear powered U.S.S Savannah and nuclear submarine activity in the Norfolk area.

In 1960, a Radiation Registration Law was passed by the Legislature. This law required the registration of all radiation-producing machines and all radioactive materials not licensed or controlled by the U.S. Atomic Energy Commission (AEC).

In 1964 the Legislature passed a comprehensive "Radiation Control Law" charging the State Department of Health with the protection of the health and safety of the citizens of Virginia from sources of ionizing radiation. The law was implemented by the preparation and promulgation of Rules and Regulations. It allowed for Virginia to eventually assume certain regulatory functions then carried out by the AEC for the control of by-product, source, and special nuclear materials. The Rules and Regulations adopted on April 1, 1973 were developed following the Model Regulations prepared by the Council of State Governments in cooperation with the AEC and U.S. Public Health Service. The Rules and Regulations promulgated since then were developed from the Suggested State Regulations published by the Conference of Radiation Control Program Directors. The Radiation Protection Regulations were revised again in 1980, 1985, and 2006.

The Radiation Control Law provided the Board of Health the authority to promulgate radiation protection rules and develop necessary policies and programs, plus established the requirement to register radiation producing machine and license non-AEA radioactive

materials. In addition, the Radiation Control Law created a Radiation Advisory Board with responsibilities that included: review and evaluate policies and programs of the State relating to ionizing radiation, and make recommendations to the State Health Commissioner and the Board of Health, and furnish such technical advice as may be required, on matters relating to development, utilization, and regulation of sources of ionizing radiation.

Initially the radiation control program was located in the Bureau of Industrial Hygiene. Later the Bureau of Industrial Hygiene was re-organized. The occupational health inspectors were transferred to the Department of Labor and Industry. The radiation control program was retained in the Department of Health and became the Bureau of Radiological Health (BRH) located in the Division of Health Hazards Control, along with the Toxic Substance Program, and the Bedding and Upholstery Inspection Program.

In the 1970's, the BRH began participating with the Food and Drug Administration (FDA)/Bureau of Radiological Health in numerous programs for the nationwide evaluations of x-ray trends (NEXT) and the dental evaluation of X-ray trends (DENT) to determine patient exposure from various radiological examinations. The compiled national data was used to establish exposure limits for various diagnostic examinations. Other activities include: environmental monitoring of the North Anna and Surry Nuclear Power Stations, and the Babcock & Wilcox Naval Fuel Fabrication Facility under contract with the NRC; participation in EPA's Environmental Radiation Ambient Measurement System (ERAMS). The BRH also began conducting compliance inspections of newly installed x-ray systems under contract to the FDA/Bureau of Radiological Health.

Uranium exploration in Virginia became a significant legislative issue in the late 1970's. At the direction of a Virginia legislative committee, a feasibility study was conducted for mining uranium in Pittsylvania County by Marline Company, later to become Allied Chemical. Due to a drop in price and demand for uranium, the project did not proceed; however, recently there has been renewed interest in uranium mining in Virginia. VDH management has requested program staff to ensure the Radiation Protection Regulations are current in case a decision is made to add regulatory authority for uranium mill tailings to the agreement later.

In response to the 1979 Three Mile Island accident, the BRH worked with the state emergency management agency to develop a radiological emergency preparedness and response (REP) capability to address incidents at the two nuclear power plants in Virginia. During the early-1980's the BRH expanded its REP capability to include a mobile radiological laboratory, with germanium analysis system, and increased field instrumentation. BRH also purchased an IBM personal computer and proprietary software, RADOSE, for atmospheric modeling of a nuclear power plant release. In 1984 several BRH staff traveled to the Nevada Test site for participation in the Nuclear Weapons Accident Exercise (NUWAX). The mobile lab was also transported by military air cargo to the test site. Beginning in the mid-1980s the utility also provided a technical

consultant to assist BRH staff in the development of its emergency procedures in preparation for its first ingestion exercise.

During the mid-1980s numerous articles in the news media covering reports of elevated levels of radon in Pennsylvania appeared. The media attention began to generate inquires from the public and legislators. In 1986 BRH was provided funding of $75,000 to purchase Working Level Meters to conduct a study of radon in Virginia. The General Assembly called for a legislative committee to study radon levels in the Commonwealth. BRH conducted a study of 800 VDH employees located throughout the Commonwealth. Initial results indicated that about 10-12 percent of the homes tested had greater than 0.02 WL (equivalent to 4.0 picocuries per liter of radon). The General Assembly followed up with legislation that authorized VDH to create a program of technical assistance and radon information to the public. The legislation also provided $54,000 annually to support the activity.

During the mid-1980s the Commonwealth of Virginia became a member of the Southeast Compact for the Disposal of Low Level Radioactive Waste and submitted a bid to host a low level waste facility. Most of the work was performed by another program in VDH, Division of Waste Management, which later became a separate state agency. After the Commonwealth lost its bid to host a site, the program working on the activity was eliminated. BRH became the recipient of some the equipment that was declared surplus, such as a portable germanium gamma spectroscopy system. VDH management has requested BRH staff to ensure regulations pertaining to land disposal of radioactive materials are kept current in the Radiation Protection Regulations in case a decision is made to add regulatory authority for land disposal to the agreement.

In 1986 the General Assembly passed legislation that required the registration of all X-ray producing machines as well as the inspection and certification of all X-ray machines used in the healing arts. The legislation also authorized the collection of registration fees for X-ray machines and fees for the inspection of X-ray machines by BRH inspectors. BRH staff revised the Radiation Protection Regulations in 1986 and created a fee schedule to implement the legislation. BRH staff also created a database of 12,000 X-ray machines (the number reached 17,000 machines in 2006) and developed a fee collection system to implement the legislation. The workload quickly expanded and the staff installed the agency's first local area network (LAN) so multiple persons could make entries onto the system.

In the late 1980's BRH requested assistance from the Virginia Department of Emergency Services and Virginia Power, later Dominion Power, to replace the mobile radiation laboratory. A used vehicle, 19986 GMC truck, from another agency program that was being down sized was used as a mobile lab platform. Virginia Power provided $120,000 to purchase new laboratory equipment, which included a new gamma spectroscopy system, an alpha/beta counter, and a liquid scintillation system. The previous laboratory was used primarily for the nuclear power plant exercises; however, it was used in several other incidents, such as the assessment of a transportation accident clean up in Christiansburg involving an overturned shipment of contaminated soil in October 1989.

A year later during the first use of the new mobile lab at an evaluated plume and ingestion exercise at the Surry Nuclear Power Plant, a simultaneous real incident occurred involving an over-height vehicle on an I-64 underpass that was carrying a reactor coolant pump. Unfortunately the reactor coolant pump cracked the concrete payment and spilled about 10 gallons of primary coolant on I-64 the week prior to Labor Day weekend. The previous lab was pressed into service to handle the assessment of clean up activities during the week. The previous lab continued to provide service to scrap metal facilities and transportation incidents.

In 1990, the BRH applied for and was awarded one of the first State Indoor Radon Grants from the Environmental Protection Agency. This grant allowed expansion of BRH's program of technical assistance and radon information to the public. BRH added an in-state toll-free telephone hotline so all citizens would have access to radon information. The initial grant was a 75/25 percent match. Since BRH could not implement long term projects for the funds as the match would be reduced to a 50/50 match in succeeding grants, much of the initial federal funds were used to test for radon in schools in economically depressed areas of the Commonwealth. Later the General Assembly enacted legislation that all public school will be tested for radon. BRH also conducted a more statistically powerful survey of radon homes in 1992 by conducting a survey of 1,600 homes. The survey confirmed the results of the previous survey of 800 homes and produced results for the four Health Districts.

Also in 1990, the BRH began participating in the Health Care Finance Administration (HCFA) mammography certification program. The HCFA program was superseded by the federal Mammography Quality Standards Act of 1992. The BRH subsequently entered into a contract with the Food and Drug Administration to conduct annual inspections of all mammography facilities in Virginia.

During the early 1990s, BRH staff initiated rulemaking to revise the Radiation Protection Regulations resulting from major changes by NRC to the Radiation Protection Standards (10 CFR 20). Unfortunately most rule making was suspended during the administration under then Governor George Allen. Promulgation of regulations was continued mid-term of the succeeding governor. The Administrative Process was also revised to include additional steps such as approval to initiate rule making by the Secretary and Governor, and a fiscal impact review by the State Department of Budget and Planning.

In 1997 NRC terminated its environmental monitoring contracts with the states for producing comparative annual environmental reports of utility data and that collected by the state radiation program. Unlike most states, Virginia did not have legislative authority to collect fees from the utility for the implementation of a state radiation environmental monitoring program for the nuclear power plants. FDA also decided not to renew the compliance contracts for the inspection new X-ray equipment with the states as well in the same year.

Interest in Agreement State Status

Interest in Agreement State status has been off and on for several decades. Historically the statutory authority for the Governor and VDH to enter into an agreement has been in place since 1964 when the Atomic Energy Commission was the cognizant federal agency. There were two major events during the 1980s that sparked renewed interest in Agreements State status, namely perspective uranium mining in Pittsylvania County, and Virginia's bid to host a low level radioactive waste site. Both of these activities failed to materialize, and thus interest in Agreement State status waned.

In the late 1980s the new Program Director for BRH invited representatives from NRC to speak to the Radiation Advisory Board and State Health Commissioner about the Agreement State Program. The presentation did not provide neither the Advisory Board or VDH management sufficient motivation to pursue Agreement State status. Most NRC licensees were unaware or indifferent to the Agreement State Program.

In the following years the dynamics changed. NRC became more selective in who attended NRC training courses and eventually state programs had to pay registration and travel expenses for their employees. Many state programs used the five-week Health Physics course at Oak Ridge, TN to provide basic radiation training for their employees since few colleges include radiation physics or health physics in their curricula.

By the mid- 1990s Congress required the NRC to be fully funded by fees. As a result NRC began collecting licensing fees from State agencies which had previously been exempt and increased fees to the materials licensees. This touched off a new round of states seeking Agreement State status and renewed interest by Virginia's Radiation Advisory Board and BRH staff. By 1997 Massachusetts had become an Agreement State; and Ohio, Oklahoma, and Pennsylvania had applied for Agreement State status.

On October 6, 1997, Virginia Senator Benedetti sent a letter to Governor George Allen suggesting his office consider entering into an Agreement. The Governor's reply suggested the Radiation Advisory Board would evaluate the feasibility of Virginia participating in the Agreement State Program and recognized that certain qualifying criteria had to be met. The Radiation Advisory Board quickly produced its recommendation in support of Agreement State status.

At a meeting of the Radiation Advisory Board on December 19, 1997, the Board recommended that it is advantageous for Virginia to participate in the Agreement State Program and submit this recommendation to the State Board of Health.

In the 1999 session, the General Assembly enacted legislation authorizing VDH to implement civil penalties, fee schedule for radioactive materials licenses and inspections, and created a special fund for these fees. The intent of this legislation was to complete all statutory authority needed for the Commonwealth to enter into an agreement with the NRC.

In the meantime the agency had difficulty identifying a funding source to provide staffing during the transition of this activity until the agreement was signed. In the latter part of

2005 the agency considered taking the a similar approach as some of the more recent Agreement States and collect a 30% surcharge from the NRC licensees in return for greatly reduced licensing fees after an agreement is signed. On October 24, 2005 Carl Armstrong, M.D., Director, Office of Epidemiology sent a letter to each of the NRC licensees in Virginia advising them of VDH's intentions to apply for NRC Agreement State status and collect a 33 per cent surcharge to support the transition. All of the responses from the licensees were either positive or neutral.

In December 2005 outgoing Governor Warner signed a letter of intent requesting NRC assistance in pursuing agreement state status. Incoming Governor Kaine acknowledged NRC Commissioner's letter offering assistance in January 2006. Since then VDH management has decided to fund the transition to Agreement State status using specially designated funds for the next three state fiscal years, rather than collect the surcharge as origi9nally intended. In April 2006 a letter was sent to the NRC licensees informing them that the Governor had submitted a letter of intent for NRC Agreement State status, and that VDH had decided not to collect a surcharge.

On April 25, 2006 NRC State Tribal Program (STP) Director, Janet Schluter, and staff meet with VDH staff to present information regarding the Agreement State Program and the application process. Based on the information provided VDH management decided to proceed quickly with the application process and immediately began recruitment for the program staff. In addition, the program was elevated organizationally and is now the Division of Radiological Health and Safety Regulation (DRH)). The Division Director reports directly to a newly created Deputy Director position within the Office of Epidemiology and is a medical director position.

In September 2004, the DRH proposed creation of a new chapter of radiation protection regulations in the Virginia Administrative Code and abolish the existing Chapter since there were numerous changes since 1986 when the Radiation Protection regulations were last revised. The proposed regulations was based on the Suggested State Regulations for the Control of Radiation (SSRCR) developed by the Conference of Radiation Control Program Directors (CRCPD). The proposed regulation was published for public comment from June 27, 2005 through September 29, 2005 prior to the agency's decision to seek NRC Agreement State. After the public comment period, DRH staff did receive a public comment that suggested updating references to 10 CFR 35 and other federal sections. This allowed DRH staff to incorporate by reference missing sections or update NRC regulatory references. The final regulations was developed to make the Virginia radiation protection regulations current and compatible with applicable federal regulations. *Attachment 5* contains a cross-reference list that shows the federal requirement and corresponding VA regulation. The final regulations will be published August 21, 2006 in the Virginia Register and will become effective on September 20, 2006.

Preliminary discussions with STP staff indicated that based on a copy of the final regulations, revealed missing sections of the NRC regulations, and duplication of definitions in the body of the regulations and incorporated by reference. DRH staff

intends to issue a Notice of Intended Regulatory Action (NOIRA) for amending the Radiation Protection Regulations after the effective date of the regulations for the purpose of correcting the necessary federal references to enter into an Agreement, and include NRC's proposed regulations due for publication in early 2007 for those materials which were transferred from state authority to NRC by the Energy Policy Act of 2005.

DRH staff also intend to issue a NOIRA for the fee schedule in 2006. The existing fee schedule contains fees only for the X-ray machine program. New sections will need to be developed for materials licensing and inspections, reciprocity, civil penalties, fiscal assurance, and exemptions and reductions for small business entities and others entities similar those NRC provides.

The prescribed promulgation process for adopting and amending radiation control regulations entails 1) obtaining approval of the Department of Health; Secretary of Health and Human Resources, and Governor; 2) submitting a NORIA for publication in the Virginia; 3) presenting the proposed rules to the Department of Planning and Budget for fiscal review; 4) presenting the proposed rules to the Board of Health for public review and comment, which may or may not include scheduled public hearings; 5) responding to each public comment and present modified regulations for approval as final regulations to the Board of Health; 6) submit the final rules to the Department of Planning and Budget for fiscal review again; 7) submit final regulation to Secretary and Governor for review; and 8) submit final regulation to Virginia Register for publication with effective date no less than 30 days from date of publication.

II. DIVISION OF RADIOLOGICAL HEALTH AND SAFETY REGULATION PROTECTION DESCRIPTION

Organization, Mission, Staff Education & Experience, Training Activities and Overview

The Division of Radiological Health and Safety Regulation Section is located in the Department of Health (VDH). The Secretary of Health and Human Resources is Marilyn Tavenner, was appointed by Governor Timothy Kaine. The State Health Commissioner, Robert B. Stroube, M.D., reports to Secretary Tavenner. The Deputy Commissioner for Public Health, Jim Burns, M.D., MBA, reports to Robert Stroube, M.D. Office of Epidemiology Director, Carl W. Armstrong, M.D., reports to Jim Burns, M.D. The Deputy Director, Office of Epidemiology, Susan Fischer Davis, M.D., reports to Carl Armstrong, M.D. The Division of Radiological Health and Safety Regulations Director, Les Foldesi, M.S., CHP, reports to Susan Fischer Davis, M.D. The Radioactive Materials section supervisor, currently vacant, reports to Les Foldesi. Organizational charts for these administrative levels within State government and VDH, as well as contact information, are presented in *Attachment 1.*

The mission of the Virginia Division of Radiological Health and Safety Regulation (DRH) is to protect the public - both occupationally exposed and general – from

unnecessary exposure to sources of radiation. To help accomplish this mission, the DRH has a staff of well- qualified personnel from a variety of academic and professional backgrounds. Currently, the DRH employs 19 people with the following academic distribution:

- 1 staff with Master's degrees in scientific disciplines
- 10 staff with Bachelor's degrees in various disciplines, including chemistry, biology and radiologic technology
- 2 staff with Associate's degrees or equivalent in scientific specialties

DRH began recruitment in June 2006 for a supervisor position, four Radiation Safety Specialists, and a Fiscal Administration position for the NRC radioactive materials program. Positions are expected to be filled by November 2006.

DRH staff have wide ranging and extensive expertise in the areas of occupational health and safety, nuclear power plant operation, health physics, radon, training, environmental monitoring, radiochemistry, physics, emergency preparedness planning, geology, radiological incident response, dose assessment and radiation control. In addition, the staff are actively involved in the CRCPD and other national organizations. The staff attend at national conferences, including the National Radon Conference, National REP Conference and the National Conference on Radiation Control (CRCPD annual meeting). The DRH hosted the National Conference on Radiation Control meeting in Williamsburg, VA in 1994.

Training activities are an important component of DRH activities. DRH and the Virginai Department of Emergency Management coordinate training for local emergency responders, state agency staff, DRH staff, county emergency government staff and utility personnel. Staff have participated in several table top exercises with other local and regional first responders. The recent heightened awareness of possible need to respond to a terrorist threat involving radioactive materials will present additional opportunities to provide training to regional and local emergency responders and train with military civilian support groups.

The primary responsibilities of the DRH are listed below and are discussed in further detail in subsequent sections:

- Environmental radiation monitoring
- Radon public information and outreach
- Radiological emergency preparedness and response
- X-ray, NARM, and tanning registration and inspection; mammography facility inspection
- Radioactive materials licensing and inspection (developing)
- Radiological incident response

Environmental Radiation Monitoring

The DRH currently conducts environmental surveillance around each of the two nuclear power stations in Virginia – North Anna and Surry. Dominion Power, formerly Virginia Power operates two pressurized water reactors (PWR) at each power station. Dominion Power has submitted an application for an additional two units at the North Anna location. Dominion Power pioneered the development of the Interim Spent Fuel Storage facility at Surry and later installed another at North Anna. An extensive monitoring system was implemented for each of the two power stations during the pre-operational phase and continues today. The number of samples were decreased from 1,000 to about 300 annually after the U.S. NRC canceled all state environmental monitoring contacts in 1997. Environmental monitoring activities include the following:

1. Passive TLD System ·

   The passive TLD monitoring system utilizes thermo-luminescent dosimeters (TLDs) to measure the cumulative level of radiation around the plant sites. TLDs are changed quarterly and read on a Harshaw TLD reader, and then entered into the annual environmental report. Recently the software for the TLD system was upgraded to a Windows based software to make data archiving and reporting easier with the program's Windows based operating systems.

2. Environmental sampling (milk, water, vegetation, fish, shell fish, air particulate/air iodine)

   Environmental sampling is conducted to monitor the air, terrestrial and aquatic environments for radioactivity content. Continuous air sampling is performed by air samplers placed in multiple locations around the plant sites. Milk, vegetation, soil, lake and river water, fish and shell fish are routinely collected, and analyzed by the VA Division of Consolidated Laboratories for radioactivity. Water samples are analyzed for tritium using DRH's liquid scintillation counter located in the mobile radiation laboratory. Sampling activities have been conducted continuously since the early 1970s.

3. Environmental Monitoring Reports

   DRH compiles the analysis results of all environmental samples and TLDs collected around the plant sites into an annual report. Annual environmental monitoring reports are routinely provided to county, state and federal agencies and to public libraries, and other interested groups or individuals, upon request.

   DRH also conduct environmental monitoring activities at BWXT's Naval Fuel Fabrication Facility, formerly Babcock & Wilcox, located new Lynchburg.

   DRH collects split samples with the two major shipyards where naval nuclear re-fueling activities occur. The two shipyards are the Northrup Gruman Shipyard,

formerly the Newport News Shipyard and Drydock Company, located in the City of Newport News and the Norfolk Naval Shipyard located in Portsmouth.

DRH participated in EPA's Environmental Radiation Ambient Measurement System (ERAMS). The EPA has modified the system and renamed it RADNET. Two locations have been identified in Virginia for the new monitoring system based on major population centers. The monitoring stations will be co-located with other monitoring equipment operated by the Virginia Department of Environmental Quality.

Radon Public Information and Outreach

The DRH has annually applied for and received a State Indoor Radon Grant from the EPA since the first grant award in 1990. This grant has been used to support a program of technical assistance and information to the public. DRH maintains an in-state toll-free radon hotline and maintains several web pages devoted to radon.

Radiological Emergency Preparedness and Response

The DDRH is responsible for maintaining the state's technical response capability to an incident at a nuclear power facility impacting Virginia. Routine staff responsibilities consist of:

a) training annually and equipping a network of state and local field teams (first responders) located near each of the two nuclear plants in the state;

b) periodically training multi-agency ingestion sampling teams to sample the food supply for radiological contamination;

c) ensuring the operational readiness of a mobile radiological laboratory, radio-equipped response vehicles and field instrumentation;

d) providing radiation related training to local volunteer, state and county government staff;

e) calibrating and maintaining an intrinsic germanium analysis system, liquid scintillation and alpha/beta counter used in the mobile laboratory to quantify radioactive content in environmental samples; and

f) participating in all scheduled REP exercises or real events.

Staff also routinely interact with VA Department of Emergency Management (VDEM) to maintain the State Radiological Incident Response Plan and develop the technical portion of nuclear plant exercise scenarios. Two of the staff from the DRH are trained to function as the State Radiological Coordinator responsible for coordinating the state technical response during the emergency phase of a power plant incident, developing

protective action recommendations based on dose assessment and providing technical advice to the Governor or designee during all phases of the incident. Four of the staff are knowledgeable and capable of using the NRC's software, RASCAL, for modeling atmospheric releases from a nuclear power plant accident. DRH staff have participated in over all REP exercises since the first exercise was held in the early 1980s. DERH experience also includes several federal exercises (NUWAX 84) and DISPLAY SELECT 95. DISPLAY SELECT 95 was a nuclear weapons accident exercise conducted at Yorktown Naval Weapons Station, VA in 1995 and involved the activation of a full FERMAC facility for one week of real time play.

The DRH's mobile radiological laboratory is equipped to prepare and analyze environmental samples collected by state field teams during a power plant incident or exercise. Staff are trained to operate, maintain and calibrate a intrinsic germanium counting system, alpha/beta counter, and liquid scintillation counter used for radiological sample analysis. The mobile laboratory also functions as a communications center between the DRH and the field teams. The larger van body truck, 1986 GMC truck, is dedicated for responding to nuclear power plant accidents/exercises. Over the last two decades there have been at least four Alerts declared, all at North Anna, except for one at Surry. In all cases one of the mobile laboratories was deployed as specified in DDRH's emergency procedures.

The DRH retained the original mobile radiation laboratory, 1982 Chevy cube van, for responding to transportation accidents, scrap metal facilities, and landfills since it was smaller and can be parked safely alongside the highway.

Both laboratories were damaged by flooding from the remnants of hurricane *"Gaston"* in August 2004. The 1982 Chevy was replaced by an ambulance type vehicle designed to respond to transportation emergency. It has Canberra's ISOCS gamma spectroscopy system which is capable of *in situ* gamma analysis. This field laboratory also has a Ludlum Model 3030 alpha/beta counter, and field equipment to support several field teams.

The larger 1986 GMC truck with a van body was out of commission for a year to replace engine, transmission, and rear end; however, due to age of vehicle and continuous repairs the vehicle was permanently taken out of commission when it could not be used for a recent evaluated exercise. This vehicle is being replaced with a new incident command type vehicle due for delivery in August 2007. A more detailed description of the DRH Program's mobile laboratory is contained in *Attachment 10, Appendix A*.

X-ray, and Mammography Inspection:
DRH registers approximately 17,000 X-ray machines that includes simple dental X-ray machines to the more complex CT scanners and linear accelerators used for radiation therapy. Those X-ray machines used in the healing arts are also inspected and certified for use. There is a private inspector system in place for the inspection of X-ray machines used in the healing arts. DRH collects fees for registration and those inspections DRH

inspectors perform. Three of the DRH inspectors work in different regions in the state based from their respective homes to reduce travel time and expenses.

DRH has a contract with the Food and Drug Administration for inspecting all mammography facilities annually. There are approximately 180 mammography machines used in Virginia.

The DRH has participated in the annual Nationwide Evaluation of X-ray Trends (NEXT) continuously for over 25 years.

NARM Licensing and Inspection
Naturally Occurring and Accelerator Produced Radioactive Materials (NARM). Staff conduct periodic inspections of NARM users. There are currently 220 NARM licenses. Staffing consists of a full-time Specialist, a wage Specialist, and the use of another full-time Specialist at 15% of their time for NARM activities.

Radioactive Materials Licensing and Inspection: The DRH is responsible for developing the radioactive materials regulatory structure needed for Virginia to become an agreement state with the Nuclear Regulatory Commission. DRH began recruitment in June 2006 for a supervisor position, four Radiation Safety Specialists, and a Fiscal Administration position for the NRC radioactive materials program. Positions are expected to be filled by November 2006.

As soon as staff are hired, it is expected that they begin the following activities are:

a) attending NRC training courses required for personnel who will license and inspect the use of radioactive materials;

b) accompanying the NRC during their inspections in Virginia;

c) develop regulations consistent with NRC's requirements for an agreement,

d) develop a fee schedule to support the program,

e) develop a database and fee collection system for the licensing and inspection processes,

f) develop forms and regulatory guides using Wisconsin as a model,

g) conducting inspections of NARM users in Virginia; and

h) developing the final application needed for Virginia to become an agreement state with the Nuclear Regulatory Commission.

The Radioactive Materials Program staff resumes and individual training programs will be provided in the final application package in *Attachment 2.* In *Attachment 2* is the resume for the program director, and a list of training activities for each inspector or license writer. Position descriptions for each staff member in the Radioactive Materials Program are located in *Attachment 3.*

The new Radioactive Materials Program (RMP) being developed for this purpose is described in greater detail in Section III.

Radiological Incident Response

The Radiation Protection Section routinely responds to all types of incidents within Virginia involving radioactive materials not of nuclear power plant origin. There are eight trained DRH staff who are designated to serve as Duty Officer and are available on a 24-hour, rotating on-call basis to augment local resources and help safeguard public health and safety in the event of a radiological incident. Additional DRH staff are also trained and experienced in responding to radiological incidents.

DRH staff responded to many incidents involving radioactive materials. These incidents ranged from the detection of radioactive material at scrap facilities or landfills to a 1990 transportation accident that closed a portion of an interstate highway while an evaluated nuclear power plant was also underway. A description of this incident is located in *Attachment 7, Appendix A.*

III. RADIOACTIVE MATERIALS PROGRAM

As mentioned earlier, the Virginia legislature approved significant changes to radiation protection statutes in 1999. These changes have provided all the statutory authority needed to allow the DRH to begin development of a radioactive materials licensing, inspection and enforcement program necessary to become an agreement state with the NRC.

Accomplishments

1. All NRC licensees in Virginia were informed of the Governor's letter of intent to participate in the agreement state program.

2. Operating funds to support program development are supplied by a special fund within VDH for a period of three years. This revenue source is dedicated and will adequately fund development of a materials licensing and inspection program in the DRH, including salary and fringe expenses, travel, training, observation of NRC inspections, incident response, printing, equipment and administrative costs. When the agreement is signed, license and registration fees will fund program operation. The budget for the transition is located in *Attachment 12.*

3. A new Materials Licensing and Inspection Unit with a separate supervisor has been authorized for the Radiation Protection Section and will be referred to hereafter as the Radioactive Materials Program (RMP).

4. The RMP receives periodic updates of NRC licenses in Virginia from NRC Region I. A database has been compiled which contains all radioactive material users in Virginia, including all NRC licensees/licenses and current NARM registrants. This database contains basic information such as facility name, NRC license and/or NARM registration, location of material use, contact, license number, license type, fee code, and inspection priority. Currently, the database is being used to determine future inspection and licensing workload. At present, the RMP estimates there are about 400 future Virginia licensees which includes the NRC licensees and a separate database of 220 VA NARM licensees.

5. The materials program is scheduled to have a total of 5.0 FTE staff including 4.0 FTE Radiation Safety Specialists, a Supervisor and 1.0 program assistant. None of the staff have been hired upon submittal of the draft application. Recruitment has almost been completed and the program expects full staffing by November 2006.

Staff Designated for Training, Procedure & Regulation Development

The Radiation Materials Program intends to utilize the Radiation Safety Specialists assigned to the materials licensing, inspection and enforcement program in all aspects of the program. The initial staff will be trained to conduct licensing reviews, perform inspections and participate in enforcement activities. They will also be knowledgeable in medical, industrial and academic license applications plus incident response. During the implementation phase, individuals who have completed the appropriate Nuclear Regulatory Commission training courses will be the lead staff during inspections with newer, less trained staff participating as observers to receive on-the-job experience. The Materials Program Supervisor will perform accompaniments in order to qualify staff for each type of inspection. Ultimately, all full-time Radiation Safety Specialists will receive the appropriate training for each of the various types of license inspections.

Program Management

The Materials Program Supervisor (MPS) will:

- Inform the DRH Program director on a quarterly basis concerning the status of overdue inspections, licensing actions which exceed the assigned 30-60-90 day time-frames, and staffing and training needs.

- Conduct supervisory accompaniments annually for all Radiation Safety Specialists conducting radioactive materials inspections (see *Attachment 8, Appendix A* for Accompaniment Inspection Review Checklist).

- Ensure that survey instruments utilized by the RMP are calibrated annually.

- Ensure that notifications are made of reportable incidents to the NRC Operations Center and Region I Office for immediate and 24-hour reports, or the Region I Office and NMED for 30-day reports. See RMPP 4.02.

Licensing, Inspection & Enforcement, and Allegations & Incident Response Program Description

The Radioactive Materials Program will perform license reviews, conduct inspections and enforcement activities, notify licensees of generic problems, and respond to allegations and incidents involving radioactive materials. The routine activities for each aspect of the program are detailed in the Radioactive Materials Program Procedures (*Attachments 5-9).* An overview of the conduct of program activities is provided below.

License reviews will be conducted using the NUREG 1556 guidance documents or a version modified to show VA Rule requirements. The RMP intends to develop Virginia regulatory guides or 'VAREGs' for Portable Gauges and XRFs, Fixed Gauges, Commercial Radiopharmacy, Risk from Occupational Exposure and Prenatal Radiation Exposure. DRH intends to borrow from the Wisconsin application as a model and have inserted these as a place holder until RMP staff can insert the corresponding Virginia regulation section. These guides are located in *Attachment 5, Appendix B.* Likewise Application forms will be developed for eight specific license categories as follows:

- Portable Gauge and XRF Device
- Industrial Radiography
- Fixed Gauge Device
- Self Shielded Irradiator
- Academic, Research & Development and Other Licenses of Limited Scope
- Medical Use
- Commercial Radiopharmacy
- Broad Scope

The close correlation between the application form and the NUREG 1556 guidance, or adapted VAREG, will facilitate submittal of the needed information for renewals and new applications. The RMP has developed an expedited renewal form for each license category that can be used when insignificant changes have occurred in the licensee's program. Other forms including checklists, a Notice to Employees and information summaries have also been developed to assist licensees and registrants. The forms developed by the RMP are located in *Attachment 5, Appendix A.*

The Radioactive Materials Program has the option to modify regulatory requirements through the use of legally binding requirements. These can take the form of orders, notices, or license conditions-or a combination of these. 12 VAC 5- 481- 90 grants VDH authority to grant exemptions or exceptions. 12 VAC 5-481-490 and 580 grants VDH authority to incorporate additional requirements and conditions and modify license

conditions. Other regulatory issues or problems that arise will be evaluated for the best approach.

Inspection checklists/reports have been developed for the categories of Portable Gauges and XRF Devices, Fixed Gauges, and Commercial Radiopharmacies (*Attachment 6, Appendix A).* Inspections will be performance based, therefore, if any area on the checklist was not covered during the inspection the report will state 'not reviewed'. The RMP will use the inspection checklists/reports to document the inspection findings for all license categories except broad-scope licensees for which a narrative report format will be used. Inspection checklists/reports will be based on the information discussed in NRC's Manual Chapter 2800, Inspection Procedures and modified as needed to reflect WI Rule and license conditions. The criteria for increased, reduced and follow-up inspections are outlined in RMPP 3.01.

Enforcement actions are discussed in RMPP 3.05 and include notices of violation, forfeitures and orders. The authority for the State Health Commissioner to issue orders is found in 12 VAC 5-481-110. A notice of violation will normally be issued by the Radioactive Materials Program Supervisor or a Radiation Safety Specialist. Escalated enforcement actions must be issued by the RMP supervisor or higher level manager. A designated attorney in the Office of the Attorney General is available to provide assistance with enforcement actions upon the request of the DRH Director.

Information Notices (INs) issued by the NRC will be evaluated for applicability to Virginia licensees. The RMP will also evaluate inspection findings for generic health and safety problems that are specific to Virginia licensees (e.g., NARM licensees). See RMPP 3.03. The RMP will forward applicable INs or generic health and safety information to affected licensees.

Field and laboratory equipment resources are located in *Attachment 10.* The RMP staff will have available survey equipment for routine inspections. Survey meters shown on the field equipment list are primarily emergency response equipment, but may be used by the RMP as needed. Contamination wipes may be counted on the intrinsic germanium system, alpha/beta counter, or liquid scintillation counter as appropriate (*Attachment 10, Appendix A)*

Response to allegations or incidents involving radioactive materials will be based on the guidance provided in the Radioactive Material Program Procedures (*Attachment 7).* The allegations procedure will be used by radioactive materials program staff to respond to allegations of impropriety or wrongdoing by licensees or registrants. The incident response procedure will draw upon available trained staff, as needed, from the entire DRH. A goal of the DRH is to increase the number of staff who have satisfactorily passed the examination for the National Registry of Radiation Protection Technologists.

Currently all of the professional staff employed prior to 1992 (five) have successfully participated in this program.

Administrative Tracking and Processing

The RMP has developed an Access database of license files. A hard copy file system has been created that is organized by alphabetically order of licensee name. Duplicate files have been made so that one is available to the inspector. The computer database permits identification of licenses up for renewal, inspections due, and tracking on-going licensing and inspection activities. Administrative procedures are being developed to track licensing actions and correspondence associated with completed inspections (*Attachment 9).* Licenses will be generated either using the Access database or by selecting 'word' templates for each specific license type.

Legal Assistance

The DRDH receives legal assistance from the Office of the Attorney General. The Program has an assigned attorney specializing in areas of interest to VDH.

Radioactive Materials Program Procedures

The Radioactive Materials Program Procedures (RMPP) are organized and located as follows:

- Licensing — Attachment 5
- Inspection and Enforcement — Attachment 6
- Incidents and Allegations — Attachment 7
- Qualifications and Training — Attachment 8
- Administrative — Attachment 9

A summary listing of each procedure is provided below. Radioactive Material Program Forms are not currently included as Attachments to the Procedures, but are located in *Attachment 5, Appendix A.*

Licensing:

2.02-Review of Initial Application for License or an Amendment Request
2.03-Renewal of Licenses
2.05-License Termination: This procedure addresses actions that need to be taken for different types of licenses including the close-out survey and decommissioning plan.
2.06-Prioritization of Licensing Actions

Inspections & Enforcement:

3.01-Scheduling of Inspections: This procedure addresses license priority and corresponding inspection frequency. Range: Priority I (annually) to V (every 5 years). The MPS may extend the next inspection date immediately after an inspection for a positive program review.
3.02-Inspection Preparation
3.03-Performance Based Inspection-requires Inspection Plan for all initial inspections and Priority I-III routine inspections.
3.04-Documentation of Inspection Results
3.05-Enforcement, Escalated Enforcement and Administrative Actions

Incidents and Allegations:

4.01-Management of Allegations
4.02-Radiological Incident Response

Administrative:

5.01-Receipt and Tracking of Licensing Actions
5.02-Renewal Notices, Tracking Inspection Reports and Correspondence

Qualifications and Training:

6.01-Qualifications and Training

Staff Needs Analysis

A preliminary Staff Needs Analysis was performed to confirm that the current and planned staff of 6.0 FTEs [4.0 FTE Radiation Safety Specialists, 1.0 FTE Supervisor, and 1.0 FTE Program Assistant], or 5.0 FTE technical was adequate for transition to becoming an Agreement State.

A rough guide for the suggested number of technical FTEs was 1.0-1.5 FTEs per 100 licenses. Assuming 400 NRC licenses will transfer to the Commonwealth under the agreement, and there are no licensees that will take significant time to service than the average license, then the staffing level should be in the range of 4.0 to 6.0 FTEs.

Furthermore NRC Region provided the following information:
Budgeted FTE for Region I Materials Program in FY2006

Budgeted Activity	Region I	Virginia[2]
Materials Licensing[1]	8.3	1.4
Materials Inspection	10.8	1.8
Event Response and Response	1.5	0.3
Allegations	4.7	0.8
Training	0.4	0.05
Security	4.5	0.75
Enforcement	1.0	0.2
Agreement State Activities	0.7	0.1
Total FTE	32	5.3
Number of Licenses	2400	400

Notes:

1: Each budgeted activity is in FTE
2: The individual state FTE is based on percentage of state licenses compared to the Region

A more detailed analysis of staffing levels will be presented in the final draft. The following information will be held as a place holder for the final package.

Although not directly addressed in the staff needs analysis, 1.0 FTE is planned for the on-going development of database and fee collection system.

STAFF NEEDS ANALYSIS

License Category	Number of Licenses	Times (x) # Actions	Licensing actions / yr	Staff days per action	Licensing Staff days	Times (x) Frequency	Inspections per year	Staff days / Inspection	Inspection staff days
Broadscope – Medical (I)									
Broadscope – Academic (I)									
Industrial Radiography (I)									
Nuclear Pharmacy (I)									
HDR (I)									
Mobile Nuc-Med (II)									
Gamma Knife – Teletherapy (III)									
Medical – Diagnostic (III)									
Medical – Therapy (III)									
Manufacturing with Distribution (III)									
IN-Vitro Testing (V)									
Fixed Gauges (V)									
Portable Gauges (V)									
Research & Development (V)									
Self Shielded Irradiators (V)									
Source Material (V)									
Other – NARM (V)									
Other (V)									
Reciprocity						Varies			
TOTALS									

STAFF RESOURCE ANALYSIS

Staff Member	Supervisor		Rad Spec.	#1	Rad Spec	#2	Rad Spec.	#3	Rad Spec.	#4
License Category	Insp	Lic	Insp	Lic	Insp	Lic	Insp	Lic	Insp	Lic
Broadscope – Medical (I)										
Broadscope – Academic (I)										
Industrial Radiography (I)										
Nuclear Pharmacy (I)										
HDR (I)										
Mobile Nuc-Med (II)										
Gamma Knife – Teletherapy (III)										
Medical – Diagnostic (III)										
Medical – Therapy (III)										
Manufacturing with Distribution (III)										
IN-Vitro Testing (V)										
Fixed Gauges										

(V)										
Portable Gauges (V)										
Research & Development (V)										
Self Shielded Irradiators (V)										
Source Material (V)										
Other – NARM (V)										
Other (V)										
Reciprocity										
TOTAL										

STAFF BALANCE ANALYSIS

License Category	Inspection staff days			Licensing staff days		
	Needed	Available		Needed	Available	
		Current Staff	Planned 4 FTE's		Current Staff	Planned 4 FTE's
Broadscope – Medical (I)	75	35	40	72	24	48
Broadscope – Academic (I)	75	35	40	72	24	48
Industrial Radiography (I)	160	60	100	32	12	20
Nuclear Pharmacy (I)	114	38	76	24	8	16
HDR (I)	10	2	8	2	2	0
Mobile Nuc-Med (II)	40	12	28	18	6	12
Gamma Knife – Teletherapy (III)	6	2	4	2	2	0
Medical – Diagnostic (III)	54	18	36	54	18	36
Medical – Therapy (III)	132	44	88	132	44	88
Manufacturing with Distribution (III)	6	2	4	4	4	0
IN-Vitro Testing (V)	2	2	0	2	2	0
Fixed Gauges (V)	40	16	24	26	10	16
Portable Gauges (V)	108	68	40	68	16	52
Research & Development (V)	30	14	16	16	8	8
Self Shielded Irradiators (V)	8	4	4	4	0	4
Source Material (V)	3	3	0	2	2	0
Other – NARM (V)	9	9	0	8	4	4
Other (V)	24	8	16	20	0	20
Reciprocity (V)	38	18	20			
Total	934	390	544	558	186	372

10 CFR/12 VAC 5-481 COMPARISON

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10 CFR	12 VAC 5-481	TITLE	COMMENTS
10 CFR 19		NOTICES, INSTRUCTIONS AND REPORTS TO WORKERS: INSPECTION AND INVESTIGATIONS	
19.1	2250	Purpose	S (Similar, but not identical)
19.2	2250	Scope	S
19.3	10	Definitions	All VA Definitions in 12VAC5-481-10
19.4		Interpretations	
19.5		Communications	
19.8		Information collection requirements: OMB approval	
19.11	2260	Posting of notices to workers	S
19.12	2270	Instructions to workers	S
19.13	2280	Notifications and reports to individuals	S
19.14	2290	Presence of representatives of licensees and workers during inspections	S
19.15	2300	Consultation with workers during inspection	S
19.16	2310	Request by workers for an inspection	S
19.17	2320	Inspections not warranted	S
19.18		Sequestration of witnesses and exclusion of counsel in interviews conducted under subpoena	
19.20		Employee protection	
19.30	110, 200	Violations	
19.31	90	Applications for exemptions	S
19.32		Discrimination prohibited	
19.40		Criminal penalties	
10 CFR 20		STANDARDS FOR PROTECTION AGAINST RADIATION	
20.1001	600	Purpose	BT (Body in Text)
20.1002	610	Scope	S
20.1003	640, 650, 660, 670, 720, 730, 830, 840, 850, 860, 870, 880, 890, 900, 910,	Definitions	IR (Incorporated by Reference)

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10 CFR	12 VAC 5-481	TITLE	COMMENTS
	930, 940, 950, 960, 970, 980, 990, 1000, 1030, 1040, 1100, 1110,		
20.1004	240	Units of radiation dose	IR
20.1005	250	Units of radioactivity	IR
20.1006		Interpretations	
20.1007		Communications	
20.1008	620	Implementation	S
20.1009		Information collection requirements: OMB approval	
20.1101	630	Radiation protection programs	IR
20.1201	640	Occupational dose limits for adults	IR
20.1202	650	Compliance with requirements for summation of external and internal doses	IR
20.1203	660	Determination of external doses from airborne radioactive material	IR
20.1204	670	Determination of internal exposure	IR
20.1205		Reserved	
20.1206	690	Planned special exposures	IR
20.1207	700	Occupational dose limit for a minor	IR
20.1208	710	Dose to an embryo or fetus	IR
20.1301	720	Dose limits for individual members of the public	IR
20.1302	730	Compliance with dose limits for individual members of the public	IR
20.1401		General provisions and scope	
20.1402		Radiological criteria for unrestricted use	
20.1403		Criteria for license termination under restricted conditions	
20.1404		Alternate criteria for license termination	
20.1405		Public notification and public participation	
20.1406		Minimization of contamination	
20.1501	750	Surveys and monitoring	IR
20.1502	760	Conditions requiring individual monitoring of external and	IR

10 CFR/12 VAC 5-481 COMPARISON

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10 CFR	12 VAC 5-481	TITLE	COMMENTS
		internal occupational dose	
20.1601	780	Control of access to high radiation areas	IR
20.1602	790	Control of access to very high radiation areas	S
20.1701	810	Use of process or other engineering controls	IR
20.1702	820	Use of other controls	IR
20.1703	830	Use of individual respiratory protection equipment	IR
20.1704	830	Issuance of specific licenses	IR
20.1705	830	Application for use of higher assigned protection factors	IR
20.1801	840-A	Security of stored material	IR
20.1802	840-A	Control of material not in storage	IR
20.1901	850	Caution signs	IR
20.1902	860	Posting requirements	IR
20.1903	870	Exceptions to posting requirements	IR
20.1904	880	Labeling containers and radiation machines	IR
20.1905	890	Exceptions to labeling requirements	IR
20.1906	900	Procedures for receiving and opening packages	IR
20.2001	910	Waste management (1) General requirements	IR
20.2002	920	Method for obtaining approval of proposed disposal procedures	BT
20.2003	930	Disposal by release into sanitary sewerage	IR
20.2004	940	Treatment or disposal by incineration	IR
20.2005	950	Disposal of specific wastes	IR
20.2006	960	Transfer for disposal and manifests	IR
20.2007	970	Compliance with environmental and health protection regulations	IR
20.2101	980	Records (1) General provisions	IR
20.2102	990	Records of radiation protection programs	IR
20.2103	1000	Records of surveys	IR
20.2104	1020	Determination of prior occupational dose	NOT similar
20.2105	1030	Records of planned special exposures	IR
20.2106	1040	Records of individual monitoring results	IR
20.2107	1040, 1100	Records of dose to individual members of the public	IR

10 CFR/12 VAC 5-481 COMPARISON

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10 CFR	12 VAC 5-481	TITLE	COMMENTS
20.2108	1060	Records of waste disposal	BT
20.2109		Reserved	
20.2110	1080	Forms of records	BT
20.2201	1090	Reports of stolen, lost or missing licensed or registered sources of radiation	S
20.2202	1100	Notification of incidents	IR
20.2203	1110	Reports of exposures, radiation levels and concentrations of radioactive material exceeding the constraints or limits	IR
20.2204	1120	Reports of planned special exposures	BT
20.2205	1140	Reports to individuals of exceeding dose limits	BT
20.2206	1130	Reports of individual monitoring	S
20.2301		Applications for exemptions	
20.2302		Additional requirements	
20.2401		Violations	
20.2402		Criminal penalties	
Appendices			
Appendix A	Appendix E	Protection factors for respirators	BT
Appendix B	2240,	Annual limits on intake (ALI) and derived air concentrations (DAC) of radionuclides for occupational exposure; effluent concentrations; concentrations for release to sanitary sewerage	IR
Appendix C	480 A 1 b, 1090 A 3	Quantities of licensed or registered material requiring labeling	IR, IR
Appendix D		United States Nuclear Regulatory Commission Regional Offices	
Appendix E – F		Reserved	
Appendix G	Appendix H	Requirements for transfer of low-level radioactive waste for disposal at land disposal facilities and manifests	BT

10 CFR/12 VAC 5-481 COMPARISON

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10 CFR	12 VAC 5-481	TITLE	COMMENTS
10 CFR 30		RULES OF GENERAL APPLICABILITY TO DOMESTIC LICENSING OF BYPRODUCT MATERIAL	
30.1		Scope	
30.2		Resolution of conflict	
30.3		Activities requiring license	
30.4	400 A-C	Definitions	IR
30.5		Interpretations	
30.6		Communications	
30.7		Employee protection	
30.8		Information collection requirements; OMB approval	
30.9		Completeness and accuracy of information	
30.10		Deliberate misconduct	
30.11	90-A	Specific exemptions	S
30.12	90-B	Persons using byproduct material under certain U.S. DOE and NRC contracts	S
30.13		Carriers	
30.14	400-A	Exempt concentrations	IR
30.15	400-C	Certain items containing byproduct material	IR
30.16	400-4	Resins containing Sc-46 and designed for sand-consolidation in oil wells	IR
30.18	400-B	Exempt quantities	IR
30.19	400-2	Self-luminous products containing H-3, Kr-85 or Pr-147	IR
30.20	400-3	Gas and aerosol detectors containing byproduct material	IR
30.21		Exempt items (Radioactive drug capsules containing carbon-14 urea for "in vivo" diagnostic use for humans)	
30.31	410	Types of licenses	IR
30.32	440	Application for specific licenses	S – much missing
30.33	450 A-E	General requirements for the issuance of specific licenses	S
30.34		Terms and conditions of licenses	
30.35	450 F	Financial assurance and record keeping for decommissioning	S – much missing
30.36	510	Expiration and termination of licenses and	S – very different

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10 CFR	12 VAC 5-481	TITLE	COMMENTS
		decommissioning of sites and separate buildings or outdoor areas	
30.37	520	Application for renewal of licenses	S
30.38	530	Amendment of licenses at request of licensee	BT
30.39		Commission action on applications to renew or amend	
30.41	570	Transfer of byproduct material	S
30.50		Event reporting	
30.51		Records	
30.52		Inspections; Access by department	
30.53		Tests	
30.55		Tritium reports	
30.61		Modification, suspension and revocation of licenses	
30.62		Right to cause the withholding or recall of byproduct material	
30.63		Violations	
30.64		Criminal penalties	
30.70	Appendix B	Exempt concentrations	BT
30.71	Appendix C	Schedule B – Exempt quantities	BT
30.72		Quantities of radioactive materials requiring consideration of the need for an emergency plan for responding to a release	
Appendix A		Criteria relating to use of financial tests and parent company guarantees for providing reasonable assurance of funds for decommissioning	
Appendix B	Appendix G	Quantities of licensed or registered material requiring labeling	S – Va. In order by atomic number rather than alphabetic by name
Appendix C		Criteria relating to use of financial tests and self guarantees for providing reasonable assurance of funds for decommissioning	
Appendix D		Criteria relating to use of financial tests and self guarantee for providing reasonable assurance of funds for decommissioning by commercial companies that have no	

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10 CFR	12 VAC 5-481	TITLE	COMMENTS
		outstanding rated bonds	
Appendix E		Criteria relating to use of financial tests and self-guarantee for providing reasonable assurance of funds for decommissioning by non-profit colleges, universities and hospitals	
10 CFR 31		GENERAL DOMESTIC LICENSE FOR BYPRODUCT MATERIAL	
31.1		Purpose and scope	
31.2	430 A, B	Terms and conditions	IR
31.3	430 A	Certain devices and equipment	IR
31.4		Information collection requirements; OMB approval	
31.5	480 D-4-d-1	Certain detection, measuring gauging or controlling devices and certain devices for producing light or an ionized atmosphere	IR
31.6		General license to install devices generally licensed in CFR 31.5	
31.7	430 D	Luminous safety devices for aircraft	IR
31.8	430 F	Americium-241 in the form of calibration and reference sources	IR
31.9	430 E	General license relating to ownership of radioactive material	IR
31.10	430 H	General license for Sr-90 in ice detection devices	IR
31.11	430 G	General license for use of radioactive material for certain in vitro clinical or laboratory testing	IR
31.12		Maintenance of records	
31.13		Violations	
31.14		Criminal penalties	
10 CFR 32		CERTAIN DOMESTIC LICENSES TO MANUFACTURE OR TRANSFER CERTAIN ITEMS CONTAINING BYPRODUCT MATERIAL	
32.1		Purpose and scope	

10 CFR/12 VAC 5-481 COMPARISON

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10 CFR	12 VAC 5-481	TITLE	COMMENTS
32.2	10	Definitions	S
32.3		Maintenance or records	
32.8		Information collection requirements; OMB approval	
32.11		Licensing the introduction of radioactive material in exempt concentrations into products or materials and transfer of ownership or possession: requirements for license	
32.12		Same: records and material transfer reports	
32.13		Same: prohibition of introduction	
32.14		Certain items containing byproduct material; requirements for license to apply or initially transfer	
32.15		Same: quality assurance, prohibition of transfer, and labeling	
32.16		Certain items containing byproduct material; Records and reports of transfer	
32.17		Resins containing scandium-46 and designed for sand-consolidation in oil wells: requirements for license to manufacture, or initially transfer for sale or distribution	
32.18	480 A, B	Manufacture, distribution and transfer of exempt quantities of byproduct material: Requirements for license	S
32.19	480 B-2	Same: Conditions of licenses	BT
32.20	480 B-3	Same: Records and material transfer reports	S
32.21	480 H-1	Radioactive drug: Manufacture, preparation or transfer for commercial distribution of capsules containing carbon-14 urea each for "in vivo" diagnostic use for humans to persons exempt from licensing; Requirements for a license	S - portion only
32.21a		Same: Conditions of license	
32.22		Self-luminous products containing tritium, krypton-85 or promethium-147: Requirements for license to manufacture, process, produce or initially transfer	
32.23		Same: Safety criteria	
32.24		Same: Table of organ doses	

10 CFR/12 VAC 5-481 COMPARISON

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10 CFR	12 VAC 5-481	TITLE	COMMENTS
32.25		Conditions of licenses issued under 32.22: Quality control, labeling and reports of transfer	
32.26	480 C	Gas and aerosol detectors containing byproduct material: Requirements for license to manufacture, process, produce or initially transfer	IR
32.27		Same: Safety criteria	
32.28		Same: Table of organ doses	
32.29		Conditions of licenses issued under 32.26: Quality control, labeling and reports of transfer	
32.40		Schedule A – Prototype tests for automobile lock illuminators	
32.51	480 D 1-3	Byproduct material contained in devices for use under 31.5, requirements for license to manufacture or initially transfer	BT
32.51a	480 D 4 a-c	Same: conditions of licenses	S
32.52	480 D 4-d	Same: material transfer reports and records	S
32.53	480 E-2	Special requirements for the manufacture, assembly or repair of luminous safety devices for use in aircraft	IR
32.54	480 E-2	Same: labeling of devices	IR
32.55	480 E-2	Same: Quality assurance; prohibition of transfer	IR
32.56	480 E-2	Same; Material transfer reports	IR
32.57	480 F-2	Calibration or reference sources containing americium-241: requirements for license to manufacture or initially transfer	IR
32.58	480 F-2	Same: labeling of devices	IR
32.59	480 F-2	Same: leak testing of each source	IR
32.60		Reserved	
32.61	480 I-2	Ice detection devices containing Sr-90; requirements for license to manufacture or initially transfer	IR
32.62	480 I-2	Same: Quality assurance; prohibition of transfer	IR
32.71	480 H	Manufacture and distribution of byproduct material for certain in vitro clinical or laboratory testing under general license	S

10 CFR/12 VAC 5-481 COMPARISON

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10 CFR	12 VAC 5-481	TITLE	COMMENTS
32.72	480 J	Manufacture, preparation or transfer for commercial distribution of radioactive drugs containing byproduct material for medical use under Part 35	S
32.74	480 L	Manufacture and distribution of sources or devices containing byproduct material for medical use	BT
32.101	480 E-2	Schedule B: Prototype tests for luminous safety device for use in aircraft	IR
32.102	480 F-2	Schedule C: prototype tests for calibration or reference sources containing americium-241	IR
32.103	480 I-2	Schedule D: prototype tests for ice detection devices containing Sr-90	IR
32.110		Subpart C – quality control sampling procedures Acceptance sampling procedures under certain specific licenses	
32.210		Subpart D - Registration of product information	
32.301		Violations	
32.303		Criminal penalties	
10 CFR 33		SPECIAL DOMESTIC LICENSES OF BROAD SCOPE FOR BYPRODUCT MATERIAL	
33.1		Purpose and scope	
33.8		Information collection requirements: OMB approval	
33.11	470 A	Types of specific licenses of broad scope	BT
33.12		Applications for specific licenses of broad scope	
33.13	470 B	Requirements for issuance of a Type A specific license of broad scope	BT
33.14	470 C	Requirements for issuance of a Type B specific license of broad scope	BT
33.15	470 D	Requirements for issuance of a Type C specific license of broad scope	BT
33.16		Application for other specific licenses	
33.17	470 E	Conditions of specific licenses of broad scope	BT
33.21		Violations	

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10 CFR	12 VAC 5-481	TITLE	COMMENTS
33.23		Criminal penalties	
33.100	Appendix D	Schedule A	BT
10 CFR 34		LICENSE FOR INDUSTRIAL RADIOGRAPHY AND RADIATION SAFETY REQUIREMENTS FOR INDUSTRIAL RADIOGRAPHIC OPERATIONS	
34.1	1170, 1180	Purpose, Scope	S, BT
34.3	10	Definitions	
34.5		Interpretations	
34.8		Information collection requirements: OMB approval	
34.11		Filing application for a specific license	
34.13	1200 A-K	Specific license for industrial radiography	S
34.20	1210	Performance requirements for industrial radiography equipment	S
34.21	1220	Limits on external radiation levels from storage containers	BT
34.23	1230	Locking of radiographic exposure devices, storage containers and source changers	S
34.25	1240	Radiation survey instruments	BT
34.27	1250	Leak testing and replacement of sealed sources	BT
34.29	1260	Quarterly inventory	BT
34.31	1270	Inspection and maintenance of radiation machines, radiographic exposure devices, transport and storage containers, associated equipment, source changers and survey instruments	BT
34.33	1280	Permanent radiographic installations	BT
34.35	1290	Labeling, transportation and storage	S
34.41	1300	Conducting industrial radiographic operations	S
34.42	1310	Radiation safety officer	BT
34.43	1320	Training	BT
34.45	1330	Operating and emergency procedures	BT
34.46	1340	Supervision of radiographer's assistants	BT
34.47	1350	Personnel monitoring	BT

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34.49	1360	Radiation surveys	S
34.51	1370	Surveillance	BT
34.53	1380	Posting	BT
34.61	1390	Records of the specific license for industrial radiography	BT
34.63	1400	Records of receipt and transfer of sealed sources	BT
34.65	1410	Records of radiation survey instruments	BT
34.67	1420	Records of leak testing of sealed sources and devices containing depleted Uranium	BT
34.69	1430	Records of quarterly inventory	S
34.71	1440	Utilization logs	S
34.73	1450	Records of inspection and maintenance of, radiographic exposure devices, transport and storage containers, associated equipment, source changers and survey instruments	BT
34.75	1460	Records of alarm system and entrance control checks at permanent radiographic installations	BT
34.79	1470	Records of training and certification	BT
34.81	1480	Copies of operating and emergency procedures	BT
34.83	1490	Records of personnel monitoring procedures	S
34.85	1500	Records of radiation surveys	BT
34.87	1510	Form of records	BT
34.89	1520	Location of documents and records	S
34.101	1530	Notifications	S
34.111		Applications for exemptions	
34.121		Violations	
34.123		Criminal penalties	
Appendix A	Appendix K	Radiographer certification	
10 CFR 35		MEDICAL USE OF BYPRODUCT MATERIAL	
35.1	1660	Purpose and scope	BT
35.2	1670	Definitions	IR
35.5	1670	Maintenance of records	IR
35.6	1670	Provisions for the protection of human research subjects	IR

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35.7	1670	FDA, other federal and state requirements	IR
35.8		Information collection requirements: OMB approval	
35.10	1670	Implementation	IR
35.11	1680	License required	IR
35.12	1680	Application for license, amendment or renewal	IR
35.13	1680	License amendment	IR
35.14	1690	Notifications	IR
35.15	1680	Exemptions for Type A specific licensees of broad scope	IR
35.18	1680	License issuance	IR
35.19	1680	Specific Exemptions	IR
35.24	1700	Authority and responsibilities for the radiation protection program	IR
35.26	1700	Radiation protection program changes	IR
35.27	1710	Supervision	IR
35.40	1720	Written directives	IR
35.41	1730	Procedures for administrations requiring a written directive	IR
35.49	1740	Suppliers for sealed sources or devices for medical use	IR
35.50	1750	Training for radiation safety officer	IR
35.51	1760	Training for an authorized medical physicist	IR
35.55	1770	Training for an authorized nuclear pharmacist	IR
35.57	1780	Training for experienced radiation safety officer, teletherapy or medical physicist, authorized medical physicist and authorized nuclear pharmacist	IR
35.59	1790	Recentness of training	IR
35.60	1800	Possession, use and calibration of instruments to measure the activity of unsealed byproduct materials	IR
35.61	1810	Calibration of survey instruments	IR
35.63	1820	Determination of dosages of unsealed byproduct material for medical use	IR
35.65	1830	Authorization for calibration, transmission and reference sources	IR
35.67	1840	Requirements for possession of sealed sources and	IR

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10 CFR	12 VAC 5-481	TITLE	COMMENTS
		brachytherapy sources	
35.69	1850	Labeling of vials and syringes	IR
35.70	1860	Surveys of ambient radiation exposure rate	IR
35.75	1870	Release of individuals containing unsealed byproduct material or implants containing byproduct material	IR
35.80	1880	Provision of mobile medical service	IR
35.92	1890	Decay-in-storage	IR
35.100	1900	Use of unsealed byproduct material for uptake, dilution and excretion studies for which a written directive is not required	IR
35.190	1910	Training for uptake, dilution and excretion studies	IR
35.200	1920	Use of unsealed radioactive material for imaging and localization studies for which a written directive is not required	IR
35.204	1930	Permissible molybdenum-99 concentration	IR
35.290	1940	Training for imaging and localization studies	IR
35.300	1950	Use of unsealed byproduct material for which a written directive is required	IR
35.310	1960	Safety instruction	IR
35.315	1970	Safety precautions	IR
35.390	1980	Training for use of unsealed byproduct material for which a written directive is required	IR
35.392	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)	IR
35.394	2000	Training for the oral administration of sodium iodide I-131 requiring a written directive in quantities greater than 1.22 gigabecquerels (33 millicuries)	IR
35.396	2000	Training for the parenteral administration of unsealed byproduct material requiring a written directive	IR
35.400	2010	Use of sealed sources for manual brachytherapy	IR
35.404	2010	Surveys after source implant and removal	IR
35.406	2010	Brachytherapy sources accountability	IR

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35.410	2010	Safety instruction	IR
35.415	2010	Safety precautions	IR
35.432	2010	Calibration measurements of brachytherapy sealed sources	IR
35.433	2010	Decay of Sr-90 sources for ophthalmic treatments	IR
35.457	2010	Therapy-related computer systems	IR
35.490	2010	Training for use of manual brachytherapy sources	IR
35.491	2010	Training for ophthalmic use of strontium-90	IR
35.500	2020	Use of sealed sources for diagnosis	IR
35.590	2030	Training for use of sealed sources for diagnosis	IR
35.600	2040	Use of a sealed source in a remote afterloader unit, teletherapy unit or gamma stereotactic radiosurgery unit	IR
35.604	2040	Surveys of patients and human research subjects treated with a remote afterloader unit	IR
35.605	2040	Installation, maintenance, adjustment and repair	IR
35.610	2040	Safety procedures and instructions for remote afterloader units, teletherapy units and gamma stereotactic radiosurgery units	IR
35.615	2040	Safety precautions for remote afterloader units, teletherapy units and gamma stereotactic radiosurgery units	IR? Missing on pg. 393?
35.630	2040	Dosimetry equipment	IR? Missing on pg. 393?
35.632	2040	Full calibration measurements on teletherapy units	IR
35.633	2040	Full calibration measurements on remote afterloader units	IR
35.635	2040	Full calibration measurements on gamma stereotactic radiosurgery units	IR
35.642	2040	Periodic spot-checks for teletherapy units	IR
35.643	2040	Periodic spot-checks for remote afterloader units	IR
35.645	2040	Periodic spot-checks for gamma stereotactic radiosurgery units	IR
35.647	2040	Additional technical requirements for mobile remote afterloader units	IR
35.652	2040	Radiation surveys	IR
35.655	2040	Five-year inspection for teletherapy and gamma	IR

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		stereotactic radiosurgery units	
35.657	2040	Therapy-related computer systems	IR
35.690	2040	Training for use of remote afterloader units, teletherapy units and gamma stereotactic radiosurgery units	IR
35.900	2050	Radiation safety officer	IR
35.910	2050	Training for uptake, dilution and excretion studies	IR
35.920	2050	Training for imaging and localization studies	IR
35.930	2050	Training for therapeutic use of unsealed byproduct material	IR
35.932	2050	Training for treatment of hyperthyroidism	IR
35.934	2050	Training for treatment of thyroid carcinoma	IR
35.940	2050	Training for use of brachytherapy sources	IR
35.941	2050	Training for ophthalmic use of strontium-90	IR
35.950	2050	Training for use of sealed sources for diagnosis	IR
35.960	2050	Training for use of therapeutic medical devices	IR
35.961	2050	Training for authorized medical physicist	IR
36.980	2050	Training for an authorized nuclear pharmacist	IR
35.981	2050	Training for experienced nuclear pharmacists	IR
35.1000	2060	Other medical uses of byproduct material or radiation from byproduct material	IR
35.2024	2070	Records of authority and responsibilities for radiation protection programs	IR
35.2026	2070	Records of radiation protection program changes	IR
35.2040	2070	Records of written directives	IR
35.2041	2070	Records for procedures for administrations requiring a written directive	IR
35.2060	2070	Records of calibration s of instrument used to measure the activity of unsealed byproduct materials	IR
35.2061	2070	Records of radiation survey instrument calibrations	IR
35.2063	2070	Records of dosages of unsealed byproduct material for medical use	IR
35.2067	2070	Records of leak tests and inventory of sealed sources and brachytherapy sources	IR

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35.2070	2070	Records of surveys for ambient radiation exposure rate	IR
35.2075	2070	Records of the release of individuals containing unsealed byproduct material or implants containing byproduct material	IR
35.2080	2070	Records of mobile medical services	IR
35.2092	2070	Records of decay-in-storage	IR
35.2204	2070	Records of molybdenum-99 concentrations	IR
35.2310	2070	Records of safety instruction	IR
35.2404	2070	Records of surveys after source implant and removal	IR
35.2406	2070	Records of brachytherapy source accountability	IR
35.2432	2070	Records of calibration measurements of brachytherapy sources	IR
35.2433	2070	Records of decay of strontium-90 sources for ophthalmic treatments	IR
35.2605	2070	Records of installation, maintenance adjustment and repair of remote afterloader units, teletherapy units and gamma stereotactic radiosurgery units	IR
35.2610	2070	Records of safety procedures	IR
35.2630	2070	Records of dosimetry equipment used with remote afterloader units, teletherapy units and gamma stereotactic radiosurgery units	IR
35.2632	2070	Records of teletherapy, remote afterloader and gamma stereotactic radiosurgery full calibrations	IR
35.2642	2070	Records of periodic spot-checks for teletherapy units	IR
35.2643	2070	Records of periodic spot-checks for remote afterloader units	IR
35.2645	2070	Records of periodic spot-checks for gamma stereotactic radiosurgery units	IR
35.2647	2070	Records of additional technical requirements for mobile remote afterloader units	IR
35.2652	2070	Records of surveys of therapeutic treatment units	IR
35.2655	2070	Records of 5-year inspection for teletherapy and gamma stereotactic radiosurgery units	IR

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36.59	2870	Detection of leaking sources	IR
36.61	2880	Inspection and maintenance	IR
36.63	2890	Pool water purity	IR
36.65	2900	Attendance during operation	IR
36.67	2910	Entering and leaving the radiation room	IR
36.69	2920	Irradiation of explosive or flammable materials	IR
36.81	2930	Records and retention periods	IR
36.83	2940	Reports	IR
36.91		Violations	
36.93		Criminal penalties	
10 CFR 39		LICENSES AND RADIATION SAFETY REQUIREMENTS FOR WELL LOGGING	
39.1	3140, 3150	Purpose, scope	S
39.2		Definitions	
39.5		Interpretations	
39.8		Information collection requirements: OMB approval	
39.11		Application for specific licenses	
39.13		Specific license for well logging	
39.15		Agreement with well owner or operator	
39.17		Request for written statements	
39.31	3250	Labels, security and transportation precautions	S -labels only
39.33	3200	Radiation detection instruments	S – some numbers different
39.35	740 B-6, 3210	Leak testing of sealed sources	IR, S
39.37	3220	Physical inventory	S – needs updating
39.39		Records of material use	
39.41	3240	Design and performance criteria for sealed sources	S – some missing
39.43	3260	Inspection, maintenance and opening of a source or source holder	S – very different
39.45		Subsurface tracer studies	
39.47		Radioactive markers	

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39.49		Uranium sinker bars	
39.51		Use of a sealed source in a well without a surface casing	
39.53		Energy compensation source	
39.55		Tritium neutron generator target source	
39.61	3270	Training	S
39.63	3280	Operating and emergency procedures	S
39.65	3290	Personnel monitoring	S
39.67	3340	Radiation surveys	S
39.69		Initial actions	
39.71	3171?	Security	S
39.73	3350	Documents and records required at field stations	S
39.75	3360	Documents and records required at temporary job sites	S
39.77	3370	Notification of incidents and lost sources; abandonment procedures for irretrievable sources	S
39.91		Applications for exemptions	
39.101		Violations	
39.103		Criminal penalties	
10 CFR 40		DOMESTIC LICENSING OF SOURCE MATERIAL	THIS PART NOT YET ADDRESSED IN VA REGS?
40.1		Purpose	
40.2		Scope	
40.2a		Coverage of inactive tailings sites	
40.3		License requirements	
40.4	390	Definitions	IR
40.5		Communications	
40.6		Interpretations	
40.7		Employee protection	
40.8		Information collection requirements: OMB approval	
40.9		Completeness and accuracy of information	
40.10		Deliberate misconduct	
40.11		Persons using source material under certain U.S. DOE and NRC contracts	

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40.12		Carriers	
40.13	390	Unimportant quantities of source material	IR
40.14		Specific exemptions	
40.20		Types of licenses	
40.21	420 B	General license to receive title to source or byproduct material	IR
40.22	420 A	Small quantities of source material	IR
40.23		General license for carriers of transient shipments of natural uranium other than in the form of ore or ore residue	
40.24		Reserved	
40.25	420 C	General license for use of certain industrial products and devices	IR
40.26		General license for possession and storage of byproduct material as defined in this part	
40.27		General license for custody and long-term care of residual radioactive material disposal sites	
40.28		General license for custody and long-term care of uranium or thorium byproduct materials disposal sites	
40.31		Application for specific licenses	
40.32		General requirements for the issuance of specific licenses	
40.33		Issuance of a license for a uranium enrichment facility	
40.34		Special requirements for issuance of specific licenses	
40.35		Conditions of specific licenses issued pursuant to 40.34	
40.36		Financial assurance and records for decommissioning	
40.38		Ineligibility of certain applicants	
40.41		Terms and conditions of licenses	
40.42		Expiration and termination of licenses and decommissioning of sites and separate buildings or outdoor areas	
40.43		Renewal of licenses	
40.44		Amendment of licenses at request of licensee	
40.45		Commission action on applications to renew or amend	

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40.51		Transfer of source or byproduct material	
40.60		Reporting requirements	
40.61		Records	
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40.63		Tests	
40.64		Reports	
40.65		Effluent monitoring reporting requirements	
40.66		Requirements for advance notice of export shipments of natural uranium	
40.67		Requirement for advance notice for importation of natural uranium from countries that are not party to the Convention on the Physical Protection of Nuclear Materials	
40.71		Modification and revocation of licenses	
40.81		Violations	
40.82		Criminal penalties	
Appendix A		Criteria relating to the operation of uranium mills and the disposition of tailings or wastes produced by the extraction or concentration of source material from ores processed primarily for their source material content	

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10 CFR 61		LICENSING REQUIREMENTS FOR LAND DISPOSAL OF RADIOACTIVE WASTE	INSERT PAGES PERTAINING TO VA REGS HERE
61.1	2330	Purpose and scope	S
61.2		Definitions	
61.3	2340	License required	BT
61.4		Communications	
61.5		Interpretations	
61.6		Exemptions	
61.7		Concepts	
61.8		Information collection requirements: OMB approval	
61.9		Employee protection	
61.9a		Completeness and accuracy of information	
61.9b		Deliberate misconduct	
61.10	2350	Content of application	S
61.11	2360	General information	BT
61.12	2370	Specific technical information	BT
61.13	2380	Technical analyses	BT
61.14	2390	Institutional information	BT
61.15	2400	Financial information	BT
61.16		Other information	
61.20		Filing and distribution of application	
61.21		Elimination of repetition	
61.22		Updating application	
61.23	2410	Standards for issuance of a license	S
61.24	2420	Conditions of licenses	BT
61.25		Changes	
61.26		Amendment of license	
61.27		Application for renewal or closure	
61.28	2440	Contents of application for site closure and stabilization	S
61.29	2450	Post closure observation and maintenance	BT
61.30	2460	Transfer of license	BT
61.31	2470	Termination of license	

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61.41	2490	Protection of the general population from releases of radioactivity	BT
61.42		Protection of individuals from inadvertent intrusion	
61.43	2510	Protection of individuals during operations	BT
61.44	2520	Stability of the disposal site after closure	BT
61.50	2530	Disposal site suitability requirements for land disposal	S
61.51	2540	Disposal site land design for land disposal	S
61.52	2550	Land disposal facility operation and disposal site closure	S
61.53	2560	Environmental monitoring	BT
61.54	2570	Alternative requirements for design and operations	BT
61.55		Waste classification	
61.56		Waste characteristics	
61.57		Labeling	
61.58	2590	Alternative requirements for waste classification	BT
61.59	2580	Institutional requirements	BT
61.61	2600	Applicant qualifications and assurances	BT
61.62	2610	Funding for disposal site closure and stabilization	S
61.63	2620	Financial assurance for institutional controls	BT
61.70		Scope	
61.71		State and Tribal Government consultation	
61.72		Filing of proposals for State and Tribal participation	
61.73		Commission approval of proposals	
61.80	2630	Maintenance of records, reports and transfers	S
61.81	2640	Tests at land disposal facilities	S
61.82	2650	Commission inspections of land disposal facilities	BT
61.83		Violations	
61.84		Criminal penalties	
10 CFR 70		DOMESTIC LICENSING OF SPECIAL NUCLEAR MATERIAL	NOT CURRENTLY ADDRESSED IN VA REGS?
70.1		Purpose	

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70.2		Scope	
70.3		License requirements	
70.4		Definitions	
70.5		Communications	
70.6		Interpretations	
70.7		Employee protection	
70.8		Information collection requirements: OMB approval	
70.9		Completeness and accuracy of information	
70.10		Deliberate misconduct	
70.11		Persons using special nuclear material under certain U.S. DOE and NRC contracts	
70.12		Carriers	
70.13		Department of Defense	
70.13a		Foreign military aircraft	
70.14		Specific exemptions	
70.18		Types of licenses	
70.19		General license for calibration or reference sources	
70.20		General license to own special nuclear material	
70.20a		General license to possess special nuclear material for transport	
70.20b		General license for carriers of transient shipments of formula quantities of strategic special nuclear material, special nuclear material of moderate strategic significance, special nuclear material of low strategic significance, and irradiated reactor fuel	
70.21		Filing	
70.22		Contents of applications	
70.23		Requirements for the approval of applications	
70.23a		Hearing required for uranium enrichment facility	
70.24		Criticality accident requirements	
70.25		Financial assurance and records for decommissioning	
70.31		Issuance of licenses	
70.32		Conditions of licenses	

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70.34		Amendment of licenses	
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70.36		Inalienability of licenses	
70.37		Disclaimer of warranties	
70.38		Expiration and termination of licenses and decommissioning of sites and separate buildings or outdoor arcas	
70.39	480 F	Special requirements for license to manufacture calibration or reference sources containing americium-241, plutonium or radium-226 for distribution to persons generally licensed under s. HFS 157.11 (2) (e)	IR
70.40		Ineligibility of certain applicants	
70.41		Authorized use of special nuclear material	
70.42		Transfer of special nuclear material	
70.44		Creditor regulations	
70.50		Reporting requirements	
70.51		Records requirements	
70.52		Reports of accidental criticality	
70.55		Inspections	
70.56		Tests	
70.59		Effluent monitoring reporting requirements	
70.60		Applicability	
70.61		Performance requirements	
70.62		Suspension and operation in war or national emergency	
70.71		Enforcement	
70.72		Criminal penalties	
10 CFR 71		PACKAGING & TRANSPORTATION OF RADIOACTIVE MATERIAL	
71.0	2950	Purpose and scope	S – much missing
71.1		Communications and records	
71.2		Interpretations	

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71.4		Definitions	
71.5	2950	Transportation of licensed material	S
71.6		Information collection requirements: OMB approval	
71.7		Completeness and accuracy of information	
71.8		Deliberate misconduct	
71.9		Employee protection	
71.10		Public inspection of Application	
71.11		reserved	
71.12		Specific exemptions	
71.13		Exemption of physicians	
71.14	2970	Exemption for low level materials	S - partial
71.15		Exemption from classification as fissile material	
71.16		Reserved	
71.17	3000	General license: NRC approved package	S
71.18		Reserved	
71.19	3010	Previously approved package	S
71.20	3020	General license: DOT specification container	S
71.21	3030	General license: use of foreign approved package	S
71.22	3040, 3050	General license: Fissile material	S
71.23		General license: Fissile material	
71.24		Reserved	
71.25		Reserved	
71.31		Contents of application	
71.33		Package description	
71.35		Package evaluation	
71.37		Quality assurance	
71.38		Renewal of a certificate of compliance or quality assurance program approval	
71.39		Requirement for additional information	
71.41		Demonstration of compliance	
71.43		General standards for all packages	

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71.47		External radiation standards for all packages	
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71.55		General requirements for fissile material packages	
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71.59		Standards for arrays of fissile material packages	
71.61		Special requirements for type B packages containing more than 105A2	
71.63		Special requirements for plutonium shipments	
71.64		Special requirements for plutonium air shipments	
71.65		Additional requirements	
71.71		Normal conditions of transport	
71.73		Hypothetical accident conditions	
71.74		Accident conditions for air transport of plutonium	
71.75		Qualification of special form radioactive material	
71.77		Qualification of LSA-III material	
71.81		Applicability of operating controls and procedures	
71.83	3060	Assumptions as to unknown properties	BT
71.85	3070	Preliminary determinations	S
71.87	3080	Routine determinations	S
71.88	3090	Air transport of plutonium	S
71.89		Opening instructions	
71.91	3100	Records	S
71.93		Inspections and tests	
71.95	3110	Reports	S
71.97	3120	Advance notification of shipment of irradiated reactor fuel and nuclear waste	S
71.99		Violations	
71.100		Criminal penalties	
71.101	3130	Quality assurance requirements	Very different
71.103		Quality assurance organization	

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