MARYLAND

STATE INFORMATION HANDBOOK

FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM

December 31, 1980

PREPARED FOR

U.S. DEPARTMENT OF ENERGY

OAK RIDGE OPERATIONS OFFICE

CONTRACT NO. DE-AC05-800R20769

BY

POLITECH CORPORATION
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LEGAL NOTICE

MARYLAND

STATE INFORMATION HANDBOOK

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INTRODUCTION

Pursuant to the First War Powers Act of 1941 and the Atomic Energy Acts of 1946 and 1954, as amended, the Corps of Engineers' Manhattan Engineer District (MED) and its successor, the Atomic Energy Commission (AEC), conducted during the 1940's and 1950's a program involving research, development, processing, and production of uranium and thorium. This program also included the storage of radioactive ores and processing residues, e.g. mill tailings. Virtually all of this work was performed by private contractors for the Government on land that was either federally, privately, or institutionally owned. Due to the urgency and magnitude of the early nuclear materials programs and the limited knowledge available regarding the radioactive characteristics of uranium ore and residual material from its processing, many of these sites became contaminated with radioactivity as a result of work done for the Government. At the conclusion of MED/AEC activities, contaminated sites were decontaminated in accordance with existing guidelines for contamination and exposure levels. Since that time, the guidelines for radioactivity contamination have become much more stringent.

In early 1974, the AEC initiated a survey program to identify all formerly utilized sites involved with nuclear materials and to determine their radiological status. All divisions and field offices of the AEC were required to search their files to identify any such former Government-owned or leased sites and facilities that had been used in the research or production activities of the MED and the AEC. In addition, the files were searched for records identifying the radiological conditions at the termination of the MED/AEC activities and the current radiological condition of the sites. This effort identified many sites for which pertinent information was lacking or was insuffient to determine their radiological conditions.

On January 19, 1975, the AEC was abolished and its programmatic responsibilities transferred to the Energy Research and Development Administration (ERDA) which continued the activities of the survey program. Contacts were made with former and current owners and site visits were conducted under the direction of ERDA field offices to determine the need for radiological surveys. Subsequent survey results were published in radiological survey reports that analyzed the significance of the findings with respect to the potential risks to the public health.

Pursuant to the Department of Energy Organization Act of 1977, the functions and authority of ERDA were transferred to the Department Of Energy (DOE). In the DOE, the Assistant Secretary

for the Environment (ASEV) was assigned the responsibility for the site-survey program. The results of several site surveys clearly indicated that some remedial action would be needed, not only on the former sites, but also on adjacent or remote properties that had become contaminated from the original processing site. Due to the importance of this effort, the ASEV initiated the Formerly Utilized Sites Remedial Action Program (FUSRAP) and drafted a generic plan to identify all formerly utilized sites and to resolve any site radiological problems. The objectives of the FUSRAP are to:

- o Identify former MED/AEC sites;
- o Characterize their radiological conditions;
- o Decontaminate sites as required and pursuant to authorization and appropriation by Congress;
- o Develop acceptable disposal and stabilization sites in consultation with the affected states;
- o Certify the acceptability of the sites for future use.

Using the generic plan as a guide, in mid-1979 responsibility for the FUSRAP activities was divided between the ASEV and the Assistant Secretary for Energy Technology (now Assistant Secretary for Nuclear Energy [ASNE]). The ASEV is responsible for identifying the sites, characterizing the radiological conditions, determining the need for remedial action at the sites, and ultimately for certifying the post-remedial action radiological condition of the FUSRAP sites. The ASNE is responsible for implementing the required remedial actions, including suitable disposal or stabilization of residual material. The Oak Ridge Operations Office has been delegated with the responsibility for field implementation and program management of the ASNE FUSRAP responsibilities. The Environmental Protection Agency (EPA) is responsible for the promulgation of health and environmental standards which will apply to all residual radioactive materials at the formerly utilized sites. As of this time, 31 sites in 13 states have been identified that require or may require some form of remedial action.

This volume is one of a series produced under contract with the DOE, by POLITECH CORPORATION to develop a legislative and regulatory data base to assist the FUSRAP management in addressing the institutional and socioeconomic issues involved in carrying out the Formerly Utilized Sites Remedial Action Program. This Information Handbook series contains information about all relevant government agencies at the Federal and state levels, the pertinent programs they administer, each affected state legislature, and

current Federal and state legislative and regulatory initiatives. This volume is a compilation of information about the State of Maryland. It contains:

- o A description of the state executive branch structure;
- o A summary of relevant state statutes and regulations;
- o A description of the structure of the state legislature, identification of the officers and committee chairmen, and a summary of recent relevant legislative action;
- o The full text of relevant statutes and regulations.

The loose-leaf format used in these volumes will allow the material to be updated periodicially as the Remedial Action Program progresses.

EXECUTIVE BRANCH

The Executive Branch of the Maryland State Government is composed of twelve principal departments with the Governor as Chief Executive Officer. These twelve departments, created by the General Assembly are: Agriculture, Budget and Fiscal Planning, Economic and Community Development, General Services, Health and Mental Hygiene, Human Resources, Licensing and Regulation, Natural Resources, Personnel, Public Safety and Correctional Services, State Planning, and Transportation. There are also a number of agencies that have remained independent due to their function.[1]

The Governor appoints a Secretary to head each department. Although the Secretary serves at the pleasure of the Governor, the appointment is subject to Senate confirmation. In carrying out the Governor's policies, each Secretary is responsible for the Department's operation. The Secretary controls the Department's budget and is empowered to promulgate rules and regulations, plan activities, and appoint the required advisory boards. The Secretary may also create and staff advisory boards.

Each Secretary appoints a Deputy Secretary whose duties are prescribed by law or delegated by the Secretary. The Deputy Secretary's appointment is contingent upon the Governor's approval and he serves at the Governor's pleasure. The Secretary's staff may also include an Assistant Secretary, staff assistants, professional consultants, and employees as provided in the budget. These positions may be filled by the Secretary as he sees fit, however, other employees of the Department are under the merit system.

Actions or decisions of the Department's of Health and Mental Hygiene, Natural Resources, Transportation, and Agriculture may be appealed in a limited number of cases to a Board of Review. These Boards of Review which exist only for these 4 departments, consist of seven members appointed by the Governor with Senate confirmation. Each Board may also make recommendations to the Secretary regarding the operation and adminstration of the department.

Office of the Governor

The Governor, the chief executive officer of the State, is elected by popular vote for a term of four years. Harry Roe Hughes, a Democrat, is the current Governor of Maryland. Prior to his inauguration as Governor in January 1979, Mr. Hughes served the

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[1] Some of the material in this section was extracted from the Maryland Manual 1979-1980 published by the Archives Division, Hall of Records Commission, Department of General Services, State of Maryland.

people of Maryland as a legislator for sixteen years and as Secretary of Transportation for six years.

Mr. Hughes represented Caroline County in the Maryland House of Delegates from 1955 to 1958. In 1958 Mr. Hughes was elected to the Senate where he served for twelve years. In 1962 Mr. Hughes was appointed Chairman of the Committee on Taxation and Fiscal Matters. In 1965 Mr. Hughes became majority floor leader of the Senate and Chairman of the Committee on Finance. Mr. Hughes also chaired a number of special committees. These committees were: the Special Legislative Commission on State and Local Taxation and Financial Relations, the Committee on Taxation and Fiscal Reform, and a Commission to Study the State's Role in Financing Public Education.

In 1971 Governor Mandel appointed Mr. Hughes Secretary of the newly created Department of Transportation. In this position he consolidated and coordinated the air, rail, port, highway, and mass transit agencies into the Department. In 1977 Mr. Hughes resigned this position and became a partner in the Baltimore law firm of Miles and Stockbridge.

The Governor directs the policies of all Executive Branch departments and is the commander in chief of Maryland's military forces. All military and civil officers of the State, except elective positions, are appointed by the Governor, subject to the advice and consent of the Senate. The Governor appoints certain boards and commissions in each county and the City of Baltimore. The Governor also appoints persons to the unexpired terms of the offices of the Attorney General, Comptroller, Treasurer, and members of the General Assembly.

The Governor has limited legislative powers. He must submit the annual budget to the General Assemby and may make recommendations for raising the principal and interest of the State's indebtedness. The Governor may convene the General Assembly at anytime to inform it of the condition of the State. All bills of the General Assembly must be submitted to the Governor for approval before they become law. The Governor's veto may be overridden by three-fifths of the total number of members of each house. A bill may also become law without the Governor's signature if he fails to return the bill to the General Assembly with his objections within six days.

In a letter dated October 3, 1980 Governor Hughes expressed his concern to President Carter that radioactive wastes associated with the Three Mile Island, Pennsylvania (TMI) incident pose a threat to the people of Maryland and the Chesapeake Bay.

According to Governor Hughes assessment of the Nuclear Regulatory Commission's (NRC) draft Programmatic Environmental Impact Statement, the federal agencies involved in clean-up activities

at TMI will be using Three Mile Island as a "long-term storage dump for radioactive wasre." Governor Hughes requests President Carter direct the NRC and the Department of Energy (DOE) to consider the feasiblity of storing TMI clean-up wastes with wastes that DOE handles from defense related nuclear projects. The full text of this letter is located at the end of this section.

The Governor's address, his principal staff members, and his Washington office are:

Governor Harry R. Hughes
State House
Annapolis, Maryland 21201
301-269-3591

Secretary to the Governor:	Annette Silverman
Chief of Staff:	Michael F. Canning
Press Secretary:	Gene Y. Oishi
Administrative Officer:	Irvin E. Feinstein
Chief Legislative Officer:	Judson P. Garrett, Jr.

Washington Office:
1720 K Street, N.W.
Washington, D.C. 20006
202-638-2215

Governor's Executive Council

The Council was created in 1969 for the purpose of coordination and direction and supervision of the State government. The Council consists of the Governor, the Lieutenant Governor, the Secretary of State, and all the Secretaries of the principal departments. The members are:

Harry Hughes	Governor
Fred L. Wineland	Secretary of State
Charles R. Buck, Jr.	Secretary of Health and Mental Hygiene
Thomas W. Schmidt	Secretary of Budget and Fiscal Planning
Constance Lieder	Secretary of State Planning
James B. Coulter	Secretary of Natural Resources
Kalman R. Hettleman	Secretary of Human Resources
J. Max Millstone	Secretary of General Services
Theodore E. Thornton, Sr.	Secretary of Personnel
Gordon C. Kamka	Secretary of Public Safety and Correctional Services
Ejner J. Johnson	Secretary of Licensing and Regulation
James O. Roberson	Secretary of Economic and Community Development
James J. O'Donnell	Secretary of Transportation
Wayne A. Cawley, Jr.	Secretary of Agriculture
Sheldon H. Knorr	Commissioner for Higher Education

David W. Hornbeck	State Superintendent of Schools
Samuel W. Bogely,	Lieutenant Governor and Secretary to the Cabinet

The Council may be contacted at the State House, Annapolis, Maryland 21404, 301-269-3905.

Figure 1-1, an organizational chart of the Department, is located at the end of this section.

DEPARTMENT OF HEALTH AND MENTAL HYGIENE

The mission of the Department of Health and Mental Hygiene is to maintain a healthful environment and a high level of physical, mental and social health. The Department is organized in 4 compartments according to program similarities. The Division of Radiation Control is under the Assistant Secretary for Health. The Office of Regulatory Services coordinates and directs the regulatory units of the Department. Hearings on regulations are also coordinated through the Office of Regulatory Services.

The Department of Health and Mental Hygiene is located at 201 West Preston Street, Baltimore, Maryland 21210, 301-383-2600. The Secretary and his principal executive officers are:

Charles R. Buck, Jr., Sc.D.	Secretary of Health and Mental Hygiene
Leonard E. Albert	Deputy Secretary of Health and Mental Hygiene
John J. Kent, Jr.	Assistant Secretary for Medical Care Programs
Thomas G. Lucas	Assistant Secetary for Special Programs
Stanley R. Platman, M.D.	Assistant Secretary for Mental Health and Addictions
Benjamin White, M.D., M.P.H.	Assistant Secretary for Health
Joseph R. Noll	Director, Office of Regulatory Services.

Figure 1-1, an organization chart of HMH, is located at the end of this Section.

Division of Radiation Control

The Division of Radiation Control is the lead agency in Maryland for all radioactive material. Maryland is an agreement state. All licensing and regulatory authority of radioactive material not reserved for the federal government is vested in the Division. The Department of Natural Resources regulates hazardous substance disposal, and the Department of Transportation regulates hazardous substance transportation. However, for the purposes of those regulations radioactive materials are not classified within the hazardous substance category. The Radiation Control Act, Article

43, § 678, Annotated Code of Maryland, empowers the Secretary of Health to:

- promulgate and enforce rules and regulations controlling sources of radiation;
- develop programs to evaluate and determine hazards associated with the use of radiation;
- advise, consult and cooperate with other State agencies and the federal government on radiation control;
- review plans and specifications for radiation sources;
- inspect radiation sources, their shielding and immediate surroundings and records concerning their operation for the determination of any possible radiation hazard.

A Radiation Control Advisory Board was created within the Department of Health and Mental Hygiene by Article 43 § 686. The ten Board members are appointed by the Secretary. The Board reviews the policies and programs of the Department relating to radiation and makes recommendations to the Secretary. The members of the Board are:

John W. Stout, Jr., Chairman
Robert B. Corcoran, Secretary to the Radiation Control Advisory Board (Chief, Division of Radiation Control) 383-2744
Dick Duffey
Henry Wagner, Jr.
Jack Asbrook (Inactive)
Sheila Flanigan (acting in Mr. Asbrook's position but not officially appointed)
Francesco Castagliola
H.B. Staab
Edward U. Buddemeyer
A.L. Penniman

Figure 1-2 is an organization chart of Division of Radiation Control.

Hazardous Waste Facility Siting Board

The Department of Natural Resources regulates hazardous waste, however, radioactive material is classified as distinct and separate from hazardous material. The Natural Resources Article, Section 3-701, enacted during the 1980 General Assembly session created a Hazardous Waste Facility Siting Board. The seven members of the Board are appointed by the Governor for 4 year terms. The Board is empowered to issue Certificates of Public Necessity for siting hazardous waste facilities. If such a Certificate is

issued to a facility, that facility is exempt from all regulations, ordinances or policies, including zoning, of any political subdivision of Maryland. The initial appointments to the Board have been made by the Governor, they are:

Robert H. Roy, Chairperson
John A. Todhunter, Ph.D.
John L. Menke
Robert William Ridky, Ph.D.
Honorable Richmond W. Hill
Charles R. Baker
Burton L. Mobely

DEPARTMENT OF STATE PLANNING

The Governor's staff agency for planning is the Department of State Planning. The Department is responsible for preparing the annual budget for te Governor. The Department of State Planning also coordinates the plans and programs of all State departments and agencies; acts as a liason between state and federal programs; and analyzes the impact on Maryland of existing or proposed federal programs.

The principal executive officers of the Department of State Planning are:

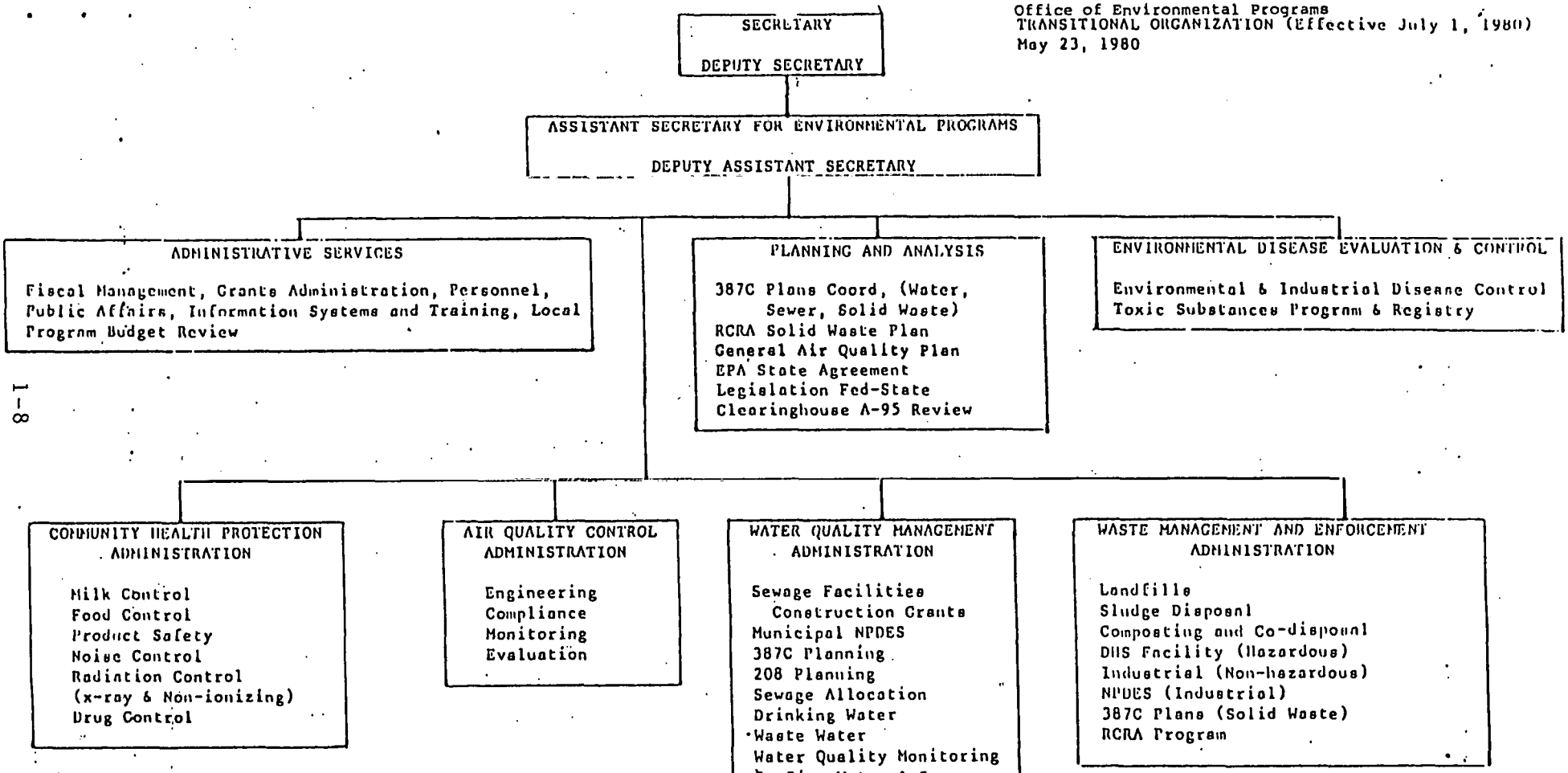
Secretary of State Planning:	Constance Leider
Director, Comprehensive Planning:	Edwin L. Thomas
Director of Operations:	C. Allen Miles
Counsel, Assistant Attorney General:	Judith A. Arnold

Department of State Planning
301 W. Preston Street
Baltimore, Maryland 21201 303-383-2450

In January 1980, by executive order, Governor Hughes created a State Planning Council. The Council is composed of the Secretaries of Planning, Economic and Community Development, Health and Mental Hygiene, Agriculture, Natural Resources, and Transportation. The duties of the Council are broadly defined to guide State policies in physical and economic development, environmental standards, and the location of necessary social service, commercial and industrial facilities.

On September 30, 1980 the State Planning Council adopted a Proposed Executive Order of principles and policies to guide State decisions affecting physical and economic development. The Proposed Executive Order acknowledges that local government's "have and will continue to exercise primary responsibilities for land use and planning controls." The Proposed Executive Order concludes that State programs and investments should be directed toward efficient and energy conscious development, and protecting health and natural resources. The full texts of these Executive Orders are in the Appendix to this volume.

Department of Health and Mental Hygiene
Office of Environmental Programs
TRANSITIONAL ORGANIZATION (Effective July 1, 1980)
May 23, 1980



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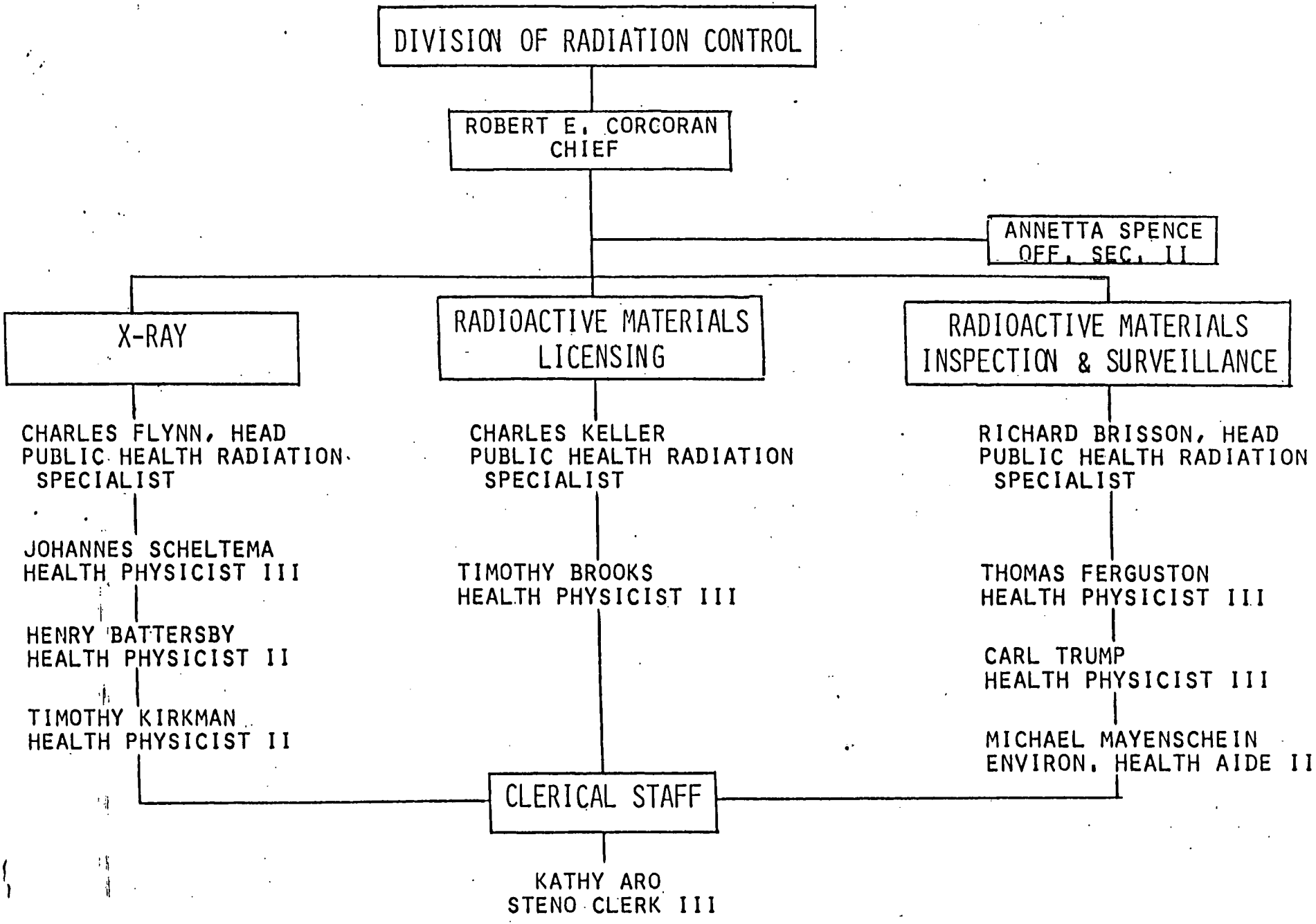

DIVISION OF RADIATION CONTROL
ROBERT E. CORCORAN
CHIEF
ANNETTA SPENCE
OFF. SEC. II
X-RAY
RADIOACTIVE MATERIALS
LICENSING
RADIOACTIVE MATERIALS
INSPECTION & SURVEILLANCE
CHARLES FLYNN, HEAD
PUBLIC HEALTH RADIATION
SPECIALIST
JOHANNES SCHELTEMA
HEALTH PHYSICIST III
HENRY BATTERSBY
HEALTH PHYSICIST II
TIMOTHY KIRKMAN
HEALTH PHYSICIST II
CHARLES KELLER
PUBLIC HEALTH RADIATION
SPECIALIST
TIMOTHY BROOKS
HEALTH PHYSICIST III
RICHARD BRISSON, HEAD
PUBLIC HEALTH RADIATION
SPECIALIST
THOMAS FERGUSTON
HEALTH PHYSICIST III
CARL TRUMP
HEALTH PHYSICIST III
MICHAEL MAYENSCHEIN
ENVIRON. HEALTH AIDE II
CLERICAL STAFF
KATHY ARO
STENO CLERK III

(12/31/80)

STATE OF MARYLAND
EXECUTIVE DEPARTMENT
ANNAPOLIS, MARYLAND 21404

HARRY HUGHES
GOVERNOR

October 3, 1980

The President
The White House
Washington, D. C. 20500

Dear Mr. President:

I am writing to request your assistance in a matter of great concern to the State of Maryland. The Nuclear Regulatory Commission's draft Programmatic Environmental Impact Statement for the Three Mile Island clean-up has failed to address any alternatives which provide assurance that the radioactive wastes will be removed from the island without decades of delay. All plans addressed require that the Department of Energy first establish a storage facility or repository for commercial high level radioactive wastes and high specific activity wastes. However, the lack of progress towards establishment of such facilities over the last 25 years renders any current schedules subject to skepticism.

There is one option which can guarantee the capability for timely removal from the island of the high level wastes, transuranic wastes, and those high specific activity wastes unacceptable at existing commercial repositories. This is for DOE to accept these wastes for storage with the similar wastes that DOE now handles from the defense-related nuclear projects. Although Maryland formally suggested during the scoping process that NRC consider this alternative, it was dismissed in the draft statement with the simple declarations that DOE policy does not allow for disposal of TMI low-level wastes at government facilities, and that DOE is studying the high-level waste problems.

I am therefore requesting that you use your authority as President to direct DOE and NRC to explicitly consider the technical feasibility of this option, and to direct DOE to make an exception to its policy by accepting these TMI clean-up wastes for which there is no available off-site storage facility.

The unusual nature of the accident derived wastes is reason enough for such an exception. The recent decision by the Pennsylvania Public Utilities Commission prohibiting use of revenue from ratepayers for the TMI clean-up, has created a situation of institutional instability for the Metropolitan Edison Company. This

makes it imperative to identify and confirm at this time a location to which the wastes can be removed. The clean-up activities should be planned and conducted in a manner that will insure that disposal with defense related nuclear waste remains a viable option.

The draft environmental impact statement reveals that federal agencies are following a course of action that will make Three Mile Island a long-term storage dump for radioactive waste. Nothing could be more dangerous to Chesapeake Bay and the people of Maryland. No responsible agency would locate a dump for radioactive waste on an island in a flood plain above the water supply of a major metropolitan area, and poised at the head of Chesapeake Bay. Yet, because of refusal to consider any other realistic alternative, that will be the result of actions described in the draft environmental impact statement.

Because this is an unusual situation and because of the unusual threat to people in Maryland and Chesapeake Bay, I am making this unusual request that you intervene with the Departments of Defense and Energy and insist that all of the radioactive waste be removed from Three Mile Island as quickly as safety will permit--even if it means disposing of them for some extended period with waste from defense operations.

I would appreciate your response at your earliest convenience.

Sincerely,

Harry Hughes

Governor

RELEVANT STATUTES AND REGULATIONS

This section identifies Maryland laws and regulations which may be relevent to the Formerly Utilized Sites Remedial Action Program. The full text of the laws and regulations discussed in this section are included in the Appendix to this volume.

Maryland Radiation Protection Act

The Radiation Protection Act is a subtitle of Chapter 88 of the Maryland Code. These statutes may also be found in the Annotated Code of the Public and General Laws of Maryland 1957 under Article 43 Subsections 675 through 689.

Radiation Control

Article 43 § 677

The department responsible for radiation control is the Department of Health and Mental Hygiene. Article 43 § 677 of the Annotated Code empowers the Secretary of Health and Mental Hygiene to promulgate and enforce rules and regulations to control sources of radiation. All such rules and regulations must conform with standards established by the U.S. Nuclear Regulatory Commission (NRC), the U.S. Food and Drug Administration (FDA), and the U.S. Environmental Protection Agency (EPA).

Article 43 § 689B

Article 43 § 689B prohibits the reprocessing of spent nuclear fuel or related material. This section also makes it unlawful to establish "any permanent storage facility, burial ground or other long-term storing of waste nuclear materials or their by-products while awaiting radioactive decay." However, on February 21, 1980 Maryland's Attorney General issued an opinion (65 Op. Atty. Gen.) that federal law preempts the State from regulating spent-fuel reprocessing, storage or disposal. The opinion also stated that as an agreement state, Maryland may regulate the temporary storage of general radioactive waste.

Regulations for the Control of Radiation

Exemptions

On January 6, 1976 Maryland adopted the Suggested State Regulations for Control of Radiation prepared by the U.S. Atomic Energy Commission, the U.S. Public Health Service and the Conference of Radiation Control Program Directors. Section A.3(c), on page A-9, provides exemptions from the regulations for U.S. Energy Research and Development Administration contractors and U.S. Nuclear Regulatory Commission contractors. Although these exemptions specifically deal with contractors working with federally owned sources of radiation, there is a provision for exemption of contractors dealing with material not owned by the federal government. The decision to grant such an exemption is to be determined jointly by the State and the NRC.

Transportation

The U.S. Department of Transportation (DOT) regulations governing the transportation of radioactve materials are adopted by Section C.23. All DOT regulations in 49 CFR pertaining to the loading and storage of packages, placarding of the transporting vehicle, and incident reporting must be complied with by any intrastate carrier.

Disposal of Radioactive Materials

Waste disposal requirements are set out in Sections D.301 through D.305. Section D.302 prescribes the procedure for obtaining approval from the Department of Health and Mental Hygiene for disposal of radioactive material. Each application for approval must describe the kind and quantity of the material to be disposed of; the proposed manner and conditions of disposal; where appropriate, the application must also include an analysis and evaluation on the nature of the environment and the impact of disposal at the site. If the disposal option is burial in soil, Section D.304 limits the amount of material which may be buried at any one site. Burial must be at a minimum of 4 feet.

Labeling, Postings and Controls

Section D.203 requires that each radiation area "shall be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words: CAUTION RADIATION AREA." In addition, any area in which quantities of radioactive material are stored musted be posted with the radiation caution symbol and the words: "CAUTION RADIOACTIVE MATERIAL."

According to Mr. Robert Corcoran, Chief, Division of Radiation Control, the Department of Health and Mental Hygiene is the only state agency with jurisdiciton relating to radioactive material. The Department's authority is pursuant to the agreement between Maryland and the U.S. Atomic Energy Commission under Section 274b of the Atomic Energy Act of 1954, as amended.

LEGISLATURE

Maryland's legislature, the General Assembly, is composed of two distinct branches: the Senate, and the House of Delagates. There are 47 Senators and 141 Delagates representing 47 districts. The Senators and Delagates are elected by popular vote to 4-year terms. If a vacancy occurs in either House, the Governor appoints a person to fill that office. The appointee must be of the same political affiliation and from the same district as the representative being succeeded. The next election for the General Assembly will be in November 1982.[1]

The General Assembly convenes on the second Wednesday of every January for a ninety day session. The session may be extended an additional thirty days by resolution of both Houses. At each regular session the General Assembly must pass a budget bill that contains the Governor's proposed budget for the next fiscal year. The General Assembly is empowered to pass laws as necessary for the welfare of the State; create departments necessary for the efficient operation of the State; establish taxes in accordance with the Constitutions of the State and the United States. The State Treasurer is elected by a joint ballot of the General Assembly. A bill passed by the General Assembly must be signed by the Governor within 6 days of its submission to him. If the Governor signs a bill or if he fails to act on it within the 6 days, the bill becomes law. Any new law takes effect on the first day of June after the session in which it was passed. The Governor's veto may be overridden by three-fifths of the membership of each House.

Figure 3-1 depicts the manner in which a bill becomes law in Maryland. Table 3-1 provides a listing of telephone numbers for various Maryland legislative information services.

Senate Officers

President of the Senate:	James Clark, Jr. (D) 301-269-3245
Majority Floor Leader:	Rosalie Silber Abrams (D) 269-3537
Majority Whip:	Clarence Blount (D) 269-3434
Minority Floor Leader:	Edward J. Mason (R) 269-3039
Secretary:	Odin Bowie

A list of the State Senators is provided at the end of this section in table 3-2.

[1] Some of the material in this section was extracted from the Maryland Manual 1979-1980 published by the Archives Division, Hall of Records Commission, Department of General Services, State of Maryland.

Senate Committees

The presiding officer of each House chooses committee members and chairpersons at the beginning of each session. Committee meetings are open to the public and advance notices are available. Committee votes are recorded. There are six standing committees in the Senate, they and their Chairpersons are:

Budget and Taxation:	Laurence Levitan (D) 301-269-3542
Constitutional and Public Law:	Edward T Conroy (D) 269-3573
Economic Affairs:	Harry J. McGuirk (D) 269-3296
Finance:	Melvin A. Steinberg (D) 269-3747
Judicial Proceedings:	J. Joseph Curran,Jr. (D) 269-3251
Executive Nominations:	Margaret C. Schweinhaut (D)

The Constitutional and Public Laws Committee has jurisdiciton to review government operations, procedures of executive and administrative department and agencies, and other legal matters. The Economic Affairs Committee regulates business, labor, insurance, and utilities. The Committee also reviews natural resource and environmental matters, and land use planning.

The members of the Constitutional and Publc Law Committee are:

Norman R. Stone, Jr. (D), Vice-Chairperson
Howard A. Denis (R)
B.W. Mike Donovan (D)
Cornell N. Dypski (D)
Timothy R. Hickman (D)
Joseph J. Long, Sr. (D)
S. Frank Shore (D)

The members of the Economic Affairs Committee are:

Frederick C. Malkus, Jr. (D), Vice-Chairperson
Joseph S. Bonvenga (D)
Victor Cushwa (D)
Arthur Dorman (D)
Robert L. Douglass (D)
Sidney Kramer (D)
James C. Simpson (D)
Edward P. Thomas (R)

HOUSE OF REPRESENTATIVES

House of Delagates Officers

Speaker of the House:	Benjamin L. Cardin (D) 301-269-3595
Majority Floor Leader:	Donald B. Robertson (D) 269-3167
Minority Floor Leader:	Raymond E. Beck (R) 269-3483
Minority Whip:	Robert R. Neall (R) 269-3483
Chief Clerk:	Jacqueline M. Spell

The House of Delegates has eight standing committees. These committees, with their respective chairmen, are:

Appropriations:	John R. Hargreaves (D) 301-269-3834
Constitutional and Administrative Law:	Helen L. Koss (D) 269-3228
Economic Matters:	Frederick C. Rummage (D) 269-3471
Environmental Matters:	Torrey C. Brown (D) 269-3965
Judiciary:	Joseph E. Owens (D) 269-3224
Ways and Means:	Tyras S. Athey (D) 269-3255
Rules and Executive Nominations:	Hattie N. Harrison (D)
Protocol:	David J. Minnick, Jr.

The Constitutional and Administrative Law Committee has the same basic jurisdiction as the Senate Constitutional and Public Law Committee. The Environmental Matters Committee has jurisdiction over natural resource and environmental quality, energy and utilities; land use planning and zoning, health and mental health matters.

The members of the Constitutional and Administrative Law Committee are:

Gerald J. Curran, Vice-Chairman
Delegates:

Baker	Murphy
Bird	O'Malley
Booth	Phillips
Bromwell	Redding
Campbell	Robertson
Collins	Schmincke
Cumiskey	Shandrowsky
Ficker	Simmons
Hughes	White
Miedusiewski	Woods

The members of the Environmental Matters Committee are:

Casper R. Taylor, Vice-Chairperson
Delegates:

Burkhead	Quade
Conaway	Ruben
Connelly	Rush
Dixon	Santangelo
Exum	Sauerbrey
Harrison	Scannelo
Komenda	Shapiro
Morsberger	Sher
Munson	C. Smith
Pica	E. Smith

There are also a number of joint statutory committees. One of them, the Maryland Commission on Intergovernmental Cooperation, fosters and maintains contacts and liason with agencies and representatives of the federal government. The Commission functions as a point of contact between Maryland and other units of government. The Chairpersons are Senator John C. Byrnes and Delagate Lucille Maurer. The Commission's office is at 90 State Circle, P.O. Box 231, Annapolis, Maryland 21404, 301-269-2811.

Pending Legislation

Bills may be prefiled before the regular session of the General Assembly. The State Department of Legislative Reference keeps a complete index and file on all bills introduced to the General Assembly. It also keeps copies of of the codes and laws of Maryland and other states. As of October 29, 1980 no bills relevent to FUSRAP had been filed. According to a department staffer, most representatives do not file bills until after November.

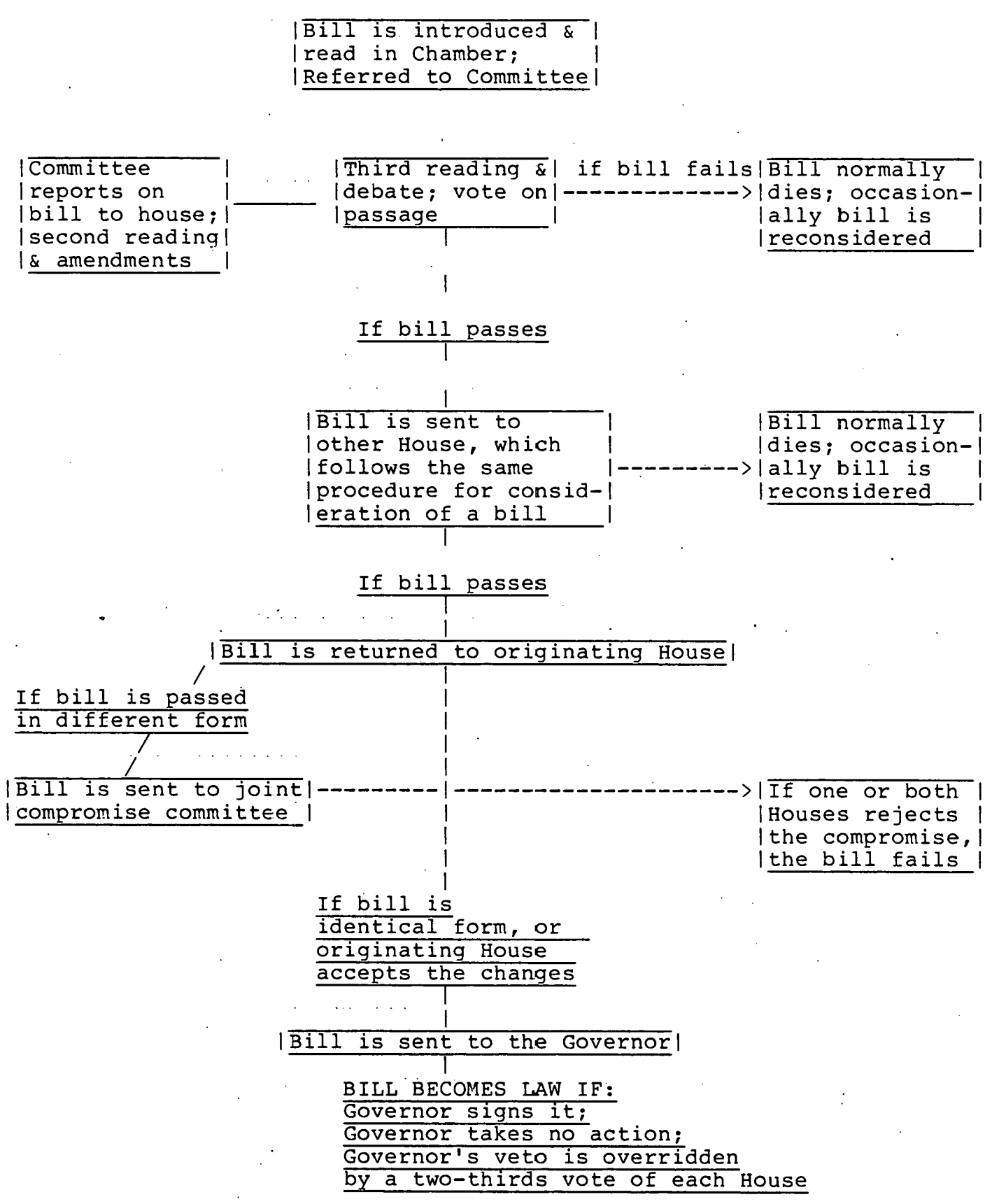
State Department of Legislative Reference
F. Carvel Payne, Director
90 State Circle
Annapolis, Maryland 21401 301-269-2373

The Maryland Committee on Intergovernmental Cooperation is preparing its 1980 Annual Report. A section of that report addresses nuclear waste management and disposal. Mr. David Aanucci (Commission staffer, 301-269-2375) indicated that the report would suggest some revisions in the radiation control regulations and the radioactive material disposal laws. Competion of the report is tentatively scheduled for mid-December.

TABLE 3-1
LEGISLATIVE INFORMATION SOURCES

Type of Information	Source	Phone Number
General information	Central Exchange	301-269-6200
Previous session activities	Dept. Legislative Reference, Library Staff	269-2871
Current status of bills	Legislative Information	
Senate		269-2519
House		269-1211
Bills pending before the Governor	Governor's Office	269-3336
To obtain copies of bills	Legislative Information	269-1211
To obtain copies of laws	Legislative Reference Library	269-2871

HOW A BILL BECOMES LAW



Members Representing Districts with FUSRAP Sites

There are 47 legislative districts in Maryland. Each district elects 1 Senator and 3 Delegates for a total of 188 representatives. The W.R. Grace & Company, Curtis Bay Facility is in district 32, Anne Arundel County. H. Earle Schafer, a Democrat, is the Senator for district 32. Mr. Schafer is a member of the Budget and Taxation Committee. Mr. Schafer maintains 2 offices:

District:
7887 Chestnut Road
Severn, Maryland 21144

Capitol:
304 James Building
Annapolis, Maryland 21401
301-269-3581

The 3 Delegates from district 32 are:

Tyras S. Athey, Chairman of the Ways and Means Committee
District:
Box 379F, Route 2
Jessup, Maryland 21794
799-2907

Capitol:
110 Lowe Building
Annapolis, Maryland 21401
269-3255

Patrick C. Scannello, Member of the Economic Matters Committee
214 Lowe Building
Annapolis, Maryland 21401
269-2341

George T. Schmincke, Member of the Constitutional and Administrative Law Committee
214 Lowe Building
Annapolis, Maryland 21401
269-2340

MARYLAND STATE SENATORS

The following roster provides each Senator's name, political affiliation, hometown, and telephone number (area code 301).

Rosalie Silber Abrams	D, Baltimore	269-3537
Aris T. Allen	R, Baltimore	269-3816
Walter Baker	D, Elkton	269-3661
John Bishop, Jr.	R, Baltimore	269-3281
Clarence W. Blount	D, Baltimore	269-3434
Joseph Bonvegna	D, Baltimore	269-3841
Peter Bozick	D, Camp Springs	269-3615
Tommie Broadwater, Jr.	D, Glenarden	269-3953
John Carroll Byrnes	D, Baltimore	269-3844
John Cade	R, Severna Park	269-3097
James Clark, Jr.	D, Columbia	269-3245
Jerome Connell, Sr.	D, Pasadena	269-3791
Edward Conroy	D, Bowie	269-3571
Victor Crawford	D, Silver Spring	269-3708
J. Joseph Curran, Jr.	D, Baltimore	269-3251
Victor Cushwa	D, Wiliamsport	269-2503
Howard Denis	R, Bethesda	269-3279
B. W. Mike Donovan	D, District Heights	269-3465
Arthur Dorman	D, Beltsville	269-2654
Robert Douglass	D, Baltimore	269-2502
Cornell Dypski	D, Baltimore	269-2226
John Garrity	D, Hyattsville	269-3671
Arthur H. Helton, Jr.	D, Aberdeen	269-3641
Timothy Hickman	D, Baltimore	269-3448
Francis X. Kelly	D, Timonium	269-3751

Sidney Kramer	D, Slver Spring	269-3860
Julian L. Lapides	D, Baltimore	269-3644
Laurence Levitan	D, Potomac	269-3542
Joseph Long, Sr.	D, Salisbury	269-3619
Fredrick C. Malkus, Jr.	D, Cambridge	269-3328
Edward J. Mason	R, Cumberland	269-3039
Harry J. McGuirk	D, Baltimore	269-3296
Thomas V. Mike Miller, Jr.	D, Clinton	269-3891
Clarence M. Mitchell, III	D, Baltimore	269-3035
Thomas P. O'Reilly	D, Lanham	269-3879
Dennis F. Rasmussen	D, Kingsville	269-2598
H. Erle Schafer	D, Severn	269-3333
Margaret C. Schweinhaut	D, Kensington	269-3581
S. Frank Shore	D, Rockville	269-3894
James C. Simpson	D, La Plata	269-3780
Charles H. Smelser	D, Union Bridge	269-3991
Melvin A. Steinberg	D, Pikesville	269-3747
Norman R. Stone, Jr.	D, Baltimore	269-3867
Robert E. Stroble	R, Lutherville-Timonium	269-3283
Edward P. Thomas	R, Frederick	269-3467
Verda F. Welcome	D, Baltimore	269-3794
Patrick T. Welsh	D, Dundalk	269-3624

MEMBERS OF THE HOUSE OF DELEGATES

The following roster provides each Delegate's name, political affiliation, hometown, and telephone number (area code 301).

Benjamin L. Cardin	D, Baltimore	269-3373
George B. Adams, Jr.	R, Aberdeen	269-2586
Arthur S. Alperstein	D, Baltimore	269-2532
William H. Amoss	D, Fallston	269-3271
Tyras S. Athey	D, Jessup	269-3255
R. Charles Avara	D, Baltimore	269-3834
Stewart Bainum, Jr.	D, Silver Spring	269-2651
Anne E. Baker	D, Ellicott City	269-2522
Raymond E. Beck	R, Westminister	269-3483
Kay G. Bienen	D, Laurel	269-3182
David Bird	D, Cheverly	269-3233
Charles S. Blumenthal	D, Oxon Hill	269-2423
DeCorsey E. Bolden	R, Oakland	269-3364
Bert Booth	D, Lutherville	269-2545
Troy Brailey	D, Baltimore	269-2553
Thomas L. Bromwell	D, Baltimore	269-2537
Torrey C. Brown	D, Baltimore	269-3965
Hugh Burgess	D, Ellicott City	269-2523
William J. Burgess	D, Rosedale	269-2535
William J. Burkhead	D, Glen Burnie	269-2482
Andrew J. Burns	D, Baltimore	269-2565
William B. Byrnes	D, Eckhart Mines	269-3171
James W. Campbell	D, Baltimore	269-2549
Louis V. Cavallaro	D, Annapolis	
Thomas W. Chamberlain, Sr.	R, Timonium	269-2543

Joel Chasnoff	D, Colesville	269-2651
Joseph A. Chester, Sr.	D, Baltimore	269-2575
Anthony Cicoria	D, Hyattsville	269-2463
Michael J. Collins	D, Baltimore	269-3074
Frank M. Conaway	D, Baltimore	269-2726
R. Terry Connelly	D, Essex	269-3075
William H. Cox, Jr.	D, Bel Air	269-2585
Thomas B. Cumiskey	D, Cumberland	269-3173
Gerald J. Curran	D, Baltimore	269-2726
Walter R. Dean, Jr.	D, Baltimore	269-2726
Julien P. Delphey	R, Frederick	269-3292
Louis L. DePazzo	D, Baltimore	269-2529
Gerard F. Devlin	D, Bowie	269-2741
James R. Dietrich	D, Baltimore	269-2726
Anthony M. DiPietro, Jr.	D, Baltimore	269-2726
Isaiah (Ike) Dixon, Jr.	D, Baltimore	269-2726
Dennis C. (Denny) Donaldson	D, District Heights	269-2741
John W. Douglass	D, Baltimore	269-2726
Raymond A. Dypski	D, Baltimore	269-2726
Royden P. (Roy) Dyson	D, Great Mills	269-3268
Nathaniel Exum	D, Seat Pleasant	269-2741
Robin Ficker	R, W. Bethesda	269-2651
Jennie M. Forehand	D, Rockville	269-2651
Idamae Garrott	D, Annapolis	269-2651
Marilyn Goldwater	D, Bethesda	269-2651
Elmer F. Hagner, Jr.	D, Annapolis	269-3263

V. Lanny Harchenhorn	R, New Windsor	269-2348
John R. Hargreaves	D, Denton	269-3834
Hattie N. Harrison	D, Baltimore	269-2726
Henry R. Hergenroeder, Jr.	D, Baltimore	269-2726
Carter M. Hickman	D, Church Hill	269-3621
Sheila E. Hixson	D, Silver Spring	269-2651
Irwin F. Hoffman	D, Hagerstown	269-3249
Paula C. Hollinger	D, Randallstown	269-2533
William S. Horne	D, Easton	269-3585
Donald K. Hughes	D, Towson	269-2541
Jerry H. Hyatt	D, Damascus	269-2651
Philip C. Jimeno	D, Brooklyn Park	269-2484
A. Wade Kach	R, Reisterstown	269-2544
Thomas B. Kernan	D, Towson	269-2540
Frank J. Komenda	D, Temple Hills	269-2741
Nancy K. Kopp	D, Bethesda	269-2651
Helen L. Koss	D, Wheaton	269-3228
Charles E. Kountz	D, Baltimore	269-3588
Charles Krysiak	D, Baltimore	
Lena K. Lee	D, Baltimore	269-2726
Theodore Levin	D, Baltimore	269-2531
James Lighthizer	D, Crofton	269-2345
Robert C. Long	D, Westover	269-3288
Richard D. Mackie	D, Elkton	269-3294
Timothy F. Maloney	D, Beltsville	269-2741
Kenneth H. Masters	D, Cantonsville	269-2525

Richard C. Matthews	R, Hampstead	269-3272
Lucille Maurer	D, Silver Spring	269-2651
William R. McCaffrey	D, Brandywine	269-2741
James E. McClellan	D, Frederick	269-3291
Dennis C. McCoy	D, Baltimore	269-2726
Patrick L. McDonough	D, Baltimore	269-2726
Mark C. Medairy, Jr.	D, Towson	269-2539
Paulene H. Menes	D, College Park	269-2741
American Joe Miedusiewski	D, Baltimore	269-2726
Daniel J. Minnick, Jr.	D, Dundalk	269-3744
R. Clayton Mitchell, Jr.	D, Kennedyville	269-3622
Thomas J. Mooney	D, Takoma Park	269-2741
Constance A. Morella	R, Bethesda	269-2651
Louis P. Morsberger	D, Catonsville	269-3587
Paul Muldowney	D, Hagerstown	269-3248
Donald F. Munson	R, Hagerstown	269-3240
Margaret H. Murphy	D, Baltimore	269-2726
Robert R. Neall	R, Davidsonville	269-3482
Joseph W. O'Malley	D, Baltimore	269-2726
Joseph E. Owens	D, Rockville	269-3224
Richard A. Palumbo	D, Hyattsville	269-2741
Anne S. Perkins	D, Baltimore	269-2726
Frank B. Pesci, Sr.	D, New Carrollton	269-2741
Wendell H. Phillips	D, Baltimore	269-2726
John A. Pica, Jr.	D, Baltimore	269-2726
Mark O. Pilchard	D, Pokomoke	269-3865

Joan Pitkin	D, Bowie	269-2741
John W. Quade	D, Clements	269-3267
Howard P. Rawlins	D, Baltimore	269-2726
Robert S. Redding	D, New Carrollton	269-2741
Catherine I. Riley	D, Bel Air	269-2587
Lewis R. Riley	R, Parsonburg	269-3077
Donald B. Robertson	D, Chevy Chase	269-3166
Frank C. Robey, Jr.	D, Baltimore	269-2726
Ida G. Ruben	D, Silver Spring	269-2651
Frederick C. Rummage	D, Camp Springs	269-2741
William Rush	D, Baltimore	269-2536
Charles J. Ryan	D, Bowie	269-2741
Thomas A. Rymer	D, Prince Frederick	269-2342
Francis J. Santangelo, Sr.	D, Landover	269-2741
Ellen R. Sauerbrey	R, Baldwin	269-3273
Patrick C. Scannello	D, Glen Burnie	269-2341
George T. Schmincke	D, Glen Burnie	269-2340
David L. Scull	D, Chevy Chase	269-2651
Walter J. Shandrowsky	D, Pasadena	269-2483
David B. Shapiro	D, Baltimore	269-2561
Lorraine M. Sheehan	D, Upper Marlboro	269-2741
Patricia R. Sher	D, Silver Spring	269-2651
Luiz Simmons	R, Rockville	269-2651
Steven V. Sklar	D, Baltimore	269-2562
Charles E. Smith	D, Brunswick	269-3528
Elizabeth S. Smith	R, Davidsonville	269-2344

Michael J. Sprague	D, Port Tobacco	269-3579
Robert R. Staab	D, Baltimore	269-2528
Casper R. Taylor, Jr.	D, Cumberland	269-3289
W. Henry Thomas	D, Cambridge	269-3295
Judith C. Toth	D, Cabin John	269-2519
Joseph F. Vallario, Jr.	D, Upper Marlboro	269-2741
Michael H. Weir	D, Essex	269-3073
Paul E. Weisengoff	D, Baltimore	269-2726
Francis W. White	D, Largo	269-2741
Gerald W. Winegrad	D, Annapolis	269-3262
John W. Wolfgang	D, Fort Washington	269-3224
Sylvania W. Woods, Jr.	D, Lanham	269-2741
Larry Young	D, Baltimore	269-2726

CONTENTS OF APPENDIX

The Appendix to this handbook contains the relevant sections of all statutes, regulations and bills cited in the handbook. The contents of the Appendix, in the order contained, are:

§ 675. Public policy.

Whereas radiation can be instrumental in the improvement of health, welfare and productivity of the public if properly utilized, and may be destructive of life or health if carelessly or excessively employed, or may impair the industrial and agricultural potentials of the State if improperly utilized, it is hereby declared to be the public policy of this State to encourage the constructive uses of radiation and to control radiation. (1960, ch. 88; 1976, ch. 800.)

§ 676. Definitions.

(a) The following words as used in this subtitle have the meanings indicated.

(b) *"Advisory Board"* means the Radiation Control Advisory Board herein created.

(c) *"Emergency"* means a sudden, unexpected and unforeseen condition of such public gravity and exigency as to require action forthwith.

(d) *"Department"* means the State Department of Health and Mental Hygiene.

(e) *"Secretary"* means the Secretary of Health and Mental Hygiene.

(f) *"Radiation"* means: (1) ionizing radiation including gamma rays, X rays, alpha particles, beta particles and other atomic or nuclear particles or rays; or (2) any electromagnetic radiation which can be generated during the operation of electronic products; or (3) any sonic, ultrasonic or infrasonic waves which are emitted from an electronic product as a result of the operation of an electronic circuit in such product.

(g) *"Electronic products"* means any manufactured product or device or component part of this product or device that has an electronic circuit which during operation can generate or emit a physical field of radiation. (1960, ch. 88; 1976, ch. 800.)

§ 677. Rules and regulations.

The Secretary may formulate and promulgate, amend and repeal rules and regulations controlling sources of radiation. All rules and regulations promulgated will conform with the standards established by the U.S. Nuclear Regulatory Commission, the U.S. Food and Drug Administration and the U.S. Environmental Protection Agency. All actions of the Secretary shall be taken in accordance with Article 41, §§ 244 to 256 of this Code, generally known as the Administrative Procedure Act. (1960, ch. 88; 1976, ch. 800.)

§ 678. Functions and powers of Secretary.

The Secretary shall:

(a) Administer and enforce this subtitle and the rules, or regulations promulgated under this subtitle, except that in the City of Baltimore the commissioner of health of Baltimore City may be authorized to administer and enforce this subtitle and the rules and regulations promulgated under it.

(b) Develop comprehensive policies and programs for the evaluation and determination of hazards associated with the use of radiation, and their amelioration.

(c) Advise, consult, and cooperate with experts in the field of radiation control, other agencies of the State, the federal government, other states and interstate agencies, and with affected groups, political subdivisions, and industries.

(d) Accept and administer according to law, loans, grants, or other funds or gifts from the federal government and from other sources, public or private, for carrying out its functions under this subtitle.

(e) Encourage, participate in, or conduct studies, investigations, training, research, and demonstrations relating to the control of radiation hazard, the measurement of radiation, the effects on health of exposure to radiation, and related problems as it may deem necessary or advisable for the discharge of its duties under this subtitle.

(f) Collect and disseminate health education information relating to radiation protection.

(g) Review plans and specifications for radiation sources submitted pursuant to rules or regulations promulgated under this subtitle.

(h) Inspect radiation sources, their shielding and immediate surroundings and records concerning their operation for the determination of any possible radiation hazard.

(i) Keep in confidence all data concerning commercial and industrial processes obtained as a result of administering this subtitle. (1960, ch. 88; 1976, ch. 800.)

§ 679. Notification of violation and order of abatement.

Whenever the Secretary finds upon inspection and examination of a source of radiation as constructed, operated or maintained that there has been a violation of any of the provisions of this subtitle or any rules or regulations promulgated under this subtitle, he shall notify any person found to be causing, allowing or permitting such violation, of the nature of that violation and order that prior to a time fixed by the Secretary, that such person shall cease and abate causing, allowing or permitting such violation and take such action as may be necessary for the source of radiation to be constructed, operated or maintained in compliance with this subtitle and rules or regulations promulgated under this subtitle. (1960, ch. 88; 1976, ch. 800.)

§ 680. Authority of Secretary in cases of emergency.

Whenever the Secretary finds that an emergency exists requiring immediate action to protect the public health or welfare, he may issue an order reciting the existence of the emergency and requiring that action be taken as he deems necessary to meet the emergency. The order shall be effective immediately. (1960, ch. 88; 1976, ch. 800.)

§ 681. Exceptions.

Nothing in this subtitle shall be interpreted as limiting the lawful intentional exposure of patients to radiation for the purpose of diagnosis or therapy, or medical research. (1960, ch. 88.)

§ 682. Conflicting laws.

This subtitle shall not be construed as repealing any laws of the State relating to radiation sources, exposures, radiation protection, and professional licensure, but shall be held and construed as auxiliary and supplementary thereto, except to the extent that the same are in direct conflict herewith. No ordinances or regulations of any governing body of a municipality or county or board of health not inconsistent with this subtitle or any rules or regulations promulgated pursuant thereto shall be superseded by this subtitle. Nothing in this subtitle or in any rules, or regulations promulgated pursuant thereto shall preclude the right of any governing body of a municipality or county or board of health to adopt ordinances or regulations not inconsistent with this subtitle or any rules or regulations promulgated pursuant thereto. (1960, ch. 88.)

§ 683. Existing remedies unimpaired.

No existing civil or criminal remedy for any wrongful action which is a violation of any rule or regulation promulgated under this subtitle shall be excluded or impaired by this subtitle. (1960, ch. 88.)

§ 684. Severability.

If any section, subsection, sentence, clause, phrase, or word of this subtitle is for any reason held to be unconstitutional, such decree shall not affect the validity of any remaining portion of this subtitle. (1960, ch. 88.)

§ 685. Other powers, duties and functions of Secretary unaffected.

The powers, duties and functions vested in the Secretary under the provisions of this subtitle shall not be construed to affect in any manner the powers, duties and functions vested in the Secretary under any other provisions of law. (1960, ch. 88; 1976, ch. 800.)

§ 686. Radiation Control Advisory Board.

(a) *Creation; composition; appointment of members; qualifications; chairman.* — The Radiation Control Advisory Board is created, as part of the Department of Health and Mental Hygiene. It shall have ten (10) members, all to be appointed by the Secretary of Health and Mental Hygiene. Appointments shall be made on the basis of recognized knowledge in the field of radiation; and the Board shall be so constituted as to be fairly representative of businesses and professions interested in the subject of radiation. The chairman of the Board shall be appointed by the Secretary of Health and Mental Hygiene from time to time.

(b) *Terms of members; vacancies.* — The members of the Advisory Board shall be appointed for terms for [of] four (4) years each, except that of the members first appointed three shall be appointed to serve for one year, two shall be appointed to serve for two years, three shall be appointed to serve for three years, and two shall be appointed to serve for four years. Thereafter, vacancies on the Board shall be filled by appointment by the Secretary of Health and Mental Hygiene as they occur. A member may be appointed to successive terms. The initial appointments to the Board date from June 1, 1960.

(c) *Compensation; expenses.* — Members of the Advisory Board shall receive no compensation for their services, but they may be reimbursed for necessary and proper expenses incurred in connection with their membership and duties on the Advisory Board in accordance with the standard travel regulations.

(d) *Secretarial and other assistance.* — Secretarial and other staff assistance required by the Advisory Board shall be furnished by and at the expense of the Department of Health and Mental Hygiene.

(e) *Duties.* — It is the duty of the Advisory Board, from time to time, to review the policies and the program of the Department of Health and Mental Hygiene with respect to radiation under the provisions of this subtitle. The Advisory Board shall consult with and render its advice to the Secretary of Health and Mental Hygiene on problems, procedures and matters relating to radiation. (1960, ch. 88; 1969, ch. 77, § 23; 1975, ch. 714, § 1.)

§ 687.

Any person failing, refusing or neglecting to comply with the provisions of this subtitle or with any rule or regulation made by the Secretary under the powers conferred by this subtitle is guilty of a misdemeanor, and upon conviction shall be fined not more than $100 for each day that a violation continues provided that a written notice of any violation shall be served on some person in charge of the place where the violation exist prior to any prosecution for violation of any provision of this subtitle or any rules or regulations promulgated thereunder. (1960, ch. 88; 1976, ch. 800.)

§ 688. Short title.

This subtitle shall be known and may be cited as the "Radiation Protection Act." (1960, ch. 88.)

§ 689. Agreements with federal government for discontinuance of certain of its governmental responsibilities.

The Governor, on behalf of this State, is authorized to enter into agreements with the federal government providing for discontinuance of certain of the federal government's responsibilities with respect to sources of radiation and the assumption thereof by this State. (1962, ch. 52.)

§ 689A. Licensing and registration of sources of ionizing radiation, etc.; exemptions; recognition of State or federal licenses; impounding sources of ionizing radiation.

(a) *Regulations generally.* — The Secretary shall promulgate regulations for general or specific licensing of ionizing radiation sources and by-products, special nuclear materials, or devices or equipment utilizing such materials. Such regulations shall provide for amendment, suspension or revocation of licenses.

(b) *Other sources of ionizing radiation.* — The Secretary shall require registration or licensing of other sources of ionizing radiation.

(c) *Exemptions.* — The Secretary is authorized to exempt certain sources of ionizing radiation or kinds of uses or users from the licensing or registration requirements set forth in this section when the Secretary makes a finding that the exemption of such sources of ionizing radiation or kinds of uses or users will not constitute a significant risk to the health and safety of the public.

(d) *State or federal licenses.* — Regulations promulgated pursuant to this section may provide for recognition of other State or federal licenses as the Secretary may deem desirable, subject to registration requirements as the Secretary may prescribe.

(e) *Impounding sources of ionizing radiation.* — The Secretary is authorized in the event of an emergency to impound or order the impounding of sources of ionizing radiation, in the possession of any person who is not equipped to observe or fails to observe the provisions of this section or any of the regulations promulgated hereunder. (1967, ch. 511; 1968, ch. 91; 1976, ch. 800.)

§ 689B. Plant or facility for recovery of nuclear fuel prohibited; storage of waste nuclear materials.

(a) It is unlawful to establish any plant or facility to be used for the reprocessing or recovery of nuclear fuel, blanket, or related material within this State.

(b) It is unlawful to establish any permanent storage facility, burial ground or other installation for the long-term storing of waste nuclear materials or their by-products while awaiting radioactive decay, within the State. This subsection does not prohibit temporary storage of used nuclear plant fuel until June 30, 1980, if the Secretary determines that the storage is:

(1) Necessary;

(2) In the public interest;

(3) Unlikely to cause any risk of leakage or release of radiation which is harmful to the health of the public as determined by all scientific tests accepted as reliable by the United States Nuclear Regulatory Commission; and

(4) Within a facility designed and regularly tested so as to safely accomplish the long-term storage of nuclear waste material. (1970, ch. 544; 1978, ch. 125; 1979, ch. 714.)

[Reverse Side of Proposed Revision of Form DHMH 205]

[Actual Page Size 8½" x 11"]

ITEM NO.	REMARKS	CORRECTED BY

PUBLIC COMMENT

Interested persons may submit views or data in writing, on or before August 9, 1975, to the Regulations Coordinator Office of Hearings and Regulations, Third Floor, O'Conor State Office Building, 201 West Preston Street, Baltimore, Maryland 21201. Specific proposed changes should be made in writing in the style and format used in the proposed amendments. Copies of the proposed amendments are available from the Environmental Health Administration, 201 West Preston Street, O'Conor State Office Building, Baltimore, Maryland 21201.

NEIL SOLOMON, M.D.,
Secretary,
Department of Health and Mental Hygiene

[Md. R. Doc. No. 75-538. Filed July 1, 1975.]

DIVISION OF RADIATION CONTROL

Pursuant to Article 43, Annotated Code of Maryland, the Environmental Health Administration proposes to repeal 10.03.10—Regulations Governing Radiation Protection in its entirety and proposes to adopt by reference in its place "Suggested State Regulations for Control of Radiation (October, 1974)."

Agency Note: The suggested State Regulations for the Control of Radiation is a document of concurring input by the Council of State Governments in cooperation with the U.S. Atomic Energy Commission and the U.S. Public Health Service.

Ed. Note. Pursuant to Art. 41, § 256H(a)(7), Annotated Code of Maryland, the Administrator, Division of State Documents declares "Suggested State Regulations for Control of Radiation (October, 1974)" to be a generally available publication. Interested persons may review the text of this document at any of the officially designated repositories. A list of these repositories and their hours of operation appears in this issue on pp. 1111-1112. Additionally, any person may obtain a copy of this document from Environmental Health Administration, 201 West Preston Street, O'Conor State Office Building, Baltimore, Maryland 21201.

10.03.10 Regulations Governing Radiation Protection

1 Suggested State Regulations for the Control of Radiation October, 1974 is incorporated by reference with the following changes.

. Part A.

(1) Page A-1, Line 22	*"Act" means Radiation Protection Act, Article 43 of the Annotated Code of Maryland.*
(2) Page A-1, Line 24	*"Agency" means the Secretary of Health and Mental Hygiene of the Maryland State Department of Health and Mental Hygiene or his designee.*

SYMBOLOGY: Capitals indicate new matter. [Brackets] indicate matter stricken from existing rule. [[Double brackets]] indicate matter stricken from proposed rule-making. Underlining indicates amendments to proposed rule-making.

Page A-2, Line 88	*"Healing Arts" means a system of rules or methods of performing particular actions including the systematic application of knowledge or skill in effecting a desired result acquired by experience, study or observation relating to the science of medical diagnosis, treatment or surgery.*
(4) Page A-3, Line 111	*"Physician" means a person authorized to practice medicine in this State and to dispense drugs in connection with such practice.*
(5) Page A-7, Line 301	*10.03.10 Regulations Governing Radiation Protection.*
(6) Page A-10, Line 477	*Sources of radiation shall be subject to impounding pursuant to Section 680A(e) of the Act.*
(7) Page A-10, Line 489	*201 West Preston Street, Baltimore, Maryland 21201.*

B. Part B.

(1) Page B-1, Line 10-11	*Omit words in brackets*
(2) Page B-2, Lines 54-58	*Omit Sec. B.3(c)*
(3) Page B-2 & B-3, Lines 60-96	*Omit Sec. B.4*
(4) Page B-4, Line 116	*Omit [or B.4]*
(5) Page B-4, Line 131	*Omit [or B.4]*
(6) Page B-5, Lines 159-160	*Omit [two (2) working days]*
(7) Page B-5, Line 161	*Omit [two working days]*

C. Part C.

(1) Page C-17, Lines 136-138	*Form DHMH 300-7 for Form "U"*
(2) Page C-17, Line 140	*Form DHMH 300-7 for Form "U"*
(3) Page C-17, Line 141	*Form DHMH 300-7 for Form "U"*
(4) Page C-18, Line 199	*Form DHMH 300-7 for Form "U"*
(5) Page C-19, Lines 251-253	*Form DHMH 300-8 for Form "V"*
(6) Page C-19, Line 254	*Form DHMH 300-8 for Form "V"*
Page C-19, Line 255	*Form DHMH 300-8 for Form "V"*
Page C-20, Lines 333-337	*Form DHMH 300-8 for Form "V"*
(9) Page C-22, Line 400	*Form to be established for Form "W"*
(10) Page C-22, Line 402	*Form to be established for Form "W"*
(11) Page C-22, Line 404	*Form to be established for Form "W"*
(12) Page C-22, Line 446	*Form to be established for Form "W"*

D. Part D.

(1) Page D-2, Line 67	*Form DHMH 492 for Form "Y"*
(2) Page D-2, Line 85	*Form DHMH 492 for Form "Y"*
(3) Page D-2, Line 91	*Form DHMH 492 for Form "Y"*
(4) Page D-2, Line 98	*Form DHMH 492 for Form "Y"*
(5) Page D-3, Line 135	*Form DHMH 492 for Form "Y"*
(6) Page D-17 Line 777	*Form DHMH 493 for Form "Z"*
(7) Page D-17 Line 779	*Form DHMH 493 for Form "Z"*

E. Part E. (Text unchanged.)

F. Part F.

(1) Page F-1, Line 8	*Omit [or licensee] in brackets*

G. Part G. (Text unchanged.)

H. Part H.

(1) Page H-2, Line 74	*January 1, 1980*
(2) Page H-2, Line 96	*January 1, 1980*
(3) Page H-3, Line 112	*January 1, 1980*
Page H-3, Line 119	*Omit bracketed words*

Title 10—DEPARTMENT OF HEALTH AND MENTAL HYGIENE

BOARD OF PODIATRY

Pursuant to Art. 41, § 256F(e), Annotated Code of Maryland (1974 Supp.), notice is given that on January 22, 1976, an amendment to a rule under COMAR 10.32.01—Regulations Governing Examinations 6.05 Withdrawal of Application was adopted by the Department of Health and Mental Hygiene, Neil Solomon, Secretary.

This amendment, which was proposed for adoption in Vol. 2, *Maryland Register*, p. 1631 (November 26, 1975), has been adopted as proposed and becomes effective coincident with the issue date of this publication.

ROBERT J. COLBORN, JR.
Administrator
Division of State Documents

[Md. R. Doc. No. 76-087. Filed January 28, 1976.]

Pursuant to Art. 41, § 256F(e), Annotated Code of Maryland (1974 Supp.), notice is given that on January 22, 1976, rules and regulations under COMAR 10.32.02—Regulations Governing Continuing Education Requirements were adopted by the Department of Health and Mental Hygiene, Neil Solomon, Secretary.

These rules and regulations, which were proposed for adoption in Vol. 2, *Maryland Register*, pp. 1631-1632 (November 26, 1975), have been adopted as proposed and become effective coincident with the issue date of this publication.

ROBERT J. COLBORN, JR.
Administrator
Division of State Documents

[Md. R. Doc. No. 76-086. Filed January 28, 1976.]

Pursuant to Art. 41, § 256F(e), Annotated Code of Maryland (1974 Supp.), notice is given that on January 22, 1976, rules and regulations under COMAR 10.32.03—Regulations Governing the Collection of Fees for the Maryland State Board of Podiatry were adopted by the Department of Health and Mental Hygiene, Neil Solomon, Secretary.

These rules and regulations, which were proposed for adoption in Vol. 2, *Maryland Register*, pp. 1632-1633 (November 26, 1975), have been adopted as proposed and become effective coincident with the issue date of this publication.

ROBERT J. COLBORN, JR.
Administrator
Division of State Documents

[Md. R. Doc. No. 76-085. Filed January 28, 1976.]

DIVISION OF RADIATION CONTROL

Notice is given that on January 9, 1976, rules and regulations under COMAR 10.03.10-Regulations Governing Radiation Protection were repealed by the Department of Health and Mental Hygiene.

These rules and regulations, which were proposed for repeal in Vol. 2, Maryland Register, p. 1159 (July 23, 1975), have been repealed with changes, as shown below.

10.03.10. Regulations Governing Radiation Pollution

Parts A-D (Repealed as proposed)

Part E (Not repealed)

Part F (Repealed as proposed)

The repeals become effective coincident with the issue date of this publication.

Notice is given that on January 9, 1976, rules and regulations under COMAR 10.03.10-Regulations Governing Radiation Protection—incorporation by reference of "Suggested State Regulations for Control of Radiation (October 1974)" were adopted by the Department of Health and Mental Hygiene.

These rules and regulations, which were proposed for adoption by incorporation by reference in Vol. 2, Maryland Register, pp. 1159-60 (July 23, 1975), have been adopted with changes, as shown below.

10.03.10 Regulations Governing Radiation Protection

.01 Suggested State Regulations for the Control of Radiation October, 1974 is incorporated by reference with the following changes.

A. Part A.

(1)-(7) (Text unchanged)

(8) *Page A-2, Line 84*	*When not underlined as shown in this document the term 'exposure' has a more general meaning in these regulations.*

B. Part B.

(1)-(5) (Text unchanged)

(6) Page B-5, Lines 159-160	[[*Omit [two (2) working days]* *Two working days*
(7) Page B-5, Line 161	[[*Omit [two working days]* *Two working days*
(8) *Page B-6, Line 140*	[[*Within 15 days of*]] *Within thirty (30) days after the end of each calendar quarter of*

C. Part C. (Text unchanged)

D. Part D.

(1)-(7) (Text unchanged)

(8) Page D-14, Line 614 [[or eighteen hours]] at the start of the next working day.

E. Part E. (Text unchanged)

F. Part F. Deleted in its entirety.

G. Part G. (Text unchanged)

H. Part H. (Text unchanged)

I. Part I. Use only the terms registration, registrar or registrant. Omit use of the terms licensing, licensee, or license.

(1) Page I-1, Line 19 The Agency may waive compliance with specific requirements of this part for an existing particle accelerator or installation if (1) such compliance would require replacement or substantial modification of the particle accelerator or installation, and (2) the registrant demonstrates, to the Agency's satisfaction, other means of radiation protection equivalent to that required by the regulations.

J. Part J. (Text unchanged)

K. Part K. All footnotes in this document designated by an asterisk shall not apply.

(1) All references in this document to the U.S. Atomic Energy Commission (USAEC) shall be changed to US Nuclear Regulatory Commission (USNRC).

(2) All references to the address US Atomic Energy Commission, Washington, D.C. 20545 shall be changed to US Nuclear Regulatory Commission, Washington, D.C. 20555.

(3) All words in "Suggested State Regulations for Control of Radiation (October, 1974)" shown in italics shall not apply.

These regulations become effective coincident with the issue date of this publication.

NEIL SOLOMON
Secretary
Department of Health and Mental Hygiene

[Md. R. Doc. No. 76-068. Filed January 14, 1976.]

MARYLAND COMPREHENSIVE HEALTH PLANNING AGENCY

Pursuant to Art. 41, § 256F(e), Annotated Code of Maryland (1974 Supp.), notice is given that on January 9, 1976, rules and regulations under COMAR 10.07.01—Regulations Governing Determination of Conformance to Comprehensive Health Plan for Hospitals and Related Institutions were adopted by the Department of Health and Mental Hygiene, Neil Solomon, Secretary.

These rules and regulations, which were proposed for adoption in Vol. 2, Maryland Register, pp. 770-778 (May 14, 1975), have been adopted as proposed and become effective coincident with the issue date of this publication.

ROBERT J. COLBORN, JR.
Administrator
Division of State Documents

[Md. R. Doc. No. 76-067. Filed January 14, 1976.]

Title 11—DEPARTMENT OF TRANSPORTATION

MOTOR VEHICLE ADMINISTRATION

Pursuant to Art. 41, § 256F(e), Annotated Code of Maryland (1974 Supp.), notice is given that on January 18, 1976, rules and regulations under COMAR 11.02.03—Regulations Governing Motor Vehicle Dealers and Salesmen were adopted by the Motor Vehicle Administration, Ejner J. Johnson, Administrator.

These rules and regulations, which were proposed for adoption in Vol. 2, Maryland Register, pp. 1693-1694 (December 10, 1975), have been adopted as proposed and become effective coincident with the issue date of this publication.

ROBERT J. COLBORN, JR.
Administrator
Division of State Documents

[Md. R. Doc. No. 76-090. Filed January 21, 1976.]

SYMBOLOGY: Italics indicate new matter. [Single brackets] Indicate matter stricken from existing rule. [[Double brackets]] indicate matter stricken from proposed rule-making. Underlining indicates amendments to proposed rule-making.

REPOSITORIES FOR SPECIAL DOCUMENTS

Under the provisions of Art. 41, § 256H(a), *Annotated Code of Maryland*, any material which is "incorporated by reference" (a legal term which means a method of making one document part of another simply by referring to it) from certain sources is not permitted to be published in either the *Maryland Register* or the *Code of Maryland Regulations* (COMAR). This prohibition on republication has been established so that the State of Maryland does not incur the needless expense of reprinting materials which are already available elsewhere in existing publications.

Article 41, § 256H(a) also gives the Administrator of the Division of State Documents discretion to declare other publications from which material is incorporated by reference to be "generally available". When the Administrator specifies that a document is "generally available", this document, too, is not printed in either the *Maryland Register* or *COMAR*.

Since it is in the public interest to make the *Maryland Register* and *COMAR* as complete a source of information as possible, the Administrator's power to declare a publication "generally available" is used rarely.

When the Administrator does decide not to publish a particular document, his reasons will be clearly stated in an editorial note appearing in the *Maryland Register*.

At the same time, the Division of State Documents believes it important to go beyond the mere declaration that a publication is "generally available". Accordingly, we have taken steps to assure that any document declared to be "generally available" is, in fact, a document to which the public has reasonable access.

To assure public accessibility, we have established a system of State-wide repositories in which all documents declared "generally available" by the Administrator will be kept on file for public inspection. At least one repository has been designated in each of the counties (with the exception of Kent County) and in Baltimore City. Each of these repositories is open to the public. Supplemental repositories, which are not open to the public or which are open only under special circumstances, have also been designated; these are local legal libraries, open to attorneys, who will be frequent users of the reposited materials.

In the list which follows there appears the name and address of the repository, its days and hours of operation, and any special provision regarding public accessibility. In addition, all reposited documents are also kept on file at the offices of the Division of State Documents, 16 Francis Street, Annapolis, Maryland, and can be inspected by any member of the public Monday through Friday between the hours of 9 a.m. and 5 p.m. Copies of all documents may be purchased at a cost of 10¢ per page. The Division's telephone number is 301-267-1486; if you have any questions, we will be glad to help you.

ROBERT J. COLBORN,
Administrator
Division of State Documents

PUBLIC REPOSITORIES

Library	*Hours*
State Library Courts of Appeal Building Annapolis, Maryland 21401	M-F 8:30am— 4:30pm
Allegheny County Law Library Courthouse Cumberland, Maryland 21502	M-F 9am—4pm
Enoch Pratt Free Library (Baltimore City) 400 Cathedral Street Maryland Department Baltimore, Md. 21201	M-Th 9am—9pm F-S 9am—5pm Sun. (Oct.-May) 1pm—5pm
Baltimore County Public Library Adult Services 320 York Road Towson, Maryland 21204	M-Th 9am—9pm F-S 9am—5:30pm
Calvert County Public Library Prince Frederick, Maryland 20678	M-W 10am—6pm Th-F 10am—9pm Sat. (May-Sept.) 9am—5pm
Caroline County Public Library Market Street Denton, Maryland 21629	M&F 9am—9pm T, W, Th, S 9am—5:30pm
Davis Library (Carroll County) East Main Street Westminster, Maryland 21157	M-Th 9:30am—8pm F-S 9:30 am—5pm
Cecil County Library 135 E. Main Street Elkton, Maryland 21921	M 9am—9pm T-F 9am —5:30pm S 9am—5pm
Charles County Library LaPlata, Maryland 20646	M-Th 9am—8pm F-S 9am—5pm
Dorchester County Public Library 301 Gay Street Cambridge, Maryland 21613	M&F 9am—8pm T&Th 7pm—9pm S 9am—1pm
Frederick County Public Library 116 Record Street Frederick, Maryland 21701	M&Th 1 pm—9pm T, W, & F 9am—9pm S 9am—5pm
Ruth Enlow Library of Garrett County Oakland, Maryland 21550	M&F 9am—5:30pm W 12:30pm—5:30pm T&Th 9am—5:30pm S 9am—1pm
Harford County Court Library Courthouse Bel Air, Maryland 21014	M-F 9am—4:30pm
Howard County Court Library Courthouse Ellicott City, Maryland 21043	M-F 9am—5pm

Library	*Hours*
Prince George's County Circuit Court Library Ms. Pamela J. Gregory, Librarian Box 580 Courthouse Upper Marlboro, Maryland 20870	*By Request* M-F 8:30am—4:30pm
Queen Anne's County Free Library Commerce Street Centreville, Maryland 21617	M&Th 9am—9pm T, W, F, & S 9am—5pm
St. Mary's County Library Leonardtown, Maryland 20650	M-Th 10am—9pm F-S 10am—5pm
Princess Anne Library (Somerset County) Princess Anne, Maryland 21853	M&F 1pm—5pm T&Th 1pm—5pm 7pm—9pm S 11am—2pm (closed Wed.)
Talbot County Free Library Easton, Maryland 21601	M&Th 9am—9pm T, W, F, & S 9am—5pm
Washington County Circuit Court Law Library Mrs. Thelma R. Hartle Courthouse Annex Hagerstown, Maryland 21740	*By Request* M-F 8am—4pm
Wicomico County Free Library P.O. Box 951 122-126 S. Division Street Salisbury, Maryland 21801	M, T, & Th 9am—9pm W, F, & S 9am—5pm
Worcester County Library 200 N. Washington Street Snow Hill, Maryland 21863	M-F 9am—6pm S (Sept.-May) 9am—1pm

SUPPLEMENTAL REPOSITORIES

(Not Open to the Public)

Library	*Hours*
The Baltimore Bar Library Michael Renshawe, Librarian 618 Courthouse Baltimore, Maryland 21202	M-F 9am—11pm S 9am—6pm
Circuit Court for Baltimore County Law Library 401 Bosley Avenue Towson, Maryland 21204	M-F 9am—9pm S 9:30am—5pm
Circuit Court Law Library (Caroline County) Courthouse Denton, Md. 21629	Admittance by pass key only.
Carroll County Circuit Court Law Library Mrs. Hailey Courthouse Westminster, Maryland 21157	Admittance by pass key only.
Cecil County Circuit Court Law Library Mr. W. Andrew Seth, Clerk Courthouse Elkton, Md. 21921	M-F 9am—4:30pm
Charles County Circuit Court Law Library Mr. Patrick C. Mudd, Clerk Courthouse La Plata, Maryland 20646	M-F 8:30am—4:30
Dorchester County Circuit Court Law Library Mr. Philip L. Cannon, Clerk Courthouse Cambridge, Md. 21613	M-F 9am—4:30pm
Garrett County Circuit Court Law Library Mr. Richard C. Davis, Clerk Courthouse Oakland, Md. 21550	M-F 8:30am—4:30p
Kent County Circuit Court Law Library Mrs. Natalie G. Embert Courthouse Chestertown, Maryland 21620	Admittance by pass key only. Visiting attorneys by request M-F 8:30am—5pm
Circuit Court Law Library (Montgomery County) Ms. Karen S. Lockard 27 Courthouse Square 4th Floor Rockville, Md. 20850	M-F 9am—11pm Weekends & Holidays
Queen Anne's County Circuit Court Law Library Mr. Charles W. Cecil, Clerk Courthouse Centerville, Md. 21617	Admittance by pass key only.
Wicomico County Bar Library Barbara C. Underwood, Librarian Courthouse Salisbury, Md. 21801	Admittance by pass key only.
Worcester County Circuit Court Law Library Mrs. Mulligan Courthouse Snow Hill, Maryland 21863	M-F 9am—5pm

I. Part I. Use only the terms registration, registrar or registrant. Omit use of the terms licensing, licensee, or license.

J. Part J.

(1) Page J-1, Line 36	*Form DHMH 491 for Form "X"*
(2) Page J-2, Lines 96-97	*10.03.10 Regulations Governing Radiation Protection.*
(3) Page J-4, Line 196	*Secretary of Health and Mental Hygiene.*
(4) Page J-4, Line 199	*Secretary of Health and Mental Hygiene.*
(5) Page J-4, Line 205	*Secretary of Health and Mental Hygiene.*
(6) Page J-5, Line 224	*Chief of the Division of Radiation Control.*
(7) Page J-5, Line 227	*Chief of the Division of Radiation Control.*
(8) Page J-5, Line 230	*Secretary of Health and Mental Hygiene.*
(9) Page J-5, Line 234	*Secretary of Health and Mental Hygiene.*
(10) Page J-5, Line 236	*Secretary of Health and Mental Hygiene.*
(11) Page J-5, Line 243	*Secretary of Health and Mental Hygiene.*
(12) Page J-5, Lines 244-245	*Chief of the Division of Radiation Control.*
(13) Page J-5, Line 250	*Chief of the Division of Radiation Control.*

K. Part K. All footnotes in this document designated by an asterisk shall not apply.

PUBLIC COMMENT

Interested persons may submit views or data, in writing, before August 9, 1975, to the Regulations Coordinator, Office of Hearings and Regulations, Third floor, O'Conor State Office Building, 201 West Preston Street, Baltimore, Maryland 21201. Specific proposed changes should be made in writing in the style and format used in the proposed amendments. Copies of the proposed amendments are available from the Environmental Health Administration, 201 West Preston Street, O'Conor State Office Building, Baltimore, Maryland 21201.

NEIL SOLOMON, M.D.,
Secretary,
Department of Health and Mental Hygiene

[Md. R. Doc. No. 75-540. Filed July 1, 1975.]

HEALTH SERVICES COST REVIEW COMMISSION

10.36.01 Regulations Governing Uniform Accounting and Reporting System

.03 Reporting Requirements: Hospitals.

A.-C. (Text unchanged)

D. Failure to File Reports.

(1) Any Section 556 Hospital which does not file any report required [herein] *under the Enabling Act of the Commission, Art. 43, §§ 568H-568X, Annotated Code of Maryland, or under the regulations of the Commission,* is liable for a civil penalty of $1[illegible] per day for each day the filing of [such] *the* report is delayed unless an extension is granted as provided in [Section] .02*E*.

(2) (Text unchanged)

PUBLIC COMMENT

All interested parties and members of the public may submit data or views by calling the Commission's office, (301) 383-4175, to make an appointment to express oral views. Written data and views may be mailed to:

John T. Brooks, Assistant Attorney General
Health Services Cost Review Commission
2100 Guilford Avenue
Suite 308
Baltimore, Maryland 21218.

The Commission will consider these data and views from July 23, 1975 to August 22, 1975.

ALVIN M. POWERS,
Chairman,
Health Services Cost Review Commission

[Md. R. Doc. No. 75-579. Filed July 15, 1975.]

Title 11—DEPARTMENT OF TRANSPORTATION

11.01.01 Promulgation and Adoption of Rules

The Department of Transportation proposes to repeal existing regulations codified under COMAR 11.01.01 (rules .01-.05) and replace them with those presented here.

SYMBOLOGY: Capitals indicate new matter. [Brackets] indicate matter stricken from existing rule. [[Double brackets]] indicate matter stricken from proposed rule-making. Underlining indicates amendments to proposed rule-making.

SUGGESTED STATE REGULATIONS FOR CONTROL OF RADIATION

Prepared by

THE U.S. ATOMIC ENERGY COMMISSION

THE U.S. PUBLIC HEALTH SERVICE

and

THE CONFERENCE OF RADIATION CONTROL PROGRAM DIRECTORS

in cooperation with

THE COUNCIL OF STATE GOVERNMENTS

REVISED AND NEW PARTS

IONIZING RADIATION CATEGORY

of the

SUGGESTED STATE REGULATIONS

FOR CONTROL OF RADIATION

October 1974

Prepared by

CONFERENCE OF RADIATION CONTROL PROGRAM DIRECTORS

and

U.S. ATOMIC ENERGY COMMISSION

and

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service
Food and Drug Administration
Bureau of Radiological Health
Rockville, Maryland 20852

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Appendix

PART F - X RAYS IN THE HEALING ARTS

PART A

GENERAL PROVISIONS

Sec. A.1 Scope. Except as otherwise specifically provided, these regulations apply to all persons who receive, possess, use, transfer, own or acquire any source of radiation, provided, however, that nothing in these regulations shall apply to any person to the extent such person is subject to regulation by the U.S. Atomic Energy Commission. 1/

Sec. A.2 Definitions. As used in these regulations, these terms have the definitions set forth below. Additional definitions used only in a certain part will be found in that part.

(a) "Accelerator produced material" means any material made radioactive by exposing it in a particle accelerator.

(b) "Act" means [cite State Radiation Control Act].

(c) "Agency" means [cite appropriate State agency].

(d) "Agreement State" means any State with which the United States Atomic Energy Commission has entered into an effective agreement under Section 274 b. of the Atomic Energy Act of 1954, as amended (73 Stat. 689).

(e) "Airborne radioactive material" means any radioactive material dispersed in the air in the form of dusts, fumes, mists, vapors, or gases.

(f) "Airborne radioactivity area" means (1) any room, enclosure, or operating area in which airborne radioactive material exists in concentrations in excess of the amounts specified in Appendix A, Table I, Column 1 of Part D; or (2) any room, enclosure, or operating area in which airborne radioactive material exists in concentrations which, averaged over the number of hours in any week during which individuals are in the area, exceed 25 percent of the amounts specified in Appendix A, Table I, Column 1 of Part D.

(g) "Byproduct material" means any radioactive material (except special nuclear material) yielded in or made radioactive by exposure to the radiation incident to the process of producing or utilizing special nuclear material.

1/ Attention is directed to the fact that regulation by the State of source material, byproduct material, and special nuclear material in quantities not sufficient to form a critical mass is subject to the provisions of the agreement between the State and the U.S. Atomic Energy Commission and to Part 150 of the Commission's regulations (10 CFR Part 150).

(h) "Calendar quarter" means not less than 12 consecutive weeks nor more than 14 consecutive weeks. The first calendar quarter of each year shall begin in January and subsequent calendar quarters shall be so arranged such that no day is included in more than one calendar quarter and no day in any one year is omitted from inclusion within a calendar quarter. No licensee or registrant shall change the method observed by him of determining calendar quarters for purposes of these regulations except at the beginning of a calendar year.

(i) "Curie" means a unit of measurement of radioactivity. One curie (Ci) is that quantity of radioactive material which decays at the rate of 3.7×10^{10} disintegrations per second (dps). Commonly used submultiples of the curie are the millicurie and the microcurie. One millicurie (mCi) = 0.001 curie = 3.7×10^{7} dps. One microcurie (μCi) = 0.000001 curie = 3.7×10^{4} dps.

(j) "Dose" as used in these regulations shall mean absorbed dose or dose equivalent as appropriate.

"Absorbed dose" is the energy imparted to matter by ionizing radiation per unit mass of irradiated material at the place of interest. The special unit of absorbed dose is the rad. (See rad.)

"Dose equivalent" is a quantity that expresses on a common scale for all radiation a measure of the postulated effect on a given organ. It is defined as the absorbed dose in rads times certain modifying factors. The unit of dose equivalent is the rem. (See rem.)

(k) *"Exposure" means the quotient of dQ by dm where "dQ" is the absolute value of the total charge of the ions of one sign produced in air when all the electrons (negatrons and positrons) liberated by photons in a volume element of air having mass "dm" are completely stopped in air. (The special unit of exposure is the roentgen (R).)

(l) "Exposure rate" means the exposure per unit of time, such as R/min, mR/h etc.

(m) "Healing arts" means [cite appropriate State definition].

(n) "High radiation area" means any area, accessible to individuals, in which there exists radiation at such levels that a major portion of the body could receive in any one hour a dose in excess of 100 millirems.

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*Note: States may wish to distinguish throughout their regulations, and to include a footnote here specifying a distinction, between the ICRU definition of exposure and the general use of exposure. The footnote could be similar to the following: "When not underlined as above [or indicated as 'exposure (X)'], the term 'exposure' has a more general meaning in these regulations.

(o) "Human use" means the internal or external administration of radiation or radioactive material to human beings.

(p) "Individual" means any human being.

(q) "Inspection" means an official examination or observation including but not limited to, tests, surveys, and monitoring to determine compliance with rules, regulations, orders, requirements and conditions of the Agency.

(r) "License" means a license issued by the Agency in accordance with the regulations adopted by the Agency.

(s) "Licensee" means any person who is licensed by the Agency in accordance with these regulations and the Act.

(t) "Natural radioactivity" means radioactivity of naturally occurring nuclides.

(u). "Occupational dose" means exposure of an individual to radiation (1) in a restricted area; or (2) in the course of employment in which the individual's duties involve exposure to radiation; provided, that occupational dose shall not be deemed to include any exposure of an individual to radiation for the purpose of diagnosis or therapy of such individual.

(v)

(w) "Particle accelerator" means any machine capable of accelerating electrons, protons, deuterons, or other charged particles in a vacuum and of discharging the resultant particulate or other radiation into a medium at energies usually in excess of 1 MeV.

(x) "Person" means any individual, corporation, partnership, firm, association, trust, estate, public or private institution, group, agency, political subdivision of this State, any other State or political subdivision or agency thereof, and any legal successor, representative, agent or agency of the foregoing.

(y) "Personnel monitoring equipment" means devices (e.g. film badges, pocket dosimeters, and thermoluminescent dosimeters) designed to be worn or carried by an individual for the purpose of estimating the dose received by the individual.

(z) "Pharmacist" means an individual licensed by this State to compound and dispense drugs, prescriptions, and poisons.

(aa) "Physician" means [cite appropriate State definition].

(ab) "Rad" means the special unit of absorbed dose. One rad equals one hundreth of a joule per kilogram of material; for example, if tissue is the material of interest, then 1 rad equals 100 ergs per gram of tissue.

(ac) "Radiation" means ionizing radiation, i.e., gamma rays and x rays, alpha and beta particles, high speed electrons, neutrons, and other nuclear particles.

(ad) "Radiation area" means any area, accessible to individuals, in which there exists radiation at such levels that a major portion of the body could receive in any one hour a dose in excess of 5 millirems, or in any 5 consecutive days a dose in excess of 100 millirems.

(ae) "Radiation machine" means any device capable of producing radiation except those which produce radiation only from radioactive material.

(af) "Radiation safety officer" means one who has the knowledge and responsibility to apply appropriate radiation protection regulations.

(ag) "Radioactive material" means any material (solid, liquid, or gas) which emits radiation spontaneously.

(ah) "Radioactivity" means the disintegration of unstable atomic nuclei by the emission of radiation.

(ai) "Registrant" means any person who is registered with the Agency and is legally obligated to register with the Agency pursuant to these regulations and the Act.

(aj) "Registration" means registration with the Agency in accordance with the regulations adopted by the Agency.

(ak) "Regulations of the U.S. Department of Transportation" means the regulations in 49 CFR Parts 170-189, 14 CFR Part 103, and 46 CFR Part 146.

(al) "Rem" means a measure of the dose of any radiation to body tissue in terms of its estimated biological effect relative to a dose received from an exposure to one roentgen (R) of x rays. [One millirem (mrem)= 0.001 rem.] For the purpose of these regulations, any of the follewing is considered to be equivalent to a dose of one rem:

(1) An exposure of 1 R of x, or gamma radiation;
(2) A dose of 1 rad due to x, gamma, or beta radiation;
(3) A dose of 0.05 rad due to particles heavier than protons and with sufficient energy to reach the lens of the eye.

(4) A dose of 0.1 rad due to neutrons or high energy protons; 2/

(am) "Research and development" means: (1) theoretical analysis, exploration, or experimentation; or (2) the extension of investigative findings and theories of a scientific or technical nature into practical application for experimental and demonstration purposes, including the experimental production and testing of models, devices, equipment, materials, and processes. Research and development does not include the internal or external administration of radiation or radioactive material to human beings.

(an) "Restricted area" (controlled area) means any area access to which is controlled by the licensee or registrant for purposes of protection of individuals from exposure to radiation and radioactive material. "Restricted area" shall not include any areas used for residential quarters, although a separate room or rooms in a residential building may be set apart as a restricted area.

(ao) "Roentgen" (R) means the special unit of exposure. One roentgen equals 2.58×10^{-4} coulombs/kilogram of air (see "Exposure").

2/ If it is more convenient to measure the neutron flux, or equivalent, than to determine the neutron absorbed dose in rads, one rem of neutron radiation may, for purposes of these regulations, be assumed to be equivalent to 14 million neutrons per square centimeter incident upon the body; or, if there exists sufficient information to estimate with reasonable accuracy the approximate distribution in energy of the neutrons, the incident number of neutrons per square centimeter equivalent to one rem may be estimated from the following table:

Neutron Flux Dose Equivalents

Neutron energy (MeV)	Number of neutrons per square centimeter for a dose equivalent of 1 rem (neutrons/cm^2)	Average flux density to deliver 100 millirems in 40 hours (neutrons/cm^2 per second)
Thermal	970×10^6	670
0.0001	720×10^6	500
0.005	820×10^6	570
0.02	400×10^6	280
0.1	120×10^6	80
0.5	43×10^6	30
1.0	26×10^6	18
2.5	29×10^6	20
5.0	26×10^6	18
7.5	24×10^6	17
10.0	24×10^6	17
10 to 30	14×10^6	10

(ap) "Sealed source" means radioactive material that is permanently bonded or fixed in a capsule or matrix designed to prevent release and dispersal of the radioactive material under the most severe conditions which are likely to be encountered in normal use and handling.

(aq) "Source material" means: (1) uranium or thorium, or any combination thereof, in any physical or chemical form, or (2) ores which contain by weight one-twentieth of one percent (0.05 percent) or more of (i) uranium, (ii) thorium, or (iii) any combination thereof. Source material does not include special nuclear material.

(ar) "Source of radiation" means any radioactive material, or any device or equipment emitting or capable of producing radiation.

(as) "Special form" means any of the following physical forms of licensed material of any transport group:

(1) The material is in solid form having no dimension less than 0.5 millimeter or at least one dimension greater than five millimeters; does not melt, sublime, or ignite in air at a temperature of 1,000° F.; will not shatter or crumble if subjected to the percussion test described in Appendix B of this part; and is not dissolved or converted into dispersible form to the extent of more than 0.005 percent by weight by immersion for 1 week in water at 68° F. or in air at 86° F.; or

(2) The material is securely contained in a capsule having no dimension less than 0.5 millimeter or at least one dimension greater than five millimeters, which will retain its contents if subjected to the tests prescribed in Appendix B of this part; and which is constructed of materials which do not melt, sublime, or ignite in air at 1,475° F., and do not dissolve or convert into dispersible form to the extent of more than 0.005 percent by weight by immersion for 1 week in water at 68° F. or in air at 86° F.

(at) "Special nuclear material in quantities not sufficient to form a critical mass" means uranium enriched in the isotope U-235 in quantities not exceeding 350 grams of contained U-235; uranium-233 in quantities not exceeding 200 grams; plutonium in quantities not exceeding 200 grams; or any combination of them in accordance with the following formula: For each kind of special nuclear material, determine the ratio between the quantity of that special nuclear material and the quantity specified above for the same kind of special nuclear material. The sum of such ratios for all of the kinds of special nuclear material in combination shall not exceed "1" (i.e., unity). For example, the following quantities in combination would not exceed the limitation and are within the formula:

$$\frac{175 \text{ (grams contained U-235)}}{350} + \frac{50 \text{ (grams U-233)}}{200} + \frac{50 \text{ (grams Pu)}}{200} = 1.$$

(au) "Survey" means an evaluation of the production, use, release, disposal, and/or presence of sources of radiation under a specific set of conditions to determine actual or potential radiation hazards. When appropriate, such evaluation includes, but is not limited to tests, physical examination and measurements of levels of radiation or concentration of radioactive material present.

(av) "Test" means a method for determining the characteristics or condition of sources of radiation or components thereof.

(aw) "These regulations" mean all parts of [cite appropriate rules or regulations.]

(ax) "Transport group" means any one of seven groups into which radionuclides in normal form are classified, according to their toxicity and their relative potential hazard in transport, in Appendix A of this part.

(1) Any radionuclide not specifically listed in one of the groups in Appendix A shall be assigned to one of the groups in accordance with the following table:

Radionuclide	Radioactive half-life		
	0 to 1000 days	1000 days to 10^6 years	Over 10^6 years
Atomic number 1-81	Group III	Group II	Group III
Atomic number 82 and over.	Group I	Group I	Group III

(2) For mixtures of radionuclides the following shall apply:

(i) If the identity and respective activity of each radionuclide are known, the permissible activity of each radionuclide shall be such that the sum, for all groups present, of the ratio between the total activity for each group to the permissible activity for each group will not be greater than unity.

(ii) If the groups of the radionuclides are known but the amount in each group cannot be reasonably determined, the mixture shall be assigned to the most restrictive group present.

(iii) If the identity of all or some of the radionuclides cannot be reasonably determined, each of those unidentified radionuclides shall be considered as belonging to the most restrictive group which cannot be positively excluded.

(iv) Mixtures consisting of a single radioactive decay chain where the radionuclides are in the naturally occurring proportions shall be considered as consisting of a single radionuclide. The group and activity shall be that of the first member present in the chain, except that if a radionuclide "X" has a half-life longer than that of that first member and an activity greater than that of any other member, including the first, at any time during transportation, the transport group of the nuclide "X" and the activity of the mixture shall be the maximum activity of that nuclide "X" during transportation.

(ay) "Unrefined and unprocessed ore" means ore in its natural form prior to any processing, such as grinding, roasting, beneficiating, or refining.

(az) "Unrestricted area" (uncontrolled area) means any area access to which is not controlled by the licensee or registrant for purposes of protection of individuals from exposure to radiation and radioactive material, and any area used for residential quarters.

(ba) "Worker" means an individual engaged in work under a license or registration issued by the Agency and controlled by a licensee or registrant, but does not include the licensee or registrant.

Sec. A3 Exemptions

(a) General Provision. The Agency may, upon application therefor or upon its own initiative, grant such exemptions or exceptions from the requirements of these regulations as it determines are authorized by law and will not result in undue hazard to public health and safety or property.

(b) Carriers. Common and contract carriers, freight forwarders, and warehousemen, who are subject to the rules and regulations of the U.S. Department of Transportation or the U.S. Postal Service (39 CFR Parts 14 & 15), are exempt from these regulations to the extent that they transport or store sources of radiation in the regular course of their carriage for another or storage incident thereto. Private carriers who are subject to the rules and regulations of the U.S. Department of Transportation are exempted from these regulations to the extent that they transport sources of radiation. Common, contract, and private carriers who are not subject to the rules and regulations of the U.S. Department of Transportation or the U.S. Postal Service are subject to applicable sections of these regulations.

(c) U.S. Energy Research and Development Administration contractors and U.S. Nuclear Regulatory Commission contractors. Any U.S. Energy Research and Development Administration contractor or subcontractor and any U.S. Nuclear Regulatory Commission contractor or subcontractor of the following categories operating within this State is exempt from these regulations to the extent that such contractor or subcontractor under his contract receives, possesses, uses, transfers or acquires sources of radiation:

(1) Prime contractors performing work for the Energy Research and Development Administration at U.S. Government-owned or controlled sites, including the transportation of sources of radiation to or from such sites and the performance of contract services during temporary interruptions of such transportation;

(2) Prime contractors of the Energy Research and Development Administration performing research in, or development, manufacture, storage, testing or transportation of, atomic weapons or components thereof;

(3) Prime contractors of the Energy Research and Development Administration using or operating nuclear reactors or other nuclear devices in a United States Government-owned vehicle or vessel; and

(4) Any other prime contractor or subcontractor of the Energy Research and development Administration or of the Nuclear Regulatory Commission when the State and the Nuclear Regulatory Commission jointly determine (i) that the exemption of the prime contractor or subcontractor is authorized by law, and (ii) that under the terms of the contract or subcontract, there is adequate assurance that the work thereunder can be accomplished without undue risk to the public health and safety.

Sec. A.4 Records. Each licensee and registrant shall maintain records showing the receipt, transfer, and disposal of all sources of radiation. Additional record requirements are specified elsewhere in these regulations.

Sec. A.5 Inspections

(a) Each licensee and registrant shall afford the Agency at all reasonable times opportunity to inspect sources of radiation and the premises and facilities wherein such sources of radiation are used or stored.

(b) Each licensee and registrant shall make available to the Agency for inspection, upon reasonable notice, records maintained pursuant to these regulations.

Sec. A.6 Tests. Each licensee and registrant shall perform upon instructions from the Agency, or shall permit the Agency to perform such reasonable tests as the Agency deems appropriate or necessary including, but not limited to, tests of:

(a) Sources of radiation;

(b) Facilities wherein sources of radiation are used or stored;

(c) Radiation detection and monitoring instruments; and

(d) Other equipment and devices used in connection with utilization or storage of licensed or registered sources of radiation.

Sec. A.7 Additional Requirements. The Agency may, by rule, regulation, or order, impose upon any licensee or registrant such requirements in addition to those established in these regulations as it deems appropriate or necessary to minimize danger to public health and safety or property.

Sec. A.8 Violations. An injunction or other court order may be obtained prohibiting any violation of any provision of the Act or any regulation or order issued thereunder. Any person who willfully violates any provision of the Act or any regulation or order issued thereunder may be guilty of a [felony, misdemeanor or crime] and upon conviction, may be punished by fine or imprisonment or both, as provided by law.

Sec. A.9 Impounding. Sources of radiation shall be subject to impounding pursuant to Section _____ of the Act.

Sec. A.10 Prohibited Uses

(a) Hand-held fluoroscopic screens shall not be used.

(b) Shoe-fitting fluoroscopic devices shall not be used.

Sec. A.11 Communications. All communications and reports concerning these regulations, and applications filed thereunder, should be addressed to the Agency at its office located at _____

_____.

PART A

APPENDIX A
TRANSPORT GROUPING OF RADIONUCLIDES

Element[1/]	Radionuclide[2/]	Group
Actinium(89)	Ac-277	I
	Ac-228	I
Americium(95)	Am-241	I
	Am-243	I
Antimony(51)	Sb-122	IV
	Sb-124	III
	Sb-125	III
Argon(18)	Ar-37	VI
	Ar-41	II
	Ar-41(uncompressed)[3/]	V
Arsenic(33)	As-73	IV
	As-74	IV
	As-76	IV
	As-77	IV
Astatine(85)	At-211	III
Barium(56)	Ba-131	IV
	Ba-133	II
	Ba-140	III
Berkelium(97)	Bk-249	I
Beryllium(4)	Be-7	IV
Bismuth(83)	Bi-206	IV
	Bi-207	III
	Bi-210	II
	Bi-212	III
Bromine(35)	Br-82	IV
Cadmium(48)	Cd-109	IV
	Cd-115m	III
	Cd-115	IV
Calcium(20)	Ca-45	IV
	Ca-47	IV
Californium(98)	Cf-249	I
	Cf-250	I
	Cf-252	I
Carbon(6)	C-14	IV

1/ Atomic number shown in parentheses.

2/ Atomic mass number shown after the element symbol.

3/ Uncompressed means at a pressure not exceeding one atmosphere.

m Metastable state.

Element[1]	Radionuclide[2]	Group
Cerium(58)	Ce-141	IV
	Ce-143	IV
	Ce-144	III
Cesium(55)	Cs-131	IV
	Cs-134m	III
	Cs-134	III
	Cs-135	IV
	Cs-136	IV
	Cs-137	III
Chlorine(17)	Cl-36	III
	Cl-38	IV
Chromium(24)	Cr-51	IV
Cobalt(27)	Co-56	III
	Co-57	IV
	Co-58m	IV
	Co-58	IV
	Co-60	III
Copper(29)	Cu-64	IV
Curium(96)	Cm-242	I
	Cm-243	I
	Cm-244	I
	Cm-245	I
	Cm-246	I
Dysprosium(66)	Dy-154	III
	Dy-165	IV
	Dy-166	IV
Erbium(68)	Er-169	IV
	Er-171	IV
Europium(63)	Eu-150	III
	Eu-152m	IV
	Eu-152	III
	Eu-154	II
	Eu-155	IV
Fluorine(9)	F-18	IV
Gadolinium(64)	Gd-153	IV
	Gd-159	IV
Gallium(31)	Ga-67	III
	Ga-72	IV
Germanium(32)	Ge-71	IV

1/ Atomic number shown in parentheses.

2/ Atomic mass number shown after the element symbol.

m Metastable state.

Element[1]	Radionuclide[2]	Group
Gold(79)	Au-193	III
	Au-194	III
	Au-195	III
	Au-196	IV
	Au-198	IV
	Au-199	IV
Hafnium(72)	Hf-181	IV
Holmium(67)	Ho-166	IV
Hydrogen(1)	H-3(see tritium)	
Indium(49)	In-113m	IV
	In-114m	III
	In-115m	IV
	In-115	IV
Iodine(53)	I-124	III
	I-125	III
	I-126	III
	I-129	III
	I-131	III
	I-132	IV
	I-133	III
	I-134	IV
	I-135	IV
Iridium(77)	Ir-190	IV
	Ir-192	III
	Ir-194	IV
Iron(26)	Fe-55	IV
	Fe-59	IV
Krypton(36)	Kr-85m	III
	Kr-85m(uncompressed).[3]	V
	Kr-85	III
	Kr-85(uncompressed).[3]	VI
	Kr-87	II
	Kr-87(uncompressed).[3]	V
Lanthanum(57)	La-140	IV

[1] Atomic number shown in parentheses.

[2] Atomic mass number shown after the element symbol.

[3] Uncompressed means at a pressure not exceeding one atmosphere.

m Metastable state.

Element[1]	Radionuclide[2]	Group
Lead(82)	Pb-203	IV
	Pb-210	II
	Pb-212	II
Lutetium(71)	Lu-172	III
	Lu-177	IV
Magnesium(12)	Mg-28	III
Manganese(25)	Mn-52	IV
	Mn-54	IV
	Mn-56	IV
Mercury(80)	Hg-197m	IV
	Hg-197	IV
	Hg-203	IV
Mixed fission products(MFP)		II
Molybdenum(42)	Mo-99	IV
Neodymium(60)	Nd-147	IV
	Nd-149	IV
Neptunium(93)	Np-237	I
	Np-239	I
Nickel(28)	Ni-56	III
	Ni-59	IV
	Ni-63	IV
	Ni-65	IV
Niobium(41)	Nb-93m	IV
	Nb-95	IV
	Nb-97	IV
Osmium(76)	Os-185	IV
	Os-191m	IV
	Os-191	IV
	Os-193	IV
Palladium(46)	Pd-103	V
	Pd-109	IV
Phosphorus(15)	P-32	IV
Platinum(78)	Pt-191	IV
	Pt-193	IV
	Pt-193m	IV
	Pt-197m	IV
	Pt-197	IV

1/ Atomic number shown in parentheses.

2/ Atomic mass number shown after the element symbol.
m Metastable state.

Element[1/]	Radionuclide[2/]	Group
Plutonium(94)	Pu-238(F)	I
	Pu-239(F)	I
	Pu-240	I
	Pu-241(F)	I
	Pu-242	I
Polonium(84)	Po-210	I
Potassium(19)	K-42	IV
	K-43	III
Praseodymium(59)	Pr-142	IV
	Pr-143	IV
Promethium(61)	Pm-147	IV
	Pm-149	IV
Protactinium(91)	Pa-230	I
	Pa-231	I
	Pa-233	II
Radium(88)	Ra-223	II
	Ra-224	II
	Ra-226	I
	Ra-228	I
Radon(86)	Rn-220	IV
	Rn-222	II
Rhenium(75)	Re-183	IV
	Re-186	IV
	Re-187	IV
	Re-188	IV
	Re-Natural	IV
Rhodium(45)	Rh-103m	IV
	Rh-105	IV
Rubidium(37)	Rb-86	IV
	Rb-87	IV
	Rb-Natural	IV
Ruthenium(44)	Ru-97	IV
	Ru-103	IV
	Ru-105	IV
	Ru-106	III
Samarium(62)	Sm-145	III
	Sm-147	III
	Sm-151	IV
	Sm-153	IV

1/ Atomic number shown in parentheses.

2/ Atomic mass number shown after the element symbol.
m Metastable state.
(F) Fissile material.

Element[1]	Radionuclide[2]	Group
Scandium(21)	Sc-46	III
	Sc-47	IV
	Sc-48	IV
Selenium(34)	Se-75	IV
Silicon(14)	Si-31	IV
Silver(47)	Ag-105	IV
	Ag-110m	III
	Ag-111	IV
Sodium(11)	Na-22	III
	Na-24	IV
Strontium(38)	Sr-85m	IV
	Sr-85	IV
	Sr-89	III
	Sr-90	II
	Sr-91	III
	Sr-92	IV
Sulfur(16)	S-35	IV
Tantalum(73)	Ta-182	III
Technetium(43)	Tc-96m	IV
	Tc-96	IV
	Tc-97m	IV
	Tc-97	IV
	Tc-99m	IV
	Tc-99	IV
Tellurium(52)	Te-125m	IV
	Te-127m	IV
	Te-127	IV
	Te-129m	III
	Te-129	IV
	Te-131m	III
	Te-132	IV
Terbium(65)	Tb-160	III
Thallium(81)	Tl-200	IV
	Tl-201	IV
	Tl-202	IV
	Tl-204	III

1/ Atomic number shown in parentheses.

2/ Atomic mass number shown after the element symbol.

m Metastable state.

Element[1/]	Radionuclide[2/]	Group
Thorium(90)	Th-227	II
	Th-228	I
	Th-230	I
	Th-231	I
	Th-232	III
	Th-234	II
	Th-Natural	III
Thulium(69)	Tm-168	III
	Tm-170	III
	Tm-171	IV
Tin(50)	Sn-113	IV
	Sn-117m	III
	Sn-121	III
	Sn-125	IV
Tritium(1)	H-3	IV
	H-3(as a gas, as luminous paint, or adsorbed on solid material).	VII
Tungsten(74)	W-181	IV
	W-185	IV
	W-187	IV
Uranium(92)	U-230	II
	U-232	I
	U-233(F)	II
	U-234	II
	U-235(F)	III
	U-236	II
	U-238	III
	U-Natural	III
	U-Enriched(F)	III
	U-Depleted	III
Vanadium(23)	V-48	IV
	V-49	III

1/ Atomic number shown in parentheses.

2/ Atomic mass number shown after the element symbol.

m Metastable state.

(F) Fissile material.

Element[1/]	Radionuclide[2/]	Group
Xenon(54)	Xe-125	III
	Xe-131m	III
	Xe-131m (uncompressed).[3/]	V
	Xe-133	III
	Xe-133 (uncompressed).[3/]	VI
	Xe-135	II
	Xe-135 (uncompressed).[3/]	V
Ytterbium(70)	Yb-175	IV
Yttrium(39)	Y-88	III
	Y-90	IV
	Y-91m	III
	Y-91	III
	Y-92	IV
	Y-93	IV
Zinc(30)	Zn-65	IV
	Zn-69m	IV
	Zn-69	IV
Zirconium(40)	Zr-93	IV
	Zr-95	III
	Zr-97	IV

1/ Atomic number shown in parentheses.

2/ Atomic mass number shown after the element symbol.

3/ Uncompressed means at a pressure not exceeding one atmosphere.

m Metastable state.

PART A

APPENDIX B
TESTS FOR SPECIAL FORM LICENSED MATERIAL

1. *Free Drop* - A free drop through a distance of 30 feet onto a flat essentially unyielding horizontal surface, striking the surface in such a position as to suffer maximum damage.

2. *Percussion* - Impact of the flat circular end of a 1 inch diameter steel rod weighing 3 pounds, dropped through a distance of 40 inches. The capsule or material shall be placed on a sheet of lead, of hardness number 3.5 to 4.5 on the Vickers scale, and not more than 1 inch thick, supported by a smooth essentially unyielding surface.

3. *Heating* - Heating in air to a temperature of 1,475° F. and remaining at that temperature for a period of 10 minutes.

4. *Immersion* - Immersion for 24 hours in water at room temperature. The water shall be at pH 6-pH 8, with a maximum conductivity of 10 micromhos per centimeter.

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PART C

LICENSING OF RADIOACTIVE MATERIAL

Sec. C.1 Purpose and Scope

(a) This part provides for the licensing of radioactive material. No person shall receive, possess, use, transfer, own or acquire radioactive material except as authorized in a specific or general license issued pursuant to this part or as otherwise provided in this part.*

(b) In addition to the requirements of this part, all licensees are subject to the requirements of Part A, Part D and Part J of these regulations. Licensees engaged in industrial radiographic operations are subject to the requirements of Part E and licensees using sealed sources in the healing arts are subject to the requirements of Part G of these regulations.

Exemptions

Sec. C.3 Source Material

(a) Any person is exempt from this part to the extent that such person receives, possesses, uses, owns, or transfers source material in any chemical mixture, compound, solution, or alloy in which the source material is by weight less than 1/20 of 1 percent (0.05 percent) of the mixture, compound, solution, or alloy.

(b) Any person is exempt from this part to the extent that such person receives, possesses, uses, or transfers unrefined and unprocessed ore containing source material; provided that, except as authorized in a specific license, such person shall not refine or process such ore.

(c) Any person is exempt from this part to the extent that such person receives, possesses, uses, or transfers:

(1) Any quantities of thorium contained in

(i) incandescent gas mantles,

(ii) vacuum tubes,

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* If State law does not require the licensing of ownership of radioactive material, the word "own" may be deleted from:
A.1, C.1(a), C.4(a)(1), C.4(b)(1), C.4(c)(1), C.4(c)(2), C.4(c)(3)(i), C.4(c)(4), C.22(a), C.22(d)(1), C.22(d)(2), C.22(e)(1), C.22(e)(2), C.22(e)(4) — ownership —, C.22(g)(1), C.22(g)(2), C.22(g)(4), C.22(j)(1), C.22(j)(2), C.22(k)(1), C.27(a)(1), (2), and (3) — ownership —, and C.28(a) — owned —. Also, the general license to receive title to source material (C.21(c)) and the general license for ownership of radioactive material (C.22(f)) may be deleted.

(iii) welding rods,

(iv) electric lamps for illuminating purposes provided that each lamp does not contain more than 50 milligrams of thorium,

(v) germicidal lamps, sunlamps, and lamps for outdoor or industrial lighting provided that each lamp does not contain more than 2 grams of thorium, or

(vi) rare earth metals and compounds, mixtures, and products containing not more than 0.25 percent by weight thorium, uranium, or any combination of these;

(2) Source material contained in the following products:

(i) glazed ceramic tableware, provided that the glaze contains not more than 20 percent by weight source material,

(ii) glassware, glass enamel and glass enamel frit containing not more than 10 percent by weight source material, but not including commercially manufactured glass brick, pane glass, ceramic tile or other glass, glass enamel or ceramic used in construction, or

(iii) piezoelectric ceramic containing not more than 2 percent by weight source material;

(3) Photographic film, negatives, and prints containing uranium or thorium;

(4) Any finished product or part fabricated of, or containing, tungsten-thorium or magnesium-thorium alloys, provided that the thorium content of the alloy does not exceed 4 percent by weight and that the exemption contained in this subparagraph shall not be deemed to authorize the chemical, physical, or metallurgical treatment or processing of any such product or part;

(5) Uranium contained in counterweights installed in aircraft, rockets, projectiles, and missiles, or stored or handled in connection with installation or removal of such counterweights, provided that

(i) the counterweights are manufactured in accordance with a specific license issued by the Agency, the U.S. Atomic Energy Commission, or any Agreement State authorizing distribution by the licensee pursuant to this subparagraph or equivalent regulations of the AEC or any Agreement State,

(ii) each counterweight has been impressed with the following legend clearly legible through any plating or other covering: "DEPLETED URANIUM",1/

(iii) each counterweight is durably and legibly labeled or marked with the identification of the manufacturer and the statement: "UNAUTHORIZED ALTERATIONS PROHIBITED",1/ and

(iv) the exemption contained in this subparagraph shall not be deemed to authorize the chemical, physical, or metallurgical treatment or processing of any such counterweights other than repair or restoration of any plating or other covering;

(6) Uranium used as shielding constituting part of any shipping container which is conspicuously and legibly impressed with the legend "CAUTION - RADIOACTIVE SHIELDING - URANIUM" and which meets the specifications for containers for radioactive material prescribed in Section 178.250, Specification 55, Part 178, of the regulations published by the U.S. Department of Transportation (49 CFR 178.250);

(7) Thorium contained in finished optical lenses, provided that each lens does not contain more than 30 percent by weight of thorium, and that the exemption contained in this subparagraph shall not be deemed to authorize either

(i) the shaping, grinding, or polishing of such lens or manufacturing processes other than the assembly of such lens into optical systems and devices without any alteration of the lens, or

(ii) the receipt, possession, use, or transfer of thorium contained in contact lenses, or in spectacles, or in eyepieces in binoculars or other optical instruments;

(8) Uranium contained in detector heads for use in fire detection units, provided that each detector head contains not more than 0.005 microcuries of uranium; or

(9) Thorium contained in any finished aircraft engine part containing nickel-thoria alloy, provided that

(i) the thorium is dispersed in the nickel-thoria alloy in the form of finely divided thoria (thorium dioxide), and

1/ The requirements specified in C.3(c)(5)(ii) and (iii) need not be met by counterweights manufactured prior to December 31, 1969; provided, that such counterweights are impressed with the legend, "CAUTION - RADIOACTIVE MATERIAL - URANIUM", as previously required by the regulations.

(ii) the thorium content in the nickel-thoria alloy does not exceed 4 percent by weight.

(d) The exemptions in C.3(c) do not authorize the manufacture of any of the products described.

Sec. C.4 Radioactive Material Other Than Source Material

(a) Exempt Concentrations

(1) Except as provided in C.4(a)(2), any person is exempt from this part to the extent that such person receives, possesses, uses, transfers, owns or acquires products or materials containing radioactive material in concentrations not in excess of those listed in Schedule A.

(2) No person may introduce radioactive material into a product or material knowing or having reason to believe that it will be transferred to persons exempt under C.4(a)(1) or equivalent regulations of the U.S. Atomic Energy Commission or any Agreement State, except in accordance with a specific license issued pursuant to C.28(a) or the general license provided in C.90.

(b) Exempt Quantities

(1) Except as provided in C.4(b)(3) and (4), any person is exempt from these regulations to the extent that such person receives, possesses, uses, transfers, owns, or acquires radioactive material in individual quantities each of which does not exceed the applicable quantity set forth in Schedule B of this part.

*(2) Any person who possesses radioactive material received or acquired under the general license formerly provided in C.22(b) is exempt from the requirements for a license set forth in this part to the extent that such person possesses, uses, transfers or owns such radioactive material.

(3) This paragraph (C.4(b)) does not authorize the production, packaging or repackaging of radioactive material for purposes of commercial distribution, or the incorporation of radioactive material into products intended for commercial distribution.

(4) No person may, for purposes of commercial distribution, transfer radioactive material in the individual quantities set forth in Schedule B, knowing or having reason to believe that such quantities of radioactive material will be transferred to persons exempt under C.4(b) or equivalent regulations of the U.S. Atomic

* For use by Agreement States only. Regulations formerly contained a General License for small quantities of radioactive material.

Energy Commission or any Agreement State, except in accordance with a specific license issued by the U.S. Atomic Energy Commission pursuant to Section 32.18 of 10 CFR Part 32 or by the Agency pursuant to C.28(b) which license states that the radioactive material may be transferred by the licensee to persons exempt under C.4(b) or the equivalent regulations of the U.S. Atomic Energy Commission or any Agreement State.

(c) Exempt Items

(1) Certain items containing radioactive material. Except for persons who apply radioactive material to, or persons who incorporate radioactive material into the following products, any person is exempt from these regulations to the extent that he receives, possesses, uses, transfers, owns, or acquires the following products:2/

(i) Timepieces or hands or dials containing not more than the following specified quantities of byproduct material and not exceeding the following specified levels of radiation:

(a) 25 millicuries of tritium per timepiece,
(b) 5 millicuries of tritium per hand,
(c) 15 millicuries of tritium per dial (bezels when used shall be considered as part of the dial),
(d) 100 microcuries of promethium-147 per watch or 200 microcuries of promethium-147 per any other timepiece,
(e) 20 microcuries of promethium-147 per watch hand or 40 microcuries of promethium-147 per other timepiece hand,
(f) 60 microcuries of promethium-147 per watch dial or 120 microcuries of promethium-147 per other timepiece dial (bezels when used shall be considered as part of the dial),
(g) The levels of radiation from hands and dials containing promethium-147 will not exceed, when measured through 50 milligrams per square centimeter of absorber:

(1) For wrist watches, 0.1 millirad per hour at 10 centimeters from any surface,

(2) For pocket watches, 0.1 millirad per hour at 1 centimeter from any surface,

2/ Authority to transfer possession or control by the manufacturer, processor, or producer of any equipment, device, commodity, or other product containing source material or byproduct material whose subsequent possession, use, transfer, and disposal by all other persons are exempted from regulatory requirements may be obtained only from the U.S. Atomic Energy Commission, Washington, D.C. 20545.

(3) For any other timepiece, 0.2 millirad per hour at 10 centimeters from any surface.

(ii) Lock illuminators containing not more than 15 millicuries of tritium or not more than 2 millicuries of promethium-147 installed in automobile locks. The levels of radiation from each lock illuminator containing promethium-147 will not exceed 1 millirad per hour at 1 centimeter from any surface when measured through 50 milligrams per square centimeter of absorber.

(iii) Balances of precision containing not more than 1 millicurie of tritium per balance or not more than 0.5 millicurie of tritium per balance part.

(iv) Automobile shift quadrants containing not more than 25 millicuries of tritium.

(v) Marine compasses containing not more than 750 millicuries of tritium gas and other marine navigational instruments containing not more than 250 millicuries of tritium gas.

(vi) Thermostat dials and pointers containing not more than 25 millicuries of tritium per thermostat.

(vii) Electron tubes; provided, that each tube does not contain more than one of the following specified quantities of byproduct material:

(a) 150 millicuries of tritium per microwave receiver protector tube or 10 millicuries of tritium per any other electron tube;
(b) 1 microcurie of cobalt-60;
(c) 5 microcuries of nickel-63;
(d) 30 microcuries of krypton-85;
(e) 5 microcuries of cesium-137;
(f) 30 microcuries of promethium-147;

And provided further, that the levels of radiation from each electron tube containing byproduct material do not exceed 1 millirad per hour at 1 centimeter from any surface when measured through 7 milligrams per square centimeter of absorber.3/

(viii) Ionizing radiation measuring instruments containing, for purposes of internal calibration or standardization, a

3/ For purposes of this subdivision, "electron tubes" include spark gap tubes, power tubes, gas tubes including glow lamps, receiving tubes, microwave tubes, indicator tubes, pick-up tubes, radiation detection tubes, and any other completely sealed tube that is designed to conduct or control electrical currents.

source of byproduct material not exceeding the applicable quantity set forth in Schedule B of this part.

(2) Self-luminous products containing tritium, krypton-85, or promethium-147. Except for persons who manufacture, process, or produce self-luminous products containing tritium, krypton-85, or promethium-147, any person is exempt from these regulations to the extent that such person receives, possesses, uses, transfers, owns, or acquires tritium, krypton-85 or promethium-147 in self-luminous products manufactured, processed, produced, imported, or transferred in accordance with a specific license issued by the U.S. Atomic Energy Commission pursuant to Section 32.22 of 10 CFR Part 32, which license authorizes the transfer of the product to persons who are exempt from regulatory requirements. The exemption in C.4(c)(2) does not apply to tritium, krypton-85, or promethium-147 used in products for frivolous purposes or in toys or adornments.

(3) Gas and aerosol detectors containing radioactive material

(i) Except for persons who manufacture, process, or produce gas and aerosol detectors containing radioactive material, any person is exempt from these regulations to the extent that such person receives, possesses, uses, transfers, owns, or acquires radioactive material in gas and aerosol detectors designed to protect life or property from fires and airborne hazards provided that detectors containing radioactive material shall have been manufactured, imported, or transferred in accordance with a specific license issued by the U.S. Atomic Energy Commission2/ or an Agreement State, pursuant to Section 32.26 of 10 CFR Part 32, or equivalent, which authorizes the transfer of the detectors to persons who are exempt from regulatory requirements.

(ii) Gas and aerosol detectors previously manufactured and distributed to general licensees in accordance with a specific license issued by an Agreement State shall be considered exempt under C.4(c)(3)(i), provided that the device is labeled in accordance with the specific license authorizing distribution of the general licensed device, and provided further that they meet the requirements of C.28(c).

2/ Authority to transfer possession or control by the manufacturer, processor, or producer of any equipment, device, commodity, or other product containing source material or byproduct material whose subsequent possession, use, transfer, and disposal by all other persons are exempted from regulatory requirements may be obtained only from the U.S. Atomic Energy Commission, Washington, D.C. 20545.

(4) Resins containing scandium-46 and designed for sand consolidation in oil wells. Any person is exempt from these regulations to the extent that such person receives, possesses, uses, transfers, owns or acquires synthetic plastic resins containing scandium-46 which are designed for sand consolidation in oil wells. Such resins shall have been manufactured or imported in accordance with a specific license issued by the U.S. Atomic Energy Commission, or shall have been manufactured in accordance with the specifications contained in a specific license issued by the Agency or any Agreement State to the manufacturer of such resins pursuant to licensing requirements equivalent to those in Sections 32.16 and 32.17 of 10 CFR Part 32 of the regulations of the Atomic Energy Commission. This exemption does not authorize the manufacture of any resins containing scandium-46.

Licenses

Sec. C.20 Types of Licenses. Licenses for radioactive materials are of two types: general and specific.

(a) General licenses provided in this part are effective without the filing of applications with the Agency or the issuance of licensing documents to the particular persons, although the filing of a certificate with the Agency may be required by the particular general license. The general licensee is subject to all other applicable portions of these regulations and any limitations of the general license.

(b) Specific licenses require the submission of an application to the Agency and the issuance of a licensing document by the Agency. The licensee is subject to all applicable portions of these regulations as well as any limitations specified in the licensing document.

General Licenses

Sec. C.21 General Licenses - Source Material

(a) A general license is hereby issued authorizing use and transfer of not more than fifteen (15) pounds of source material at any one time by persons in the following categories:

(1) Pharmacists using the source material solely for the compounding of medicinals;

(2) Physicians using the source material for medicinal purposes;

(3) Persons receiving possession of source material from pharmacists and physicians in the form of medicinals or drugs;

(4) Commercial and industrial firms, and research, educational, and medical institutions for research, development, educational, or commercial purposes;

And provided, that no such person shall, pursuant to this general license, receive more than a total of 150 pounds of source material in any one calendar year.

(b) Persons who receive, possess, use, or transfer source material pursuant to the general license issued in C.21(a) are exempt from the provisions of Part D and Part J of these regulations to the extent that such receipt, possession, use, or transfer is within the terms of such general license; provided, however, that this exemption shall not be deemed to apply to any such person who is also in possession of source material under a specific license issued pursuant to this part.

(c) A general license is hereby issued authorizing the receipt of title to source material without regard to quantity. This general license does not authorize any person to receive, possess, use, or transfer source material.

Sec. C.22 General Licenses* - Radioactive Material other than Source Material

(a) Certain Devices and Equipment. A general license is hereby issued to transfer, receive, acquire, own, possess, and use radioactive material incorporated in the following devices or equipment which have been manufactured, tested and labeled by the manufacturer in accordance with a specific license issued to the manufacturer pursuant to C.28(f) or its equivalent by the Agency, the U.S. Atomic Energy Commission, or any Agreement State, and authorizing distribution under this general license or its equivalent. This general license is subject to the provisions of A.4 through A.9, C.4(a)(2), C.31, C.40, C.50, C.100, Part D,4/ and Part J of these regulations.

(1) Static Elimination Device. Devices designed for use as static eliminators which contain, as a sealed source or sources, radioactive material consisting of a total of not more than five hundred (500) microcuries of polonium-210 per device.

(2) Ion Generating Tube. Devices designed for ionization of air which contain, as a sealed source or sources, radioactive material consisting of a total of not more than five undred (500) microcuries of polonium-210 per device or a total of not more than fifty (50) millicuries of hydrogen-3 (tritium) per device.

(b) Reserved

* Note: Different general licenses are issued in this section, each of which has its own specific conditions and requirements.

4/ Attention is directed particularly to the provisions of Part D of these regulations which relate to the labeling of containers.

(c) **Reserved**

(d) Certain Measuring, Gauging or Controlling Devices

(1) A general license is hereby issued to own, receive, acquire, possess, and use radioactive material when contained in devices designed and manufactured for the purpose of detecting, measuring, gauging, or controlling thickness, density, level, interface location, radiation leakage, or qualitative or quantitative chemical composition, or for producing light or an ionized atmosphere, when such devices are manufactured in accordance with the specifications contained in a specific license issued to the supplier pursuant to C.28(d) or its equivalent by the Agency, the U.S. Atomic Energy Commission, or any Agreement State, and authorizing distribution under this general license or its equivalent; provided that:

(i) Such devices are labeled in accordance with the provisions of the specific license which authorizes the distribution of the devices.5/

(ii) Such devices bear a label containing the following or a substantially similar statement which contains the information called for in the following statement:

> The receipt, possession, use, and transfer of this device, Model6/ _____, Serial No.6/ _____, are subject to a general license or the equivalent and the regulations of the U.S. AEC or of a State with which the AEC has entered into an agreement for the exercise of regulatory authority. Removal of this label is prohibited.
>
> CAUTION - RADIOACTIVE MATERIAL
>
> _____
> Name of supplier6/

(iii) Such devices are installed on the premises of the general licensee by a person authorized to install such devices under a specific license issued to the installer by the Agency, the U.S. Atomic Energy Commission or any Agreement State, if a label affixed to the device at the time of receipt states that installation by a specific licensee is required. The requirement of this paragraph does not apply while devices are held in storage in the original shipping container pending installation by a specific licensee.

5/ Regulations under the Federal Food, Drug, and Cosmetic Act authorizing the use of radioactive control devices in food production require certain additional labeling thereon which is found in Section 121.3001 of the Code of Federal Regulations, Title 21.

6/ The model, serial number, and name of supplier may be omitted from this label provided they are elsewhere specified in labeling affixed to the device.

(2) Persons who own, receive, acquire, possess, or use a device pursuant to the general license contained in C.22(d)(1):

(i) shall not transfer, abandon, or dispose of the device except by transfer to a person duly authorized to receive such device by a specific license or equivalent licensing document issued by the Agency, the U.S. Atomic Energy Commission, or any Agreement State, and shall furnish to the Agency, within 30 days after any transfer, a report containing the name of the manufacturer of the device, the type of device, the manufacturer's serial number of the device, and the name and address of the person receiving the device;

(ii) shall assure that all labels affixed to the device at the time of receipt and bearing the statement, "Removal of this label is prohibited" are maintained thereon and shall comply with all instructions contained in such labels;

(iii) shall have the device tested for leakage of radioactive material and proper operation of the on-off mechanism and indicator, if any, at the time of installation of the device or replacement of radioactive material on the premises of the general licensee and thereafter at no longer than six-month intervals or at such longer intervals not to exceed 3 years as are specified in the label required by C.22(d)(1)(i); provided, that devices containing only krypton need not be tested for leakage, and devices containing only tritium need not be tested for any purpose;

(iv) shall have the tests required by C.22(d)(2)(iii) and all other services involving the radioactive material, its shielding and containment, performed by the supplier or other person duly authorized by a specific license issued by the Agency, the U.S. Atomic Energy Commission, or any Agreement State, to manufacture, install, or service such devices;

(v) shall, within 30 days after the occurrence of a failure of or damage to the shielding of the radioactive material or the on-off mechanism or indicator or upon the detection of 0.005 microcurie or more of removable radioactive material, furnish to the Agency a report containing the name of the manufacturer of the device, the type of device, the manufacturer's serial number of the device and a brief description of the event and the remedial action taken; and shall maintain records of all tests performed on the devices as required under this section, including the dates and results of the tests and the names of the persons conducting the tests;

(vi) shall, upon the occurrence of a failure of or damage to, or any indication of a possible failure of or damage to, the shielding or containment of the radioactive material or the on-off mechanism or indicator, immediately suspend operation of the device until it has been repaired by a person holding a specific license issued by the Agency, the U.S. Atomic Energy Commission, or any Agreement State, to manufacture, install, or service such devices, or disposed of by transfer to a person holding a specific license issued by the Agency, the U.S. Atomic Energy Commission, or any Agreement State to receive the radioactive material contained in the device;

(vii) shall be exempt from the requirements of Part D and Part J of these regulations except that such persons shall comply with the provisions of D.402 and D.403; and

(iii) shall within ten (10) days after the receipt of the device notify the Agency of the type of device and the name and address of the supplier.

(3) The general license provided in C.22(d) is subject to the provisions of A.4 through A.9, C.31, C.40, C.50, and C.100.

(e) Luminous Safety Devices for Aircraft

(1) A general license is hereby issued to own, receive, acquire, possess, and use tritium or promethium-147 contained in luminous safety devices for use in aircraft, provided:

(i) each device contains not more than 10 curies of tritium or 300 millicuries of promethium-147; and

(ii) each device has been manufactured, assembled or imported in accordance with a specific license issued by the U.S. Atomic Energy Commission, or each device has been manufactured or assembled in accordance with the specifications contained in a specific license issued by the Agency or any Agreement State to the manufacturer or assembler of such device pursuant to licensing requirements equivalent to those in Section 32.53 of 10 CFR Part 32 of the regulations of the U.S. Atomic Energy Commission.

(2) Persons who own, receive, acquire, possess, or use luminous safety devices pursuant to the general license in C.22(e)(1) are exempt from the requirements of Part D and Part J except that they shall comply with the provisions of D.402 and D.403.

(3) This general license does not authorize the manufacture, assembly, or repair of luminous safety devices containing tritium or promethium-147.

(4) This general license does not authorize the ownership, receipt, acquisition, possession or use of promethium-147 contained in instrument dials.

(5) This general license is subject to the provisions of A.4 through A.9, C.31, C.40, C.50, and C.100.

(f) Ownership of Radioactive Material. A general license is hereby issued to own radioactive material without regard to quantity. Notwithstanding any other provisions of this part, this general license does not authorize the manufacture, production, transfer, receipt, possession or use of radioactive material.

(g) Calibration and Reference Sources

(1) A general license is hereby issued to those persons listed below to own, receive, acquire, possess, use, and transfer, in accordance with the provisions of C.22(g)(3) and (4), americium-241 in the form of calibration or reference sources:

(i) Any person who holds a specific license issued by the Agency which authorizes him to receive, possess, use, and transfer radioactive material; and

(ii) Any person who holds a specific license issued by the U.S. Atomic Energy Commission which authorizes him to receive, possess, use, and transfer special nuclear material.

(2) A general license is hereby issued to own, receive, possess, use, and transfer plutonium in the form of calibration or reference sources in accordance with the provisions of C.22(g)(3) and (4) to any person who holds a specific license issued by the Agency which authorizes him to receive, possess, use, and transfer radioactive material.

(3) The general licenses in C.22(g)(1) and (2) apply only to calibration or reference sources which have been manufactured in accordance with the specifications contained in a specific license issued to the manufacturer or importer of the sources by the U.S. Atomic Energy Commission pursuant to Section 32.57 of 10 CFR Part 32 or Section 70.39 of 10 CFR Part 70 or which have been manufactured in accordance with the specifications contained in a specific license issued to the manufacturer by the Agency or any Agreement State pursuant to licensing requirements equivalent to those contained in Section 32.57 of 10 CFR Part 32 or Section 70.39 of 10 CFR Part 70 of the regulations of the U.S. Atomic Energy Commission.

(4) The general licenses provided in C.22(g)(1) and (2) are subject to the provisions of A.4 through A.9, C.31, C.40, C.50, C.100, Part D, and Part J of these regulations. In addition, persons who own, receive, acquire, possess, use, or transfer one or more calibration or reference sources pursuant to these general licenses:

(i) shall not possess at any one time, at any one location of storage or use, more than 5 microcuries of americium-241 and 5 microcuries of plutonium in such sources;

(ii) shall not receive, possess, use, or transfer such source unless the source, or the storage container, bears a label which includes the following statement or a substantially similar statement which contains the information called for in the following statement:

> The receipt, possession, use and transfer of this source, Model _____, Serial No. _____, are subject to a general license and the regulations of the U.S. Atomic Energy Commission or of a State with which the Commission has entered into an agreement for the exercise of regulatory authority. Do not remove this label.
>
> CAUTION - RADIOACTIVE MATERIAL - THIS SOURCE CONTAINS (AMERICIUM-241). (PLUTONIUM)7/DO NOT TOUCH RADIOACTIVE PORTION OF THIS SOURCE.
>
> _____
> Name of manufacturer or importer

(iii) shall not transfer, abandon, or dispose of such source except by transfer to a person authorized by a license from the Agency, the U.S. Atomic Energy Commission, or an Agreement State to receive the source;

(iv) shall store such source, except when the source is being used, in a closed container adequately designed and constructed to contain americium-241 or plutonium which might otherwise escape during storage; and

(v) shall not use such source for any purpose other than the calibration of radiation detectors or the standardization of other sources.

(5) These general licenses do not authorize the manufacture of calibration or reference sources containing americium-241 or plutonium.

7/ Showing only the name of the appropriate material

(h) Medical Diagnostic Uses 8/9/

(1) A general license is hereby issued to any physician to receive, possess, transfer, or use radioactive material set forth below for the stated diagnostic uses, provided, however, that the use is in accordance with the provision of C.22(h)(2), (3), and (4), the radioactive material is in the form of capsules, disposable syringes, or other prepackaged individual doses; and the radioactive material has been manufactured in accordance with a specific license issued pursuant to C.28(g) by the Agency, the U.S. Atomic Energy Commission, or any Agreement State authorizing distribution under the general license granted in this paragraph or its equivalent:

(i) Iodine-131 as sodium iodide ($Na^{131}I$) for measurement of thyroid uptake;

(ii) Iodine-131 as iodinated human serum albumin (IHSA) for determinations of blood and blood plasma volume;

(iii) Iodine-125 as iodinated human serum albumin (IHSA) for determinations of blood and blood plasma volume;

(iv) Cobalt-57 for the measurement of intestinal absorption of cyanocobalamin;

(v) Cobalt-58 for the measurement of intestinal absorption of cyanocobalamin;

(vi) Cobalt-60 for the measurement of intestinal absorption of cyanocobalamin; and

(vii) Chromium-51 as sodium radiochromate for determination of red blood cell volumes and studies of red blood cell survival time.

8/ C.28(g) requires manufacturers of radiopharmaceuticals which are under the general license in this paragraph to affix a certain identifying label to the container or in the leaflet or brochure which accompanies the radiopharmaceutical.

9/ The New Drug provisions of the Federal Food, Drug, and Cosmetic Act also govern the availability and use of any specific diagnostic drugs in interstate commerce.

(2) No physician shall receive, possess, use, or transfer radioactive material pursuant to the general license established by C.22(h)(1) until he has filed Agency Form "U," "Certificate - Medical Use of Radioactive Material Under General License" with the Agency and received from the Agency a validated copy of the Agency Form "U" with certification number assigned. The generally licensed physician shall furnish on Agency Form "U" the following information and such other information as may be required by that form:

(i) Name and address of the generally licensed physician;

(ii) A statement that the generally licensed physician is a duly licensed physician [authorized to dispense drugs] in the practice of medicine in this State; and

(iii) A statement that the generally licensed physician has appropriate radiation measuring instruments to carry out the diagnostic procedures for which he proposes to use radioactive material under the general license of C.22(h) and that he is competent in the use of such instruments.

(3) A physician who receives, possesses, or uses a pharmaceutical containing radioactive material pursuant to the general license established by C.22(h)(1) shall comply with the following:

(i) He shall not possess at any one time, pursuant to the general license in C.22(h)(1) more than

(a) 200 microcuries of iodine-131,
(b) 200 microcuries of iodine-125,
(c) 5 microcuries of cobalt-57,
(d) 5 microcuries of cobalt-58,
(e) 5 microcuries of cobalt-60, and
(f) 200 microcuries of chromium-51;

(ii) He shall store the pharmaceutical until administered in the original shipping container, or a container providing equivalent radiation protection;

(iii) He shall use the pharmaceutical only for the uses authorized by C.22(h)(1);

(iv) He shall not administer the pharmaceutical to a woman with confirmed pregnancy or to a person under 18 years of age; and

(v) He shall not transfer the radioactive material to a person who is not authorized to receive it pursuant to a license issued by the Agency, the U.S. Atomic Energy Commission or any Agreement State, or in any manner other than in the unopened,

labeled shipping container as received from the supplier, except by administering it to a patient.

(4) The generally licensed physician possessing or using radioactive material under the general license of C.22(h)(1) shall report in duplicate to the Agency, any changes in the information furnished by him in the "Certificate - Medical Use of Radioactive Material Under General License," Agency Form "U." The report shall be submitted within 30 days after the effective date of such change.

(5) Any person using radioactive material pursuant to the general license of C.22(h)(1) is exempt from the requirements of Part D and Part J of these regulations with respect to the radioactive material covered by the general license.

(i) General License for Use of Radioactive Material for Certain In Vitro Clinical or Laboratory Testing 9/

(1) A general license is hereby issued to any physician, clinical laboratory or hospital to receive, acquire, possess, transfer or use, for any of the following stated tests, in accordance with the provisions of C.22(i)(2), (3), (4), (5), and (6), the following radioactive materials in prepackaged units:

(i) Iodine-125, in units not exceeding 10 microcuries each for use in in vitro clinical or laboratory tests not involving internal or external administration of radioactive material, or the radiation therefrom, to human beings or animals.

(ii) Iodine-131, in units not exceeding 10 microcuries each for use in in vitro clinical or laboratory tests not involving internal or external administration of radioactive material, or the radiation therefrom, to human beings or animals.

(iii) Carbon-14, in units not exceeding 10 microcuries each for use in in vitro clinical or laboratory tests not involving internal or external administration of radioactive material, or the radiation therefrom, to human beings or animals.

(iv) Hydrogen-3 (tritium), in units not exceeding 50 microcuries each for use in in vitro clinical or laboratory tests not involving internal or external administration of radioactive material, or the radiation therefrom, to human beings or animals.

9/ The New Drug provisions of the Federal Food, Drug, and Cosmetic Act also govern the availability and use of any specific diagnostic drugs in interstate commerce.

(v) Iron-59, in units not exceeding 20 microcuries each for use in in vitro clinical or laboratory tests not involving internal or external administration of radioactive material, or the radiation therefrom, to human beings or animals.

(2) No person shall receive, acquire, possess, use or transfer radioactive material pursuant to the general license established by C.22(i)(1) until he has filed Agency Form "V," "Certificate - In Vitro Testing with Radioactive Material Under General License", with the Agency and received from the Agency a validated copy of Agency Form "V" with certification number assigned. The physician, clinical laboratory or hospital shall furnish on Agency Form "V" the following information and such other information as may be required by that form:

(i) Name and address of the physician, clinical laboratory or hospital;

(ii) The location of use; and

(iii) A statement that the physician, clinical laboratory or hospital has appropriate radiation measuring instruments to carry out in vitro clinical or laboratory tests with radioactive material as authorized under the general license in C.22(i)(1) and that such tests will be performed only by personnel competent in the use of such instruments and in the handling of the radioactive material.

(3) A person who receives, acquires, possesses or uses radioactive material pursuant to the general license established by C.22(i)(1) shall comply with the following:

(i) The general licensee shall not possess at any one time, pursuant to the general license in C.22(i)(1) at any one location of storage or use a total amount of iodine-125, iodine-131, and/or iron-59 in excess of 200 microcuries.

(ii) The general licensee shall store the radioactive material, until used, in the original shipping container or in a container providing equivalent radiation protection.

(iii) The general licensee shall use the radioactive material only for the uses authorized by C.22(i)(1).

(iv) The general licensee shall not transfer the radioactive material to a person who is not authorized to receive it pursuant to a license issued by the Agency, the U.S. Atomic Energy Commission, or any Agreement State, nor transfer the radioactive material in any manner other than in the unopened, labeled shipping container as received from the supplier.

(4) The general licensee shall not receive, acquire, possess, or use radioactive material pursuant to C.22(i)(1):

(i) Except as prepackaged units which are labeled in accordance with the provisions of a specific license issued by the U.S. Atomic Energy Commission, or any Agreement State which authorizes the manufacture and distribution of iodine-125, iodine-131, carbon-14, hydrogen-3 (tritium), or iron-59 for distribution to persons generally licensed under C.22(i) or its equivalent, and

(ii) unless the following statement, or a substantially similar statement which contains the information called for in the following statement, appears on a label affixed to each prepackaged unit or appears in a leaflet or brochure which accompanies the package:

> This radioactive material may be received, acquired, possessed, and used only by physicians, clinical laboratories or hospitals and only for in vitro clinical or laboratory tests not involving internal or external administration of the material, or the radiation therefrom, to human beings or animals. Its receipt, acquisition, possession, use, and transfer are subject to the regulations and a general license of the United States Atomic Energy Commission or of a State with which the Commission has entered into an agreement for the exercise of regulatory authority.

_____
Name of manufacturer

(5) The physician, clinical laboratory or hospital possessing or using radioactive material under the general license of C.22(i)(1) shall report in writing to the Agency, any changes in the information furnished by him in the "Certificate - In Vitro Testing with Radioactive Material Under General License", Agency Form "V." The report shall be furnished within 30 days after the effective date of such change.

(6) Any person using radioactive material pursuant to the general license of C.22(i)(1) is exempt from the requirements of Part D and Part J of these regulations with respect to radioactive material covered by that general license.

(j) Ice Detection Devices

(1) A general license is hereby issued to own, receive, acquire, possess, use, and transfer strontium-90 contained in ice detection devices, provided each device contains not more than 50 microcuries of strontium-90 and each device has been manufactured or imported in accordance with a specific license issued by the U.S. Atomic Energy Commission or each device has been manufactured in accordance with the specifications contained in a specific license issued by the Agency or any Agreement State to the manufacturer of such device pursuant to licensing requirements equivalent to those in Section 32.61 of 10 CFR Part 32 of the regulations of the Atomic Energy Commission.

(2) Persons who own, receive, acquire, possess, use, or transfer strontium-90 contained in ice detection devices pursuant to the general license in C.22(j)(1),

(i) shall, upon occurrence of visually observable damage, such as a bend or crack or discoloration from overheating to the device, discontinue use of the device until it has been inspected, tested for leakage and repaired by a person holding a specific license from the U.S. Atomic Energy Commission or an Agreement State to manufacture or service such devices; or shall dispose of the device pursuant to the provisions of D.301;

(ii) shall assure that all labels affixed to the device at the time of receipt, and which bear a statement which prohibits removal of the labels, are maintained thereon; and

(iii) are exempt from the requirements of Part D and Part J except that such persons shall comply with the provisions of D.301, D.402, and D.403.

(3) This general license does not authorize the manufacture, assembly, disassembly or repair of strontium-90 in ice detection devices.

(4) This general license is subject to the provisions of A.4 through A.9, C.31, C.40, C.50, and C.100.

(k) General Licensed Quantities for Radium-226

(1) A general license is hereby issued to commercial and industrial firms, and to research, educational, medical and governmental institutions to own, receive, acquire, possess, use, and transfer radium-226 in units not exceeding 0.1 microcurie each in accordance with the provisions of C.22(k)(2), (3) and (4).

(2) No such person shall receive, acquire, possess, use or transfer radium-226 pursuant to the general license established by C.22(k)(1) until he has filed Agency Form "W," "Certificate - Radium-226 Under General License," with the Agency and has received from the Agency a validated copy of Agency Form "W" with certification number assigned. The person identified in C.22(k)(1) shall furnish in Agency Form "W" the following information and such other information as may be required by that form:

(i) Name and address of the person identified in C.22(k)(1),

(ii) The location of use, and

(iii) A statement that such person has appropriate radiation measuring instruments to carry out an adequate program of radiation protection and that the use of authorized material will be performed only by personnel competent in the use of such instruments and in the handling of the radioactive material.

(3) A person who receives, acquires, possesses or uses radium-226 pursuant to the general license established by C.22(k)(1) shall comply with the following:

(i) The general licensee shall not possess at any one time, pursuant to the general license in C.22(k)(1), at any one location of storage or use, a total amount of radium-226 in excess of 5 microcuries.

(ii) The general licensee shall store the radium-226, until used, in the original shipping container or in a container providing equivalent radiation protection.

(iii) The general licensee shall not transfer the radioactive material to a person who is not authorized to receive it pursuant to a license issued by the Agency, or any Agreement State, nor transfer the radioactive material in any manner other than in the unopened, labeled shipping container as received from the shipper.

(iv) The person possessing or using the radioactive material under the general license of C.22(k)(1) shall report in writing to the Agency, any changes in the information furnished by him in the "Certificate - Radium-226 Under General License," Agency Form "W." The report shall be furnished within 30 days after the effective date of such change.

(v) Any person using radium-226 pursuant to the general license of C.22(k)(1) is exempt from the requirements of Part D and Part J of these regulations with respect to the radioactive material covered by the general license.

(4) This general license does not authorize the manufacture, commercial distribution, or human use of radium-226.

Sec. C.23 Intrastate Transportation of Radioactive Material

(a) A general license is hereby issued to any common or contract carrier to transport and store radioactive material in the regular course of their carriage for another or storage incident thereto, provided the transportation and storage is in accordance with the applicable requirements of the regulations, appropriate to the mode of transport, of the U.S. Department of Transportation insofar as such regulations relate to the loading and storage of packages, placarding of the transporting vehicle, and incident reporting.[9a] Persons who transport and store radioactive material pursuant to the general license in this paragraph are exempt from the requirements of Part D and Part J of these regulations.

(b) A general license is hereby issued to any private carrier to transport radioactive material, provided the transportation is in accordance with the applicable requirements of the regulations, appropriate to the mode of transport, of the U.S. Department of Transportation insofar as such regulations relate to the loading and storage of packages, placarding of the transporting vehicle, and incident reporting.[9a]

(1) Persons who transport radioactive material pursuant to the general license in C.23(b) are exempt from the requirements of Part D and Part J of these regulations to the extent that they transport radioactive material.

(2) Physicians, as defined in A.2(aa), are exempt from the requirements of C.23(b) to the extent that they transport radioactive material for use in the practice of medicine.

Specific Licenses

Sec. C.24 Filing Application for Specific Licenses

(a) Applications for specific licenses shall be filed [in triplicate] on a form prescribed by the Agency.

[9a] Any notification of incidents referred to in those requirements shall be filed with, or made to, the Agency.

(b) The Agency may at any time after the filing of the original application, and before the expiration of the license, require further statements in order to enable the Agency to determine whether the application should be granted or denied or whether a license should be modified or revoked.

(c) Each application shall be signed by the applicant or licensee or a person duly authorized to act for and on his behalf.

(d) An application for a license may include a request for a license authorizing one or more activities.

(e) In his application, the applicant may incorporate by reference information contained in previous applications, statements, or reports filed with the Agency provided such references are clear and specific.

(f) Applications and documents submitted to the Agency may be made available for public inspection except that the Agency may withhold any document or part thereof from public inspection if disclosure of its content is not required in the public interest and would adversely affect the interest of a person concerned.

Sec. C.25 General Requirements for the Issuance of Specific Licenses. A license application will be approved if the Agency determines that:

(a) the applicant is qualified by reason of training and experience to use the material in question for the purpose requested in accordance with these regulations in such a manner as to minimize danger to public health and safety or property;

(b) the applicant's proposed equipment, facilities, and procedures are adequate to minimize danger to public health and safety or property;

(c) the issuance of the license will not be inimical to the health and safety of the public; and

(d) the applicant satisfies any applicable special requirements in C.26, C.27, or C.28.

Sec. C.26 Special Requirements for Issuance of Certain Specific Licenses for Radioactive Material

(a) Human Use of Radioactive Material in Institutions. In addition to the requirements set forth in C.25, a specific license for human use of radioactive material in institutions will be issued if:

(1) The applicant has appointed a medical isotopes committee of at least three members to evaluate all proposals for research, diagnostic, and therapeutic use of radioactive material within that institution. Membership of the committee should include physicians

expert in internal medicine, hematology, therapeutic radiology, and a person experienced, in assay of radioactive material and protection against radiation;

(2) The applicant possesses adequate facilities for the clinical care of patients;

(3) The physician designated on the application as the individual user has substantial experience in the handling and administration of radioactive material and, where applicable, the clinical management of radioactive patients; and

(4) If the application is for a license to use unspecified quantities or multiple types of radioactive material, the applicant's staff has substantial experience in the use of a variety of radioactive materials for a variety of human uses.

(b) Licensing of Individual Physicians for Human Use of Radioactive Material. In addition to the requirements set forth in C.25, a specific license for the human use of radioactive material will be issued to an individual physician if:

(1) The applicant has access to a hospital possessing adequate facilities to hospitalize and monitor the applicant's radioactive patients whenever it is advisable; and

(2) The applicant has extensive experience in the handling and administration of radioactive material and, where applicable, the clinical management of radioactive patients.

(c) Groups of diagnostic uses. An application for a specific license pursuant to C.26 (a) or (b) for any diagnostic use of radioactive material specified in Group I or Group II of Schedule C will be approved for all of the diagnostic uses within the group which includes the use specified in the application if:

(1) The applicant satisfies the requirements of C.26 (a) or (b);

(2) The applicant or the physician designated in the application as the individual user has adequate clinical experience in the performance of diagnostic procedures specified in the appropriate group in Schedule C; and

(3) The applicant's proposed radiation detection instrumentation is adequate for conducting the diagnostic procedures specified in the appropriate group in Schedule C.

(d) Human Use of Sealed Sources. In addition to the requirements set forth in C.25, a specific license for human use of sealed sources will be issued only if the applicant or, if the application is made by an

institution, the individual user (1) has specialized training in the diagnostic or therapeutic use of the sealed source considered, or has experience equivalent to such training, and (2) is a physician.

(e) Use of Sealed Sources in Industrial Radiography. In addition to the requirements set forth in C.25, a specific license for use of sealed sources in industrial radiography will be issued if:

(1) The applicant will have an adequate program for training radiographers and radiographer's assistants and submits to the Agency a shcedule or description of such program which specifies the:

(i) initial training,

(ii) periodic training,

(iii) on-the-job training,

(iv) means to be used by the licensee to determine the radiographer's knowledge and understanding of and ability to comply with Agency regulations and licensing requirements, and the operating and emergency procedures of the applicant, and

(v) means to be used by the licensee to determine the radiographer's assistant's knowledge and understanding of and ability to comply with the operating and emergency procedures of the applicant;

(2) The applicant has established and submits to the Agency satisfactory written operating and emergency procedures [described in E.202];

(3) The applicant will have an adequate internal inspection system, or other management control, to assure that license provisions, regulations, and the applicant's operating and emergency procedures are followed by radiographers and radiographer's assistants;

(4) The applicant submits to the Agency a description of his overall organizational structure pertaining to the industrial radiography program, including specified delegations of authority and responsibility for operation of the program;

(5) The applicant who desires to conduct his own leak tests has established adequate procedures to be followed in leak testing sealed sources for possible leakage and contamination and submits to the Agency a description of such procedures including:

(i) Instrumentation to be used,

(ii) Method of performing tests, e.g., points on equipment to be smeared and method of taking smear, and

(iii) Pertinent experience of the person who will perform the test; and

(6) The licensee shall conduct a program for inspection and maintenance of radiographic exposure devices and storage containers to assure proper functioning of components important to safety.

Sec. C.27 Special Requirements for Specific Licenses of Broad Scope. This section prescribes requirements for the issuance of specific licenses of broad scope for radioactive material ("broad licenses") and certain regulations governing holders of such licenses.10/

(a) The different types of broad licenses are set forth below:

(1) A "Type A specific license of broad scope" is a specific license authorizing receipt, acquisition, ownership, possession, use and transfer of any chemical or physical form of the radioactive material specified in the license, but not exceeding quantities specified in the license, for any authorized purpose. The quantities specified are usually in the multicurie range.

(2) A "Type B specific license of broad scope" is a specific license authorizing receipt, acquisition, ownership, possession, use and transfer of any chemical or physical form of radioactive material specified in Schedule D, for any authorized purpose. The possession limit for a Type B broad license, if only one radionuclide is possessed thereunder, is the quantity specified for that radionuclide in Schedule D, Column I. If two or more radionuclides are possessed thereunder, the possession limit for each is determined as follows: For each radionuclide, determine the ratio of the quantity possessed to the applicable quantity specified in Schedule D, Column I, for that radionuclide. The sum of the ratios for all radionuclides possessed under the license shall not exceed unity.

(3) A "Type C specific license of broad scope" is a specific license authorizing receipt, acquisition, ownership, possession, use

10/ Authority to transfer possession or control by the manufacturer, processor, or producer of any equipment, device, commodity, or other product containing source material or byproduct material whose subsequent possession, use, transfer, and disposal by all other persons are exempted from regulatory requirements may be obtained only from the U.S. Atomic Energy Commission, Washington, D.C. 20545.

and transfer of any chemical or physical form of radioactive material specified in Schedule D, for any authorized purpose. The possession limit for a Type C broad license, if only one radionuclide is possessed thereunder, is the quantity specified for that radionuclide in Schedule D, Column II. If two or more radionuclides are possessed thereunder, the possession limit is determined for each as follows: For each radionuclide determine the ratio of the quantity possessed to the applicable quantity specified in Schedule D, Column II, for that radionuclide. The sum of the ratios for all radionuclides possessed under the license shall not exceed unity.

(b) An application for a Type A specific license of broad scope will be approved if:

(1) The applicant satisfies the general requirements specified in C.25;

(2) The applicant has engaged in a reasonable number of activities involving the use of radioactive material; and

(3) The applicant has established administrative controls and provisions relating to organization and management, procedures, record keeping, material control and accounting, and management review that are necessary to assure safe operations, including:

(i) The establishment of a radiation safety committee composed of such persons as a radiation safety officer, a representative of management, and persons trained and experienced in the safe use of radioactive material;

(ii) The appointment of a radiation safety officer who is qualified by training and experience in radiation protection, and who is available for advice and assistance on radiation safety matters; and

(iii) The establishment of appropriate administrative procedures to assure:

(a) Control of procurement and use of radioactive material;

(b) Completion of safety evaluations of proposed uses of radioactive material which take into consideration such matters as the adequacy of facilities and equipment, training and experience of the user, and the operating or handling procedures; and

(c) Review, approval, and recording by the radiation safety committee of safety evaluation of proposed uses

prepared in accordance with C.27(b)(3)(iii)(b) prior to use of the radioactive material.

(c) An application for a Type B specific license of broad scope will be approved if:

(1) The applicant satisfies the general requirements specified in C.25; and

(2) The applicant has established administrative controls and provisions relating to organization and management, procedures, record keeping, material control and accounting, and management review that are necessary to assure safe operations, including:

(i) The appointment of a radiation safety officer who is qualified by training and experience in radiation protection, and who is available for advice and assistance on radiation safety matters, and

(ii) The establishment of appropriate administrative procedures to assure:

(a) Control of procurement and use of radioactive material,

(b) Completion of safety evaluations of proposed uses of radioactive material which take into consideration such matters as the adequacy of facilities and equipment, training and experience of the user, and the operating or handling procedures, and

(c) Review, approval, and recording by the radiation safety officer of safety evaluations of proposed uses prepared in accordance with C.27(c)(2)(ii)(b) prior to use of the radioactive material.

(d) An application for a Type C specific license of broad scope will be approved if:

(1) The applicant satisfies the general requirements specified in C.25;

(2) The applicant submits a statement that radioactive material will be used only by, or under the direct supervision of, individuals who have received:

(i) A college degree at the bachelor level, or equivalent training and experience, in the physical or biological sciences or in engineering, and

(ii) At least 40 hours of training and experience in the safe handling of radioactive material, and in the characteristics of ionizing radiation, units of radiation dose and quantities, radiation detection instrumentation, and biological hazards of exposure to radiation appropriate to the type and forms of radioactive material to be used; and

(3) The applicant has established administrative controls and provisions relating to procurement of radioactive material, procedures, record keeping, material control and accounting, and management review necessary to assure safe operations.

(e) Specific licenses of broad scope are subject to the following conditions:

(1) Persons licensed pursuant to C.27 shall not:

(i) Conduct tracer studies in the environment involving direct release of radioactive material;

(ii) Receive, acquire, own, possess, use or transfer devices containing 100,000 curies or more of radioactive material in sealed sources used for irradiation of materials;

(iii) Conduct activities for which a specific license issued by the Agency under C.26 or C.28 is required; or

(iv) Add or cause the addition of radioactive material to any food, beverage, cosmetic, drug, or other product designed for ingestion or inhalation by, or application to, a human being.

(2) Each Type A specific license of broad scope issued under this part shall be subject to the condition that radioactive material possessed under the license may only be used by, or under the direct supervision of, individuals approved by the licensee's radiation safety committee.

(3) Each Type B specific license of broad scope issued under this part shall be subject to the condition that radioactive material possessed under the license may only be used by, or under the direct supervision of, individuals approved by the licensee's radiation safety officer.

(4) Each Type C specific license of broad scope issued under this part shall be subject to the condition that radioactive material possessed under the license may only be used by, or under the direct supervision of, individuals who satisfy the requirements of C.27(d).

Sec. C.28 Special Requirements for a Specific License to Manufacture, Assemble, Repair, or Distribute Commodities, Products, or Devices which Contain Radioactive Material

(a) Licensing the Introduction of Radioactive Material into Products in Exempt Concentrations. In addition to the requirements set forth in C.25, a specific license authorizing the introduction of radioactive material into a product or material owned by or in the possession of the licensee or another to be transferred to persons exempt under C.4(a)(1) will be issued if:

(1) The applicant submits a description of the product or material into which the radioactive material will be introduced, intended use of the radioactive material and the product or material into which it is introduced, method of introduction, initial concentration of the radioactive material in the product or material, control methods to assure that no more than the specified concentration is introduced into the product or material, estimated time interval between introduction and transfer of the product or material, and estimated concentration of the radioactive material in the product or material at the time of transfer; and

(2) The applicant provides reasonable assurance that the concentrations of radioactive material at the time of transfer will not exceed the concentrations in Schedule A, that reconcentration of the radioactive material in concentrations exceeding those in Schedule A is not likely, that use of lower concentrations is not feasible, and that the product or material is not likely to be incorporated in any food, beverage, cosmetic, drug or other commodity or product designed for ingestion or inhalation by, or application to, a human being.

Each person licensed under C.28(a) shall file an annual report with the Agency which shall identify the type and quantity of each product or material into which radioactive material has been introduced during the reporting period; name and address of the person who owned or possessed the product or material, into which radioactive material has been introduced, at the time of introduction; the type and quantity of radionuclide introduced into each such product or material; and the initial concentrations of the radionuclide in the product or material at time of transfer of the radioactive material by the licensee. If no transfers of radioactive material have been made pursuant to C.28(a) during the reporting period, the report shall so indicate. The report shall cover the year ending June 30, and shall be filed within 30 days thereafter.

(b) Licensing the Distribution of Radioactive Material in Exempt Quantities 10/

(1) An application for a specific license to distribute radioactive material other than source or byproduct material to persons exempted from these regulations pursuant to C.4(b) will be approved if:

(i) The radioactive material is not contained in any food, beverage, cosmetic, drug, or other commodity designed for ingestion or inhalation by, or application to, a human being;

(ii) The radioactive material is in the form of processed chemical elements, compounds, or mixtures, tissue samples, bioassay samples, counting standards, plated or encapsulated sources, or similar substances, identified as radioactive and to be used for its radioactive properties, but is not incorporated into any manufactured or assembled commodity, product, or device intended for commercial distribution; and

(iii) The applicant submits copies of prototype labels and brochures and the Agency approves such labels and brochures.

(2) The license issued under C.28(b)(1) is subject to the following conditions:

(i) No more than 10 exempt quantities shall be sold or transferred in any single transaction. However, an exempt quantity may be composed of fractional parts of one or more of the exempt quantity provided the sum of the fractions shall not exceed unity.

(ii) Each exempt quantity shall be separately and individually packaged. No more than 10 such packaged exempt quantities shall be contained in any outer package for transfer to persons exempt pursuant to C.4(b). The outer package shall be such that the dose rate at the external surface of the package does not exceed 0.5 millirem per hour.

(iii) The immediate container of each quantity or separately packaged fractional quantity of radioactive material shall bear

10/ Authority to transfer possession or control by the manufacturer, processor, or producer of any equipment, device, commodity, or other product containing source material or byproduct material whose subsequent possession, use, transfer, and disposal by all other persons are exempted from regulatory requirements may be obtained only from the U.S. Atomic Energy Commission, Washington, D.C. 20545.

a durable, legible label which (a) identifies the radionuclide and the quantity of radioactivity, and (b) bears the words "Radioactive Material."

(iv) In addition to the labeling information required by C.28(b)(2)(iii), the label affixed to the immediate container, or an accompanying brochure, shall (a) state that the contents are exempt from U.S. Atomic Energy Commission or Agreement State requirements; (b) bear the words "Radioactive Material—Not for Human Use—Introduction into Foods, Beverages, Cosmetics, Drugs, or Medicinals, or into Products Manufactured for Commercial Distribution is Prohibited—Exempt Quantities Should Not Be Combined"; and (c) set forth appropriate additional radiation safety precautions and instructions relating to the handling, use, storage, and disposal of the radioactive material.

(3) Each person licensed under C.28(b) shall maintain records identifying, by name and address, each person to whom radioactive material is transferred for use under C.4(b) or the equivalent regulations of an Agreement State, and stating the kinds and quantities of radioactive material transferred. An annual summary report stating the total quantity of each radionuclide transferred under the specific license shall be filed with the Agency. Each report shall cover the year ending June 30, and shall be filed within thirty (30) days thereafter. If no transfers of radioactive material have been made pursuant to C.28(b) during the reporting period, the report shall so indicate.

(c) Licensing the Incorporation of Radioactive Material other than Source or Byproduct Material into Gas and Aerosol Detectors. An application for a specific license authorizing the incorporation of radioactive material other than source or byproduct material into gas and aerosol detectors to be distributed to persons exempt under C.4(c)(3) will be approved if the application satisfies requirements equivalent to those contained in Section 32.26 of 10 CFR Part 32.

(d) Distribution of Devices to Persons Generally Licensed Under C.22(d). In addition to the requirements set forth in C.25, a specific license to distribute certain devices of the types enumerated in C.22(d) to persons generally licensed under C.22(d) will be issued if:

(1) The applicant submits sufficient information relating to the design, manufacture, prototype testing, quality control procedures, labeling, proposed uses, and potential hazards of the device to provide reasonable assurance that:

(i) The radioactive material contained in the device will not be lost;

(ii) No individual will receive a radiation exposure to a major portion of his body in excess of 0.5 rem in a year under ordinary circumstances of use;

(iii) The device can be safely operated by individuals not having training in radiation protection; and

(iv) The radioactive material within the device will not be accessible to unauthorized individuals.

(2) In describing the label or labels and contents thereon to be affixed to the device, the applicant separately indicates those instructions and precautions which are necessary to assure safe operation of the device. Such instructions and precautions must be contained on labels bearing the statement, "Removal of this label is prohibited."

(3) In the event the applicant desires that the device be tested for proper operation of the on-off mechanism and indicator, if any, and for leakage of radioactive material, subsequent to the initial tests required by C.22(d)(2)(iii), at intervals longer than six months but not exceeding three years, he shall include in his application sufficient information to demonstrate that such longer interval is justified by performance characteristics of the device or similar devices, and by design features which have a significant bearing on the probability or consequences of leakage of radioactive material from the device. In determining the acceptable interval for test of leakage of radioactive material, the Agency will consider information on particulars which include, but are not necessarily limited to:

(i) Primary containment (source capsule);

(ii) Protection of primary containment;

(iii) Method of sealing containment;

(iv) Containment construction materials;

(v) Form of contained radioactive material;

(vi) Maximum temperature withstood during prototype tests;

(vii) Maximum pressure withstood during prototype tests;

(viii) Maximum quantity of contained radioactive material;

(ix) Radiotoxicity of contained radioactive material; and

(x) Operating experience with identical devices or similarly designed and constructed devices.

(4) Each licensee authorized under C.28(d) to distribute certain devices to generally licensed persons:

(i) Shall report to the Agency all transfers of such devices to persons generally licensed under C.22(d). Such report shall identify each general licensee by name and address, the type of device transferred, and the quantity and type of radioactive material contained in the device. The report shall be submitted within 30 days after the end of each calendar quarter in which such a device is transferred to generally licensed persons; and

(ii) Shall furnish to each general licensee in this State to whom he transfers such device a copy of the general license contained in C.22(d).*

(e) Special Requirements for the Manufacture, Assembly, or Repair of Luminous Safety Devices for Use in Aircraft. An application for a specific license to manufacture, assemble, or repair luminous safety devices containing tritium or promethium-147 for use in aircraft, for distribution to persons generally licensed under C.22(e) will be approved subject to the following conditions:

(1) The applicant satisfies the general requirements specified in C.25, and

(2) The applicant satisfies the requirements of Sections 32.53, 32.54, 32.55, 32.56, 32.101 of 10 CFR Part 32 or their equivalent.

(f) Special Requirements for License to Manufacture Calibration Sources Containing Americium-241 or Plutonium for Distribution to Persons Generally Licensed Under C.22(g). An application for a specific license to manufacture calibration sources containing americium-241 or plutonium to persons generally licensed under C.22(g) will be approved subject to the following conditions:

(1) The applicant satisfies the general requirement of C.25, and

(2) The applicant satisfies the requirements of Sections 32.57, 32.58, 32.59, 32.60, 32.102 of 10 CFR Part 32 and Section 70.39 of 10 CFR Part 70 or their equivalent.

* As an alternative, the Agency may wish to distribute copies of the general license contained in C.22(d) to general licensees within the State rather than the supplier of the device do so.

(g) Manufacture and Distribution of Radioactive Material for Medical Use Under General License. In addition to requirements set forth in C.25, a specific license authorizing the distribution of radioactive material for use by physicians under the general license in C.22(h) will be issued if:

(1) The applicant submits evidence that the radioactive material is to be manufactured, labeled, and packaged in accordance with a new drug application which the Commissioner of Food and Drugs, Food and Drug Administration, has approved, or in accordance with a license for a biologic product issued by the Secretary, Department of Health, Education, and Welfare; and

(2) The following statement, or a substantially similar statement which contains the information called for in the following statement, appears on the label affixed to the container or appears in the leaflet or brochure which accompanies the package:

> This radioactive drug may be received, possessed, and used only by physicians licensed [to dispense drugs] in the practice of medicine. Its receipt, possession, use and transfer are subject to the regulations and a general license or its equivalent of the U. S. Atomic Energy Commission or of a State with which the Commission has entered into an agreement for the exercise of regulatory authority.
>
> _____
> Name of manufacturer

(h) Manufacture and Distribution of Radioactive Material for Certain In Vitro Clinical or Laboratory Testing Under General License. An application for a specific license to manufacture or distribute radioactive material for use under the general license of C.22 (i) will be approved if:

(1) The applicant satisfies the general requirements specified in C.25.

(2) The radioactive material is to be prepared for distribution in prepackaged units of:

(i) Iodine-125 in units not exceeding 10 microcuries each.

(ii) Iodine-131 in units not exceeding 10 microcuries each.

(iii) Carbon-14 in units not exceeding 10 microcuries each.

(iv) Hydrogen-3 (tritium) in units not exceeding 50 microcuries each.

(v) Iron-59 in units not exceeding 20 microcuries each.

(3) Each prepackaged unit bears a durable, clearly visible label:

(i) Identifying the radioactive contents as to chemical form and radionuclide, and indicating that the amount of radioactivity does not exceed 10 microcuries of iodine-125, iodine-131, or carbon-14; 50 microcuries of hydrogen-3 (tritium); or 20 microcuries of iron-59; and

(ii) Displaying the radiation caution symbol described in D.203(a) (1) and the words, "CAUTION, RADIOACTIVE MATERIAL", and "Not for Internal or External Use in Humans or Animals".

(4) The following statement, or a substantially similar statement which contains the information called for in the following statement, appears on a label affixed to each prepackaged unit or appears in a leaflet or brochure which accompanies the package:

This radioactive material may be received, acquired, possessed, and used only by physicians, clinical laboratories or hospitals and only for in vitro clinical or laboratory tests not involving internal or external administration of the material, or the radiation therefrom, to human beings or animals. Its receipt, acquisition, possession, use, and transfer are subject to the regulations and a general license of the United States Atomic Energy Commission or of a State with which the Commission has entered into an agreement for the exercise of regulatory authority.

_____

Name of manufacturer

(5) The label affixed to the unit, or the leaflet or brochure which accompanies the package, contains adequate information as to the precautions to be observed in handling and storing such radioactive material.

(i) Licensing the Manufacture and Distribution of Ice Detection Devices. An application for a specific license to manufacture and distribute ice detection devices to persons generally licensed under C.22(j) will be approved subject to the following conditions: (1) the applicant satisfies the general requirements of C.25, and (2) the criteria of Sections 32.61, 32.62, 32.63, 32.103 of 10 CFR Part 32 are met.

Sec. C.30 Issuance of Specific Licenses

(a) Upon a determination that an application meets the requirements of the Act and the regulations of the Agency, the Agency will issue a specific license authorizing the proposed activity in such form and containing such conditions and limitations as it deems appropriate or necessary.

(b) The Agency may incorporate in any license at the time of issuance, or thereafter by appropriate rule, regulation, or order, such additional requirements and conditions with respect to the licensee's receipt, possession, use, and transfer of radioactive material subject to this part as it deems appropriate or necessary in order to:

(1) Minimize danger to public health and safety or property;

(2) Require such reports and the keeping of such records, and to provide for such inspections of activities under the license as may be appropriate or necessary; and

(3) Prevent loss or theft of material subject to this part.

Sec. C.31 Specific Terms and Conditions of Licenses

(a) Each license issued pursuant to this part shall be subject to all the provisions of the Act, now or hereafter in effect, and to all rules, regulations, and orders of the Agency.

(b) No license issued or granted under this part and no right to possess or utilize radioactive material granted by any license issued pursuant to this part shall be transferred, assigned, or in any manner disposed of, either voluntarily or involuntarily, directly or indirectly, through transfer of control of any license to any person unless the Agency shall, after securing full information find that the transfer is in accordance with the provisions of the Act, and shall give its consent in writing.

(c) Each person licensed by the Agency pursuant to this part shall confine his use and possession of the material licensed to the locations and purposes authorized in the license.

Sec. C.32 Expiration of Licenses. Except as provided in C.33(b), each specific license shall expire at the end of the day, in the month and year stated therein.

Sec. C.33 Renewal of License

(a) Applications for renewal of specific licenses shall be filed in accordance with C.24.

(b) In any case in which a licensee, not less than thirty (30) days prior to expiration of his existing license, has filed an application in proper form for renewal or for a new license authorizing the same activities, such existing license shall not expire until the application has been finally determined by the Agency.

Sec. C.34 Amendment of Licenses at Request of Licensee. Applications for amendment of a license shall be filed in accordance with C.24 and shall specify the respects in which the licensee desires his license to be amended and the grounds for such amendment.

Sec. C.35 Agency Action on Applications to Renew or Amend. In considering an application by a licensee to renew or amend his license, the Agency will apply the criteria set forth in C.25 and C.26, C.27, or C.28 as applicable.

Sec. C.36 Persons Possessing a License for Source, Byproduct, or Special Nuclear Material in Quantities Not Sufficient to Form a Critical Mass on Effective Date of These Regulations. Any person who, on the effective date of these regulations, possesses a general or specific license for source, byproduct, or special nuclear material in quantities not sufficient to form a critical mass, issued by the U. S. Atomic Energy Commission, shall be deemed to possess a like license issued under this part and the Act, such license to expire either ninety (90) days after receipt from the Agency of a notice of expiration of such license, or on the date of expiration specified in the U. S. Atomic Energy Commission license, whichever is earlier.

Sec. C.37 Persons Possessing Radioactive Material other than Source, Byproduct, or Special Nuclear Material on Effective Date of these Regulations. Any person who, on the effective date of these regulations, possesses naturally occurring or accelerator-produced radioactive material for which a specific license is required by the Act or this part shall be deemed to possess such a license issued under the Act and this part. Such license shall expire ninety (90) days after the effective date of these regulations; provided, however, that if within the ninety (90) days the person possessing such material files an application in proper form for a license, such existing license shall not expire until the application has been finally determined by the Agency.

Sec. C.40 Transfer of Material

(a) No licensee shall transfer radioactive material except as authorized pursuant to this section.

(b) Except as otherwise provided in his license and subject to the provisions of C.40(c) and (d), any licensee may transfer radioactive material:

(1) To the Agency;[11/]

(2) To the U.S. Atomic Energy Commission;

(3) To any person exempt from the regulations in this part to the extent permitted under such exemption;

(4) To any person authorized to receive such material under terms of a general license or its equivalent, or a specific license or equivalent licensing document, issued by the Agency, the U. S. Atomic Energy Commission, or any Agreement State, or to any person otherwise authorized to receive such material by the Federal Government or any agency thereof, the Agency, or any Agreement State; or

(5) As otherwise authorized by the Agency in writing.

(c) Before transferring radioactive material to a specific licensee of the Agency, the U.S. Atomic Energy Commission, or an Agreement State, or to a general licensee who is required to register with the Agency, the U.S. Atomic Energy Commission, or an Agreement State prior to receipt of the radioactive material, the licensee transferring the material shall verify that the transferee's license authorizes the receipt of the type, form, and quantity of radioactive material to be transferred.

(d) The following methods for the verification required by C.40(c) are acceptable:

(1) The transferor may have in his possession, and read, a current copy of the transferee's specific license or registration certificate;

(2) The transferor may have in his possession a written certification by the transferee that he is authorized by license or registration certificate to receive the type, form, and quantity of radioactive material to be transferred, specifying the license or registration certificate number, issuing agency, and expiration date;

(3) For emergency shipments the transferor may accept oral certification by the transferee that he is authorized by license or registration certificate to receive the type, form, and quantity of radioactive material to be transferred, specifying the license or

[11/ A licensee may transfer material to the Agency only after receiving prior approval from the Agency.]

registration certificate number, issuing agency, and expiration date; provided, that the oral certification is confirmed in writing within ten (10) days;

(4) The transferor may obtain other sources of information compiled by a reporting service from official records of the Agency, the U.S. Atomic Energy Commission, or the licensing agency of an Agreement State as to the identity of licensees and the scope and expiration dates of licenses and registration; or

(5) When none of the methods of verification described in C.40(d)(1) to (4) are readily available or when a transferor desires to verify that information received by one of such methods is correct or up-to-date, the transferor may obtain and record confirmation from the Agency, the U. S. Atomic Energy Commission, or the licensing agency of an Agreement State that the transferee is licensed to receive the radioactive material.

(e) Preparation for shipment and transport of radioactive material shall be in accordance with the provisions of C.100.

Sec. C.50 Modification, Revocation, and Termination of Licenses

(a) The terms and conditions of all licenses shall be subject to amendment, revision, or modification or the license may be suspended or revoked by reason of amendments to the Act, or by reason of rules, regulations, and orders issued by the Agency.

(b) Any license may be revoked, suspended, or modified, in whole or in part, for any material false statement in the application or any statement of fact required under provisions of the Act, or because of conditions revealed by such application or statement of fact or any report, record, or inspection or other means which would warrant the Agency to refuse to grant a license on an original application, or for violation of, or failure to observe any of the terms and conditions of the Act, or of the license, or of any rule, regulation, or order of the Agency.

(c) Except in cases of willfulness or those in which the public health, interest or safety requires otherwise, no license shall be modified, suspended, or revoked unless, prior to the institution of proceedings therefor, facts or conduct which may warrant such action shall have been called to the attention of the licensee in writing and the licensee shall have been accorded an opportunity to demonstrate or achieve compliance with all lawful requirements.

(d) The Agency may terminate a specific license upon request submitted by the licensee to the Agency in writing.

Reciprocity

Sec. C.90 Reciprocal Recognition of Licenses

(a) Subject to these regulations, any person who holds a specific license from the U. S. Atomic Energy Commission or any Agreement State, and issued by the agency having jurisdiction where the licensee maintains an office for directing the licensed activity and at which radiation safety records are normally maintained, is hereby granted a general license to conduct the activities authorized in such licensing document within this State for a period not in excess of 180 days in any calendar year provided that:

(1) The licensing document does not limit the activity authorized by such document to specified installations or locations;

(2) The out-of-state licensee notifies the Agency in writing at least three (3) days prior to engaging in such activity. Such notification shall indicate the location, period, and type of proposed possession and use within the State, and shall be accompanied by a copy of the pertinent licensing document. If, for a specific case, the three (3) day period would impose an undue hardship on the out-of-state licensee, he may, upon application to the Agency, obtain permission to proceed sooner. The Agency may waive the requirement for filing additional written notifications during the remainder of the calendar year following the receipt of the initial notification from a person engaging in activities under the general license provided in C.90;

(3) The out-of-state licensee complies with all applicable regulations of the Agency and with all the terms and conditions of his licensing document, except any such terms and conditions which may be inconsistent with applicable regulations of the Agency;

(4) The out-of-state licensee supplies such other information as the Agency may request; and

(5) The out-of-state licensee shall not transfer or dispose of radioactive material possessed or used under the general license provided in this section except by transfer to a person:

(i) specifically licensed by the Agency or by the U. S. Atomic Energy Commission to receive such material, or

(ii) exempt from the requirements for a license for such material under C.4(a).

(b) Notwithstanding the provisions of C.90 (a), any person who holds a specific license issued by the U. S. Atomic Energy Commission or an

Agreement State authorizing the holder to manufacture, transfer, install, or service a device described in C.22(d)(1) within areas subject to the jurisdiction of the licensing body is hereby granted a general license to install, transfer, demonstrate or service such a device in this State provided that:

(1) Such person shall file a report with the Agency within thirty (30) days after the end of each calendar quarter in which any device is transferred to or installed in this State. Each such report shall identify each general licensee to whom such device is transferred by name and address, the type of device transferred, and the quantity and type of radioactive material contained in the device;

(2) The device has been manufactured, labeled, installed, and serviced in accordance with applicable provisions of the specific license issued to such person by the U. S. Atomic Energy Commission or an Agreement State;

(3) Such person shall assure that any labels required to be affixed to the device under regulations of the authority which licensed manufacture of the device bear a statement that "Removal of this label is prohibited"; and

(4) The holder of the specific license shall furnish to each general licensee to whom he transfers such device or on whose premises he installs such device a copy of the general license contained in C.22(d).

(c) The Agency may withdraw, limit, or qualify its acceptance of any specific license or equivalent licensing document issued by another agency, or any product distributed pursuant to such licensing document, upon determining that such action is necessary in order to prevent undue hazard to public health and safety or property.

Transportation

Sec. C.100 Preparation of Radioactive Material for Transport

(a) No licensee shall deliver any radioactive material to a carrier[12/] for transport, unless:

12/ For the purpose of this regulation, a licensee who transports his own licensed material as a private carrier is considered to have delivered such material to a carrier for transport.

(1) The licensee complies with the applicable requirements of the regulations, appropriate to the mode of transport, of the U.S. Department of Transportation insofar as such regulations relate to the packing of radioactive material, and to the monitoring, marking and labeling of those packages;

(2) The licensee has established procedures for opening and closing packages in which radioactive material is transported to provide safety and to assure that, prior to the delivery to a carrier for transport, each package is properly closed for transport; and

(3) Prior to delivery of a package to a carrier for transport, the licensee shall assure that any special instructions needed to safely open the package are sent to, or have been available to the consignee.

(b) Paragraph (a) of C.100 shall not apply to the transportation of licensed material, or to the delivery of licensed material to a carrier for transport, where such transportation is subject to the regulations of the Department of Transportation or the U.S. Postal Service.

PART C

SCHEDULE A

EXEMPT CONCENTRATIONS

Element (atomic number)	Isotope	Column I Gas concentration μCi/ml[1]	Column II Liquid and solid concentration μCi/ml[2]
Antimony (51)	Sb-122		$3X10^{-4}$
	Sb-124		$2X10^{-4}$
	Sb-125		$1X10^{-3}$
Argon (18)	Ar-37	$1X10^{-3}$	
	Ar-41	$4X10^{-7}$	
Arsenic (33)	As-73		$5X10^{-3}$
	As-74		$5X10^{-4}$
	As-76		$2X10^{-4}$
	As-77		$8X10^{-4}$
Barium (56)	Ba-131		$2X10^{-3}$
	Ba-140		$3X10^{-4}$
Beryllium (4)	Be-7		$2X10^{-2}$
Bismuth (83)	Bi-206		$4X10^{-4}$
Bromine (35)	Br-82	$4X10^{-7}$	$3X10^{-3}$
Cadmium (48)	Cd-109		$2X10^{-3}$
	Cd-115m		$3X10^{-4}$
	Cd-115		$3X10^{-4}$
Calcium (20)	Ca-45		$9X10^{-5}$
	Ca-47		$5X10^{-4}$
Carbon (6)	C-14	$1X10^{-6}$	$8X10^{-3}$
Cerium (58)	Ce-141		$9X10^{-4}$
	Ce-143		$4X10^{-4}$
	Ce-144		$1X10^{-4}$
Cesium (55)	Cs-131		$2X10^{-2}$
	Cs-134m		$6X10^{-2}$
	Cs-134		$9X10^{-5}$
Chlorine (17)	Cl-38	$9X10^{-7}$	$4X10^{-3}$
Chromium (24)	Cr-51		$2X10^{-2}$
Cobalt (27)	Co-57		$5X10^{-3}$
	Co-58		$1X10^{-3}$
	Co-60		$5X10^{-4}$

1/ Values are given in Column I only for those materials normally used as gases

2/ μCi/gm for solids

Element (atomic number)	Isotope	Column I Gas concentration µCi/ml[1/]	Column II Liquid and solid concentration µCi/ml[2/]
Copper (29)	Cu-64		$3X10^{-3}$
Dysprosium (66)	Dy-165		$4X10^{-3}$
	Dy-166		$4X10^{-4}$
Erbium (68)	Er-169		$9X10^{-4}$
	Er-171		$1X10^{-3}$
Europium (63)	Eu-152 ($T_{\frac{1}{2}}$=9.2 h)		$6X10^{-4}$
	Eu-155		$2X10^{-3}$
Fluorine (9)	F-18	$2X10^{-6}$	$8X10^{-3}$
Gadolinium (64)	Gd-153		$2X10^{-3}$
	Gd-159		$8X10^{-4}$
Gallium (31)	Ga-72		$4X10^{-4}$
Germanium (32)	Ge-71		$2X10^{-2}$
Gold (79)	Au-196		$2X10^{-3}$
	Au-198		$5X10^{-4}$
	Au-199		$2X10^{-3}$
Hafnium (72)	Hf-181		$7X10^{-4}$
Hydrogen (1)	H-3	$5X10^{-6}$	$3X10^{-2}$
Indium (49)	In-113m		$1X10^{-2}$
	In-114m		$2X10^{-4}$
Iodine (53)	I-126	$3X10^{-9}$	$2X10^{-5}$
	I-131	$3X10^{-9}$	$2X10^{-5}$
	I-132	$8X10^{-8}$	$6X10^{-4}$
	I-133	$1X10^{-8}$	$7X10^{-5}$
	I-134	$2X10^{-7}$	$1X10^{-3}$
Iridium (77)	Ir-190		$2X10^{-3}$
	Ir-192		$4X10^{-4}$
	Ir-194		$3X10^{-4}$
Iron (26)	Fe-55		$8X10^{-3}$
	Fe-59		$6X10^{-4}$
Krypton (36)	Kr-85m	$1X10^{-6}$	
	Kr-85	$3X10^{-6}$	
Lanthanum (57)	La-140		$2X10^{-4}$
Lead (82)	Pb-203		$4X10^{-3}$
Lutetium (71)	Lu-177		$1X10^{-3}$

1/ Values are given in Column I only for those materials normally used as gases

2/ µCi/gm for solids

Element (atomic number)	Isotope	Column I Gas concentration µCi/ml[1/]	Column II Liquid and solid concentration µCi/ml[2/]
Manganese (25)	Mn-52		$3X10^{-4}$
	Mn-54		$1X10^{-3}$
	Mn-56		$1X10^{-3}$
Mercury (80)	Hg-197m		$2X10^{-3}$
	Hg-197		$3X10^{-4}$
	Hg-203		$2X10^{-3}$
Molybdenum (42)	Mo-99		$2X10^{-4}$
Neodymium (60)	Nd-147		$6X10^{-3}$
	Nd-149		$3X10^{-3}$
Nickel (28)	Ni-65		$1X10^{-3}$
Niobium (Columbium) (41)	Nb-95		$1X10^{-3}$
	Nb-97		$9X10^{-4}$
Osmium (76)	Os-185		$7X10^{-2}$
	Os-191m		$3X10^{-3}$
	Os-191		$2X10^{-4}$
	Os-193		$6X10^{-3}$
Palladium (46)	Pd-103		$3X10^{-4}$
	Pd-109		$9X10^{-4}$
Phosphorus (15)	P-32		$2X10^{-3}$
Platinum (78)	Pt-191		$1X10^{-2}$
	Pt-193m		$1X10^{-2}$
	Pt-197m		$1X10^{-3}$
	Pt-197		$1X10^{-3}$
Polonium (84)	Po-210		$7X10^{-6}$
Potassium (19)	K-42		$3X10^{-3}$
Praseodymium (59)	Pr-142		$3X10^{-4}$
	Pr-143		$5X10^{-4}$
Promethium (61)	Pm-147		$2X10^{-3}$
	Pm-149		$4X10^{-4}$
Radium (88)	Ra-226		$1X10^{-7}$
	Ra-228		$1X10^{-7}$
Rhenium (75)	Re-183		$3X10^{-3}$
	Re-186		$6X10^{-4}$
	Re-188		$9X10^{-4}$
Rhodium (45)	Rh-103m		$6X10^{-4}$
	Rh-105		$1X10^{-1}$

[1/] Values are given in Column I only for those materials normally used as gases
[2/] µCi/gm for solids

Element (atomic number)	Isotope	Column I Gas concentration µCi/ml[1/]	Column II Liquid and solid concentration µCi/ml[2/]
Rubidium (37)	Rb-86		$7X10^{-4}$
Ruthenium (44)	Ru-97		$4X10^{-3}$
	Ru-103		$8X10^{-4}$
	Ru-105		$1X10^{-3}$
	Ru-106		$1X10^{-4}$
Samarium (62)	Sm-153		$8X10^{-4}$
Scandium (21)	Sc-46		$4X10^{-4}$
	Sc-47		$9X10^{-4}$
	Sc-48		$3X10^{-4}$
Selenium (34)	Se-75		$3X10^{-3}$
Silicon (14)	Si-31		$9X10^{-3}$
Silver (47)	Ag-105		$1X10^{-3}$
	Ag-110m		$3X10^{-4}$
	Ag-111		$4X10^{-4}$
Sodium (11)	Na-24		$2X10^{-3}$
Strontium (38)	Sr-85		$1X10^{-3}$
	Sr-89		$1X10^{-4}$
	Sr-91		$7X10^{-4}$
	Sr-92		$7X10^{-4}$
Sulfur (16)	S-35	$9X10^{-8}$	$6X10^{-4}$
Tantalum (73)	Ta-182		$4X10^{-4}$
Technetium (43)	Tc-96m		$1X10^{-1}$
	Tc-96		$1X10^{-3}$
Tellurium (52)	Te-125m		$2X10^{-3}$
	Te-127m		$6X10^{-4}$
	Te-127		$3X10^{-3}$
	Te-129m		$3X10^{-4}$
	Te-131m		$6X10^{-4}$
	Te-132		$3X10^{-4}$
Terbium (65)	Tb-160		$4X10^{-4}$
Thallium (81)	Tl-200		$4X10^{-3}$
	Tl-201		$3X10^{-3}$
	Tl-202		$1X10^{-3}$
	Tl-204		$1X10^{-3}$
Thulium (69)	Tm-170		$5X10^{-4}$
	Tm-171		$5X10^{-3}$

1/ Values are given in Column I only for those materials normally used as gases

2/ µCi/gm for solids

Element (atomic number)	Isotope	Column I Gas concentration µCi/ml[1/]	Column II Liquid and solid concentration µCi/ml[2/]
Tin (50)	Sn-113		$9X10^{-4}$
	Sn-125		$2X10^{-4}$
Tungsten (Wolfram) (74)	W-181		$4X10^{-3}$
	W-187		$7X10^{-4}$
Vanadium (23)	V-48		$3X10^{-4}$
Xenon (54)	Xe-131m	$4X10^{-6}$	
	Xe-133	$3X10^{-6}$	
	Xe-135	$1X10^{-6}$	
Ytterbium (70)	Yb-175		$1X10^{-3}$
Yttrium (39)	Y-90		$2X10^{-4}$
	Y-91m		$3X10^{-2}$
	Y-91		$3X10^{-4}$
	Y-92		$3X10^{-4}$
	Y-93		$6X10^{-4}$
Zinc (30)	Zn-65		$3X10^{-4}$
	Zn-69m		$1X10^{-3}$
	Zn-69		$7X10^{-4}$
Zirconium (40)	Zr-95		$2X10^{-2}$
	Zr-97		$6X10^{-4}$
Beta and/or gamma emitting radioactive material not listed above with half-life less than 3 years.		$1X10^{-10}$	$2X10^{-4}$
			$1X10^{-6}$

NOTE 1: Many radioisotopes disintegrate into isotopes which are also radioactive. In expressing the concentrations in Schedule A the activity stated is that of the parent isotope and taken into account the daughters.

1/ Values are given in Column I only for those materials normally used as gases

2/ µCi/gm are for solids

NOTE 2: For purposes of Section C.4 where there is involved a combination of isotopes, the limit for the combination should be derived as follows: Determine for each isotope in the product the ratio between the concentration present in the product and the exempt concentration established in Schedule A for the specific isotope when not in combination. The sum of such ratios may not exceed "1" (i.e., unity).

EXAMPLE:

$$\frac{\text{Concentration of Isotope A in Product}}{\text{Exempt concentration of Isotope A}} + \frac{\text{Concentration of Isotope B in Product}}{\text{Exempt concentration of Isotope B}} \leq 1$$

PART C

SCHEDULE B

EXEMPT QUANTITIES

Radioactive Material	Micro-curies
Antimony-122 (Sb 122)	100
Antimony-124 (Sb 124)	10
Antimony-125 (Sb 125)	10
Arsenic-73 (As 73)	100
Arsenic-74 (As 74)	10
Arsenic-76 (As 76)	10
Arsenic-77 (As 77)	100
Barium-131 (Ba 131)	10
Barium-133 (Ba 133)	10
Barium-140 (Ba 140)	10
Bismuth-210 (Bi 210)	1
Bromine-82 (Br 82)	10
Cadmium-109 (Cd 109)	10
Cadmium-115m (Cd 115m)	10
Cadmium-115 (Cd 115)	100
Calcium-45 (Ca 45)	10
Calcium-47 (Ca 47)	10
Carbon-14 (C 14)	100
Cerium-141 (Ce 141)	100
Cerium-143 (Ce 143)	100
Cerium-144 (Ce 144)	1
Cesium-129 (Cs 129)	100
Cesium-131 (Cs 131)	1,000
Cesium-134m (Cs 134m)	100
Cesium-134 (Cs 134)	1
Cesium-135 (Cs 135)	10
Cesium-136 (Cs 136)	10
Cesium-137 (Cs 137)	10
Chlorine-36 (Cl 36)	10
Chlorine-38 (Cl 38)	10
Chromium-51 (Cr 51)	1,000
Cobalt-57 (Co 57)	100
Cobalt-58m (Co 58m)	10
Cobalt-58 (Co 58)	10
Cobalt-60 (Co 60)	1
Copper-64 (Cu 64)	100
Dysprosium-165 (Dy 165)	10
Dysprosium-166 (Dy 166)	100
Erbium-169 (Er 169)	100
Erbium-171 (Er 171)	100

Radioactive Material	Micro-curies
Europium-152 (Eu 152)9.2h	100
Europium-152 (Eu 152)13 yr	1
Europium-154 (Eu 154)	1
Europium-155 (Eu 155)	10
Flourine-18 (F 18)	1,000
Gadolinium-153 (Gd 153)	10
Gadolinium-159 (Gd 159)	100
Gallium-67 (Ga 67)	100
Gallium-72 (Ga 72)	10
Germanium-71 (Ge 71)	100
Gold-198 (Au 198)	100
Gold-199 (Au 199)	100
Hafnium-181 (Hf 181)	10
Holmium-166 (Ho 166)	100
Hydrogen-3 (H 3)	1,000
Indium-111 (In 111)	100
Indium-113m (In 113m)	100
Indium-114m (In 114m)	10
Indium-115m (In 115m)	100
Indium-115 (In 115)	10
Iodine-123 (I 123)	100
Iodine-125 (I 125)	1
Iodine-126 (I 126)	1
Iodine-129 (I 129)	0.1
Iodine-131 (I 131)	1
Iodine-132 (I 132)	10
Iodine-133 (I 133)	1
Iodine-134 (I 134)	10
Iodine-135 (I 135)	10
Iridium-192 (Ir 192)	10
Iridium-194 (Ir 194)	100
Iron-52 (Fe 52)	10
Iron-55 (Fe 55)	100
Iron-59 (Fe 59)	10
Krypton-85 (Kr 85)	100
Krypton-87 (Kr 87)	10
Lanthanum-140 (La 140)	10
Lutetium-177 (Lu 177)	100
Manganese-52 (Mn 52)	10
Manganese-54 (Mn 54)	10
Manganese-56 (Mn 56)	10
Mercury-197m (Hg 197m)	100
Mercury-197 (Hg 197)	100
Mercury-203 (Hg 203)	10
Molybdenum-99 (Mo 99)	100
Neodymium-147 (Nd 147)	100

Radioactive Material	Micro-curies
Neodymium-149 (Nd 149)	100
Nickel-59 (Ni 59)	100
Nickel-63 (Ni 63)	10
Nickel-65 (Ni 65)	100
Niobium-93m (Nb 93m)	10
Niobium-95 (Nb 95)	10
Niobium-97 (Nb 97)	10
Osmium-185 (Os 185)	10
Osmium-191m (Os 191m)	100
Osmium-191 (Os 191)	100
Osmium-193 (Os 193)	100
Palladium-103 (Pd 103)	100
Palladium-109 (Pd 109)	100
Phosphorus-32 (P 32)	10
Platinum-191 (Pt 191)	100
Platinum-193m (Pt 193m)	100
Platinum-193 (Pt 193)	100
Platinum-197m (Pt 197m)	100
Platinum-197 (Pt 197)	100
Polonium-210 (Po 210)	0.1
Potassium-42 (K 42)	10
Potassium-43 (K 43)	10
Praseodymium-142 (Pr 142)	100
Praseodymium-143 (Pr 143)	100
Promethium-147 (Pm 147)	10
Promethium-149 (Pm 149)	10
Rhenium-186 (Re 186)	100
Rhenium-188 (Re 188)	100
Rhodium-103m (Rh 103m)	100
Rhodium-105 (Rh 105)	100
Rubidium-81 (Rb 81)	10
Rubidium-86 (Rb 86)	10
Rubidium-87 (Rb 87)	10
Ruthenium-97 (Ru 97)	100
Ruthenium-103 (Ru 103)	10
Ruthenium-105 (Ru 105)	10
Ruthenium-106 (Ru 106)	1
Samarium-151 (Sm 151)	10
Samarium-153 (Sm 153)	100
Scandium-46 (Sc 46)	10
Scandium-47 (Sc 47)	100
Scandium-48 (Sc 48)	10
Selenium-75 (Se 75)	10
Silicon-31 (Si 31)	100

Radioactive material	Micro-curies
Silver-105 (Ag 105)	10
Silver-110m (Ag 110m)	1
Silver-111 (Ag 111)	100
Sodium-22 (Na 22)	10
Sodium-24 (Na 24)	10
Strontium-85 (Sr 85)	10
Strontium-89 (Sr 89)	1
Strontium-90 (Sr 90)	0.1
Strontium-91 (Sr 91)	10
Strontium-92 (Sr 92)	10
Sulphur-35 (S 35)	100
Tantalum-182 (Ta 182)	10
Technetium-96 (Tc 96)	10
Technetium-97m (Tc 97m)	100
Technetium-97 (Tc 97)	100
Technetium-99m (Tc 99m)	100
Technetium-99 (Tc 99)	10
Tellurium-125m (Te 125m)	10
Tellurium-127m (Te 127m)	10
Tellurium-127 (Te 127)	100
Tellurium-129m (Te 129m)	10
Tellurium-129 (Te 129)	100
Tellurium-131m (Te 131m)	10
Tellurium-132 (Te 132)	10
Terbium-160 (Tb 160)	10
Thallium-200 (Tl 200)	100
Thallium-201 (Tl 201)	100
Thallium-202 (Tl 202)	100
Thallium-204 (Tl 204)	10
Thulium-170 (Tm 170)	10
Thulium-171 (Tm 171)	10
Tin-113 (Sn 113)	10
Tin-125 (Sn 125)	10
Tungsten-181 (W 181)	10
Tungsten-185 (W 185)	10
Tungsten-187 (W 187)	100
Vanadium-48 (V 48)	10
Xenon-131m (Xe 131m)	1,000
Xenon-133 (Xe 133)	100
Xenon-135 (Xe 135)	100
Ytterbium-175 (Yb 175)	100
Yttrium-87 (Y 87)	10
Yttrium-90 (Y 90)	10
Yttrium-91 (Y 91)	10
Yttrium-92 (Y 92)	100
Yttrium-93 (Y 93)	100
Zinc-65 (Zn 65)	10

Radioactive material	Micro-curies
Zinc-69m (Zn 69m)	100
Zinc-69 (Zn 69)	1,000
Zirconium-93 (Zr 93)	10
Zirconium-95 (Zr 95)	10
Zirconium-97 (Zr 97)	10
Any radioactive material not listed above other than alpha emitting radioactive material	0.1

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PART C

SCHEDULE C

SCHEDULE C - Groups of Diagnostic Uses of Radioactive Material In Humans

Group I. Uptake, dilution, and excretion studies (does not include imaging or tumor localizations)

(1) Iodine-131 or iodine-125 as sodium iodine for thyroid function studies.

(2) Iodine-131 or iodine-125 as iodinated human serum albumin (IHSA) for determinations of blood and blood plasma volume.

(3) Iodine-131 or iodine-125 as labeled rose bengal for liver function studies.

(4) Iodine-131 or iodine-125 as labeled fats or fatty acids for fat absorption studies.

(5) Iodine-131 or iodine-125 as labeled iodopyracet, sodium iodohippurate, sodium diatrizoate, diatrizoate methylglucamine, sodium diprotrizoate, sodium acetrizoate, or sodium iothalamate for kidney function studies.

(6) Chromium-51 as labeled human serum albumin for gastrointestinal protein loss studies.

(7) Chromium-51 as sodium chromate for determination of red blood cell volumes and studies of red blood cell survival time.

(8) Iron-59 as chloride, citrate, or sulfate for iron turnover studies.

(9) Cobalt-57, cobalt-58, or cobalt-60 as labeled cyanocobalamin (vitamin B-12) for intestinal absorption studies.

(10) Potassium-42 as chloride for potassium space determinations.

(11) Sodium-24 as chloride for sodium space determinations.

(12) Technetium-99m as pertechnetate for blood flow studies.

(13) Mercury-197 as chlormerodrin for kidney function studies.

Group II Imaging and tumor localizations

(1) Iodine-131 or iodine-125 as sodium iodide for thyroid imaging.

(2) Iodine-131 as iodinated human serum albumin (IHSA) for brain tumor localizations and cardiac imaging.

(3) Iodine-131 as macroaggregated iodinated human serum albumin for lung imaging.

(4) Iodine-131 as colloidal (microaggregated) iodinated human serum albumin for liver imaging.

(5) Iodine-131 as labeled rose bengal for liver imaging.

(6) Iodine-131 as iodopyracet, sodium iodohippurate, sodium diatrizoate, diatrizoate methylglucamine, sodium diprotrizoate, or sodium acetrizoate for kidney imaging.

(7) Iodine-131 as sodium iodipamide for cardiac imaging.

(8) Chromium-51 as sodium chromate for spleen imaging.

(9) Gold-198 in colloidal form for liver imaging.

(10) Mercury-197 as chlormerodrin for kidney and brain imaging. 55
(11) Mercury-203 as chlormerodrin for brain imaging. 56
(12) Selenium-75 as labeled selenomethionine for pancreas imaging. 57
(13) Strontium-85 as nitrate or chloride for bone imaging in patients 58
with suspected or diagnosed cancer. 59
(14) Technetium-99m as pertechnetate for brain imaging. 60
(15) Technetium-99m as pertechnetate for thyroid imaging. 61
(16) Technetium-99m as pertechnetate for blood pool imaging including 62
placenta localizations. 63
(17) Technetium-99m as pertechnetate for salivary gland imaging. 64
(18) Technetium-99m as labeled sulfur colloid for liver and spleen 65
imaging. 66
(19) Technetium-99m as labeled macroaggregated human serum albumin 67
for lung imaging. 68

PART C

SCHEDULE D

Limits for Broad Licences (C.27)

Radioactive Material	Col. I curies	Col. II curies
Antimony-122	1	0.01
Antimony-124	1	0.01
Antimony-125	1	0.01
Arsenic-73	10	0.1
Arsenic-74	1	0.01
Arsenic-76	1	0.01
Arsenic-77	10	0.1
Barium-131	10	0.1
Barium-140	1	0.01
Beryllium-7	10	0.1
Bismuth-210	0.1	0.001
Bromine-82	10	0.1
Cadmium-109	1	0.01
Cadmium-115m	1	0.01
Cadmium-115	10	0.1
Calcium-45	1	0.01
Calcium-47	10	0.1
Carbon-14	100	1.
Cerium-141	10	0.1
Cerium-143	10	0.1
Cerium-144	0.1	0.001
Cesium-131	100	1.
Cesium-134m	100	1.
Cesium-134	0.1	0.001
Cesium-135	1	0.01
Cesium-136	10	0.1
Cesium-137	0.1	0.001
Chlorine-36	1	0.01
Chlorine-38	100	1.
Chromium-51	100	1.
Cobalt-57	10	0.1
Cobalt-58m	100	1.
Cobalt-58	1	0.01
Cobalt-60	0.1	0.001
Copper-64	10	0.1
Dysprosium-165	100	1.
Dysprosium-166	10	0.1
Erbium-169	10	0.1
Erbium-171	10	0.1

Radioactive Material	Col. I curies	Col. II curies	
Europium-152 (9.2 h)	10	0.1	58
Europium-152 (13 y)	0.1	0.001	59
Europium-154	0.1	0.001	60
Europium-155	1	0.01	61
Fluorine-18	100	1.	62
Gadolinium-153	1	0.01	63
Gadolinium-159	10	0.1	64
Gallium-72	10	0.1	65
Germanium-71	100	1.	66
Gold-198	10	0.1	67
Gold-199	10	0.1	68
Hafnium-181	1	0.01	69
Holmium-166	10	0.1	70
Hydrogen-3	100	1.	71
Indium-113m	100	1.	72
Indium-114m	1	0.01	73
Indium-115m	100	1.	74
Indium-115	1	0.01	75
Iodine-125	0.1	0.001	76
Iodine-126	0.1	0.001	77
Iodine-129	0.1	0.001	78
Iodine-131	0.1	0.001	79
Iodine-132	10	0.1	80
Iodine-133	1	0.01	81
Iodine-134	10	0.1	82
Iodine-135	1	0.01	83
Iridium-192	1	0.01	84
Iridium-194	10	0.1	85
Iron-55	10	0.1	86
Iron-59	1	0.01	87
Krypton-85	100	1.	88
Krypton-87	10	0.1	89
Lanthanum-140	1	0.01	90
Lutetium-177	10	0.1	91
Manganese-52	1	0.01	92
Manganese-54	1	0.01	93
Manganese-56	10	0.1	94
Mercury-197m	10	0.1	95
Mercury-197	10	0.1	96
Mercury-203	1	0.01	97
Molybdenum-99	10	0.1	98
Neodymium-147	10	0.1	99
Neodymium-149	10	0.1	100
Nickel-59	10	0.1	101
Nickel-63	1	0.01	102
Nickel-65	10	0.1	103

Radioactive Material	Col. I curies	Col. II curies	
Niobium-93m	1	0.01	104
Niobium-95	1	0.01	105
Niobium-97	100	1.	106
Osmium-185	1	0.01	107
Osmium-191m	100	1.	108
Osmium-191	10	0.1	109
Osmium-193	10	0.1	110
Palladium-103	10	0.1	111
Palladium-109	10	0.1	112
Phosphorus-32	1	0.01	113
Platinum-191	10	0.1	114
Platinum-193m	100	1.	115
Platinum-193	10	0.1	116
Platinum-197m	100	1.	117
Platinum-197	10	0.1	118
Polonium-210	0.01	0.0001	119
Potassium-42	1	0.01	120
Praseodymium-142	10	0.1	121
Praseodymium-143	10	0.1	122
Promethium-147	1	0.01	123
Promethium-149	10	0.1	124
Radium-226	0.01	0.0001	125
Rhenium-186	10	0.1	126
Rhenium-188	10	0.1	127
Rhodium-103m	1,000	10.	128
Rhodium-105	10	0.1	129
Rubidium-86	1	0.01	130
Rubidium-87	1	0.01	131
Ruthenium-97	100	1.	132
Ruthenium-103	1	0.01	133
Ruthenium-105	10	0.1	134
Ruthenium-106	0.1	0.001	135
Samarium-151	1	0.01	136
Samarium-153	10	0.1	137
Scandium-46	1	0.01	138
Scandium-47	10	0.1	139
Scandium-48	1	0.01	140
Selenium-75	1	0.01	141
Silicon-31	10	0.1	142
Silver-105	1	0.01	143
Silver-110m	0.1	0.001	144
Silver-111	10	0.1	145
Sodium-22	0.1	0.001	146
Sodium-24	1	0.01	147
Strontium-85m	1,000	10.	148
Strontium-85	1	0.01	149

Radioactive Material	Col. I curies	Col. II curies	
Strontium-89	1	0.01	150
Strontium-90	0.01	0.0001	151
Strontium-91	10	0.1	152
Strontium-92	10	0.1	153
Sulphur-35	10	0.1	154
Tantalum-182	1	0.01	155
Technetium-96	10	0.1	156
Technetium-97m	10	0.1	157
Technetium-97	10	0.1	158
Technetium-99m	100	1.	159
Technetium-99	1	0.01	160
Tellurium-125m	1	0.01	161
Tellurium-127m	1	0.01	162
Tellurium-127	10	0.1	163
Tellurium-129m	1	0.01	164
Tellurium-129	100	1.	165
Tellurium-131m	10	0.1	166
Tellurium-132	1	0.01	167
Terbium-160	1	0.01	168
Thallium-200	10	0.1	169
Thallium-201	10	0.1	170
Thallium-202	10	0.1	171
Thallium-204	1	0.01	172
Thulium-170	1	0.01	173
Thulium-171	1	0.01	174
Tin-113	1	0.01	175
Tin-125	1	0.01	176
Tungsten-181	1	0.01	177
Tungsten-185	1	0.01	178
Tungsten-187	10	0.1	179
Vanadium-48	1	0.01	180
Xenon-131m	1,000	10.	181
Xenon-133	100	1.	182
Xenon-135	100	1.	183
Ytterbium-175	10	0.1	184
Yttrium-90	1	0.01	185
Yttrium-91	1	0.01	186
Yttrium-92	10	0.1	187
Yttrium-93	1	0.01	188
Zinc-65	1	0.01	189
Zinc-69m	10	0.1	190
Zinc-69	100	1.	191
Zirconium-93	1	0.01	192
Zirconium-95	1	0.01	193
Zirconium-97	1	0.01	194

Radioactive Material	Col. I curies	Col. II curies	
Any radioactive material other than source material, special nuclear material, or alpha emitting radioactive material not listed above.	0.1	0.001	198 199 200 201 202

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PART D

STANDARDS FOR PROTECTION AGAINST RADIATION

Sec. D.1 Purpose and Scope

(a) This part establishes standards for protection against radiation hazards. Except as otherwise specifically provided, this part applies to all licensees or registrants. Nothing in this part shall be interpreted as limiting the intentional exposure of patients to radiation for the purpose of medical diagnosis or therapy.

(b) In addition to complying with the requirements set forth in this part, every reasonable effort should be made to maintain radiation exposures, and releases of radioactive materials in effluents to unrestricted areas, as far below the limits specified in this part as practicable. The term "as far below the limits specified in this part as practicable" means as low as is practicably achievable taking into account the state of technology, and the economics of improvements in relation to benefits to the public health and safety and in relation to the utilization of ionizing radiation in the public interest.

Permissible Doses, Levels, and Concentrations

Sec. D.101 Radiation Dose to Individuals in Restricted Areas 1/

(a) Except as provided in D.101(b), no licensee or registrant shall possess, use, receive, or transfer sources of radiation in such a manner as to cause any individual in a restricted area to receive in any period of one calendar quarter from all sources of radiation in the licensee's or registrant's possession a dose in excess of the limits specified in the following table:

	Rems per Calendar Quarter
Whole body; head and trunk; active blood-forming organs; lens of eyes; or gonads.	1 1/4
Hands and forearms; feet and ankles.	18 3/4
Skin of whole body.	7 1/2

1/ For determining the doses specified in D.101 a dose from x or gamma rays up to 10 MeV may be assumed to be equivalent to the exposure measured by a properly calibrated appropriate instrument in air at or near the body surface in the region of the highest dose rate.

(b) A licensee or registrant may permit an individual in a restricted area to receive a dose to the whole body greater than that permitted under D.101(a), provided:

(1) During any calendar quarter the dose to the whole body from sources of radiation in the licensee's or registrant's possession shall not exceed 3 rems;

(2) The dose to the whole body, when added to the accumulated occupational dose to the whole body, shall not exceed 5(N-18) rems where "N" equals the individual's age in years at his last birthday; and

(3) The licensee or registrant has determined the individual's accumulated occupational dose to the whole body on Agency Form "Y" or on a clear and legible record containing all the information required in that form and has otherwise complied with the requirements of D.102. As used in D.101(b), "dose to the whole body" shall be deemed to include any dose to the whole body, gonads, active blood-forming organs, head and trunk, or lens of eye.

Sec. D.102 Determination of Accumulated Dose

(a) This section contains requirements which must be satisfied by licensees or registrants who propose, pursuant to D.101(b) to permit individuals in a restricted area to receive exposure to radiation in excess of the limits specified in D.101(a).

(b) Before permitting any individual in a restricted area to be exposed to radiation in excess of the limits specified in D.101(a), each licensee or registrant shall:

(1) Obtain a certificate on Agency Form "Y" or on a clear and legible record containing all the information required in that form, signed by the individual, showing each period of time after the individual attained the age of 18 in which the individual received an occupational dose of radiation; and

(2) Calculate on Agency Form "Y," in accordance with the instructions appearing therein, or on a clear and legible record containing all the information required in that form, the previously accumulated occupational dose received by the individual and the additional dose allowed for that individual under D.101(b).

(c) (1) In the preparation of Agency Form "Y," or a clear and legible record containing all the information required in that form, the licensee or registrant shall make a reasonable effort to obtain reports of the individual's previously accumulated occupational dose. For each period for which the licensee or registrant obtains such reports, he shall use the dose shown in the report in preparing the

form. In any case where a licensee or registrant is unable to obtain reports of the individual's occupational dose for a previous complete calendar quarter, it shall be assumed that the individual has received the occupational dose specified in whichever of the following columns apply:

Part of Body	Column 1 Assumed Dose in Rems for Calendar Quarters Prior to January 1, 1961	Column 2 Assumed Dose in Rems For Calendar Quarters Beginning on or After January 1, 1961
Whole body, gonads, active blood-forming organs, head and trunk, lens of eye	3 3/4	1 1/4

(2) The licensee or registrant shall retain and preserve records used in preparing Agency Form "Y." If calculation of the individual's accumulated occupational dose for all periods prior to January 1, 1961, yields a result higher than the applicable accumulated dose value for the individual as of that date, as specified in D.101 (b)(2), the excess may be disregarded.

Sec. D.103 Exposure of Individuals to Concentrations of Radioactive Material in Restricted Areas

(a) No licensee shall possess, use, receive, or transfer radioactive material in such a manner as to cause an individual in a restricted area to be exposed to airborne radioactive material in an average concentration in excess of the limits specified in Appendix A, Table I, of this part. "Expose," as used in this section means that the individual is present in an airborne concentration. No allowance shall be made for the use of protective clothing or equipment, or particle size, except as authorized by the Agency pursuant to D.103(c).

(b) The limits given in Appendix A, Table I, of this part are based upon exposure to the concentrations specified for forty (40) hours in any period of seven (7) consecutive days. In any such period where the number of hours of exposure is less than forty (40), the limits specified in the table may be increased proportionately. In any such period where the number of hours of exposure is greater than forty (40), limits specified in the table shall be decreased proportionately.

(c) (1) Except as authorized by the Agency pursuant to this paragraph, no allowance shall be made for particle size or the use of protective clothing or equipment in determining whether an individual is exposed to an airborne concentration in excess of the limits specified in Appendix A, Table I.

(2) The Agency may authorize a licensee to expose an individual in a restricted area to airborne concentrations in excess of the limits specified in Appendix A, Table I, upon receipt of an application demonstrating that the concentration is composed in whole or in part of particles of such size that such particles are not respirable and that the individual will not inhale the concentrations in excess of the limits established in Appendix A, Table I. Each application under this subparagraph shall include an analysis of particle sizes in the concentrations and a description of the methods used in determining the particle sizes.

(3) The Agency may authorize a licensee to expose an individual in a restricted area to airborne concentrations in excess of the limits specified in Appendix A, Table I, upon receipt of an application demonstrating that the individual will wear appropriate protective equipment and that the individual will not inhale, ingest, or absorb quantities of radioactive material in excess of those which might otherwise be permitted under this part for individuals in restricted areas during a 40-hour week. Each application under this subparagraph shall contain the following information:

(i) A description of the protective equipment to be employed, including the efficiency of the equipment for the material involved;

(ii) Procedures for the fitting, maintenance, and cleaning of the protective equipment;

(iii) Procedures governing the use of the protective equipment, including supervisory procedures and length of time the equipment will be used by the individuals in each work week. The proposed periods for use of the equipment by any individual should not be of such duration as would discourage observance by the individual of the proposed procedures; and

(iv) The average concentrations present in the areas occupied by individuals.

Sec. D.104 Exposure of Minors 2/

(a) No licensee or registrant shall possess, use, or transfer sources of radiation in such a manner as to cause any individual within a restricted area, who is under 18 years of age, to receive in any period of one calendar quarter from all sources of radiation in such licensee's or registrant's possession a dose in excess of 10 percent of the limits specified in the table in D.101(a).

(b) No licensee shall possess, use, or transfer radioactive material in such a manner as to cause any individual within a restricted area, who is under 18 years of age, to be exposed to airborne radioactive material in an average concentration in excess of the limits specified in Appendix A, Table II, of this part. For purposes of this paragraph, concentrations may be averaged over periods not greater than a week.

(c) The provisions of D.103(c) shall apply to exposures subject to D.104(b).

Sec. D.105 Permissible Levels of Radiation From External Sources in Unrestricted Areas 3/

(a) Except as authorized by the Agency pursuant to D.105(b) no licensee or registrant shall possess, use, or transfer sources of radiation in such a manner as to create in any unrestricted area from such sources of radiation in his possession:

(1) Radiation levels which, if an individual were continuously present in the area, could result in his receiving a dose in excess of 2 millirems in any 1 hour; or

(2) Radiation levels which, if an individual were continuously present in the area could result in his receiving a dose in excess of 100 millirems in any 7 consecutive days.

(b) Any person may apply to the Agency for proposed limits upon levels of radiation in unrestricted areas in excess of those specified in D.105 (a) resulting from the applicant's possession or use of sources of radiation. Such applications should include information as to anticipated average radiation levels and anticipated occupancy times for each unrestricted area involved. The Agency will approve the proposed limits if the applicant demonstrates to the satisfaction of the Agency that the proposed limits are not likely to cause any individual to

2/ For determining the doses specified in this section, a dose from x or gamma rays up to 10 MeV may be assumed to be equivalent to the exposure measured by a properly calibrated appropriate instrument in air at or near the body surface in the region of the highest dose rate.

3/ It is the intent of this section to limit radiation levels so that it is unlikely that individuals in unrestricted areas would receive a dose to the whole body in excess of 0.5 rem in any one year. If in specific instances, it is determined by the Agency that this intent is not met, the Agency may, pursuant to A.7, impose such additional requirements on the licensee or registrant as may be necessary to meet the intent.

receive a dose to the whole body in any period of one calendar year in excess of 0.5 rem.

Sec. D.106 Concentration in Effluents to Unrestricted Areas

(a) A licensee shall not possess, use, or transfer licensed material so as to release to an unrestricted area radioactive material in concentrations which exceed the limits specified in Appendix A, Table II of this part, except as authorized pursuant to D.302 or D.106(b). For purposes of this section concentrations may be averaged over a period not greater than one year.

(b) An application for a license or amendment may include proposed limits higher than those specified in D.106(a). The Agency will approve the proposed limits if the applicant demonstrates:

(1) That the applicant has made a reasonable effort to minimize the radioactivity contained in effluents to unrestricted areas; and

(2) That it is not likely that radioactive material discharged in the effluent would result in the exposure of an individual to concentrations of radioactive material in air or water exceeding the limits specified in Appendix A, Table II of this part.

(c) An application for higher limits pursuant to D.106(b) shall include information demonstrating that the applicant has made a reasonable effort to minimize the radioactivity discharged in effluents to unrestricted areas, and shall include, as pertinent:

(1) Information as to flow rates, total volume of effluent, peak concentration of each radionuclide in the effluent, and concentration of each radionuclide in the effluent averaged over a period of one year at the point where the effluent leaves a stack, tube, pipe, or similar conduit;

(2) A description of the properties of the effluents, including:

(i) Chemical composition,

(ii) Physical characteristics, including suspended solids content in liquid effluents, and nature of gas or aerosol for air effluents,

(iii) The hydrogen ion concentrations (pH) of liquid effluents, and

(iv) The size range of particulates in effluents released into air;

(3) A description of the anticipated human occupancy in the unrestricted area where the highest concentration of radioactive material from the effluent is expected, and, in the case of a river or stream, a description of water uses downstream from the point of release of the effluent;

(4) Information as to the highest concentration of each radionuclide in an unrestricted area, including anticipated concentrations averaged over a period of one year:

(i) In air at any point of human occupancy, or

(ii) In water at points of use downstream from the point of release of the effluent;

(5) The background concentration of radionuclides in the receiving river or stream prior to the release of liquid effluent;

(6) A description of the environmental monitoring equipment, including sensitivity of the system, and procedures and calculations to determine concentrations of radionuclides in the unrestricted area and possible reconcentrations of radionuclides; and

(7) A description of the waste treatment facilities and procedures used to reduce the concentration of radionuclides in effluents prior to their release.

(d) For the purposes of this section, the concentration limits in Appendix A, Table II of this part shall apply at the boundary of the restricted area. The concentration of radioactive material discharged through a stack, pipe or similar conduit may be determined with respect to the point where the material leaves the conduit. If the conduit discharges within the restricted area, the concentration at the boundary may be determined by applying appropriate factors for dilution, dispersion, or decay between the point of discharge and the boundary.

(e) In addition to limiting concentrations in effluent streams, the Agency may limit quantities of radioactive material released in air or water during a specified period of time if it appears that the daily intake of radioactive material from air, water, or food by a suitable sample of an exposed population group, averaged over a period not exceeding one year, would otherwise exceed the daily intake resulting from continuous exposure to air or water containing one-third (1/3) the

concentration of radioactive material specified in Appendix A, Table II of this part.

(f) The provisions of this section do not apply to disposal of radioactive material into sanitary sewerage systems, which is governed by D.303.

Sec. D.107 Orders Requiring Furnishing of Bioassay Services. Where necessary or desirable in order to aid in determining the extent of an individual's exposure to concentrations of radioactive material, the Agency may incorporate license provisions or issue an order requiring a licensee or registrant to make available to the individual appropriate bioassay services and to furnish a copy of the reports of such services to the Agency.

Precautionary Procedures

Sec. D.201 Surveys. Each licensee or registrant shall make or cause to be made such surveys as may be necessary for him to establish compliance with these regulations.

Sec. D.202 Personnel Monitoring. Each licensee or registrant shall supply appropriate personnel monitoring equipment to, and shall require the use of such equipment by:

(a) Each individual who enters a restricted area under such circumstances that he receives, or is likely to receive, a dose in any calendar quarter in excess of 25 percent of the applicable value specified in D.101(a).

(b) Each individual under 18 years of age who enters a restricted area under such circumstances that he receives, or is likely to receive, a dose in any calendar quarter in excess of 5 percent of the applicable value specified in D.101(a).

(c) Each individual who enters a high radiation area.

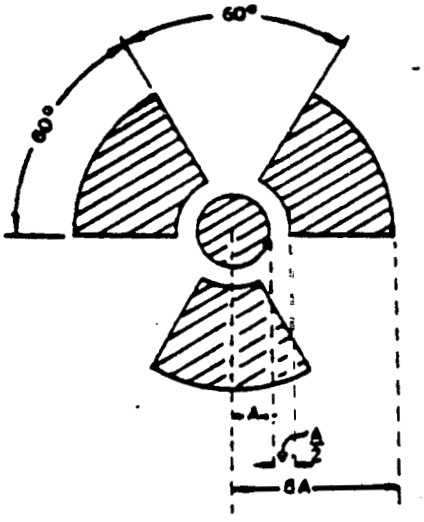
Sec. D.203 Caution Signs, Labels, and Signals 374

(a) General 376

(1) Except as otherwise authorized by the Agency, symbols prescribed by this section shall use the conventional radiation caution colors (magenta or purple on yellow background). The symbol prescribed by this section is the conventional three-blade design: 378 379 380 381

RADIATION SYMBOL 384

1. Cross-hatch area is to be magenta or purple. 387
2. Background is to be yellow. 388



(2) In addition to the contents of signs and labels prescribed in this section, a licensee or registrant may provide on or near such signs and labels any additional information which may be appropriate in aiding individuals to minimize exposure to radiation. 391 392 393 394

(b) Radiation Areas. Each radiation area shall be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words: 396 397

CAUTION 4/ 400

RADIATION AREA 402

4/ Or "Danger".

(c) High Radiation Areas

(1) Each high radiation area shall be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words:

CAUTION 4/

HIGH RADIATION AREA

(2) Each entrance or access point to a high radiation area shall be:

(i) Equipped with a control device which shall cause the level of radiation to be reduced below that at which an individual might receive a dose of 100 millirems in 1 hour upon entry into the area; or

(ii) Equipped with a control device which shall energize a conspicuous visible or audible alarm signal in such a manner that the individual entering the high radiation area and the licensee or a supervisor of the activity are made aware of the entry; or

(iii) Maintained locked except during periods when access to the area is required, with positive control over each individual entry.

(3) The controls required by D.203(c)(2) shall be established in such a way that no individual will be prevented from leaving a high radiation area.

(4) In the case of a high radiation area established for a period of 30 days or less, direct surveillance to prevent unauthorized entry may be substituted for the controls required by D.203(c)(2).

(5) Any licensee or registrant may apply to the Agency for approval of methods not included in D.203(c)(2) and (4) for controlling access to high radiation areas. The Agency will approve the proposed alternatives if the licensee or registrant demonstrates that the alternative methods of control will prevent unauthorized entry into a high radiation area, and that the requirement of D.203(c)(3) is met.

4/ Or "Danger".

(d) Airborne Radioactivity Areas. Each airborne radioactivity area shall be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words:

CAUTION 4/

AIRBORNE RADIOACTIVITY AREA

(e) Additional Requirements

(1) Each area or room in which any radioactive material, other than natural uranium or thorium, is used or stored in an amount exceeding 10 times the quantity of radioactive material specified in Appendix B of this part shall be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words:

CAUTION 4/

RADIOACTIVE MATERIAL

(2) Each area or room in which natural uranium or thorium is used or stored in an amount exceeding one hundred times the quantity specified in Appendix B of this part shall be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words:

CAUTION 4/

RADIOACTIVE MATERIAL

(f) Containers

(1) Except as provided in D.203(f)(3) each container of radioactive material shall bear a durable, clearly visible label identifying the radioactive contents.

(2) A label required pursuant to D.203(f)(1) shall bear the radiation caution symbol and the words:

CAUTION 4/

RADIOACTIVE MATERIAL

It shall also provide sufficient information 5/ to permit individuals handling or using the containers, or working in the vicinity thereof, to take precautions to avoid or minimize exposures.

4/ Or "Danger".

5/ As appropriate, the information will include radiation levels, kinds of material, estimate of activity, date for which activity is estimated, etc.

(3) Notwithstanding the provisions of D.203(f)(1), labeling is not required:

(i) For containers that do not contain radioactive material in quantities greater than the applicable quantities listed in Appendix B of this part;

(ii) For containers containing only natural uranium or thorium in quantities no greater than ten (10) times the applicable quantities listed in Appendix B of this part;

(iii) For containers that do not contain radioactive material in concentrations greater than the applicable concentrations listed in Column 2, Table I, Appendix A of this part;

(iv) For containers when they are attended by an individual who takes the precautions necessary to prevent the exposure of any individual to radiation or radioactive material in excess of the limits established by the regulations in this part;

(v) For containers when they are in transport and packaged and labeled in accordance with regulations published by the Department of Transportation;

(vi) For containers which are accessible only to individuals authorized to handle or use them 6/ or to work in the vicinity thereof, provided that the contents are identified to such individuals by a readily available written record; and

(vii) For manufacturing and process equipment such as piping and tanks.

(g) All radiation machines shall be labeled in a manner which cautions individuals that radiation is produced when the machine is being operated.

Sec. D.204 Exceptions from Posting and Labeling Requirements. Notwithstanding the provisions of D.203:

(a) A room or area is not required to be posted with a caution sign because of the presence of a sealed source, provided the radiation level twelve (12) inches from the surface of the source container or housing does not exceed five (5) millirem per hour.

(b) Rooms or other areas in hospitals are not required to be posted with caution signs, and control of entrance or access thereto pursuant to D.203(c) is not required, because of the presence of patients containing radioactive material provided that there are personnel in attendance who

6/ For example, containers in locations such as water-filled canals, storage vaults, or hot cells.

will take the precautions necessary to prevent the exposure of any individual to radiation or radioactive material in excess of the limits established in the regulations in this part.

(c) Caution signs are not required to be posted in areas or rooms containing radioactive material for periods of less than eight (8) hours provided that (1) the material is constantly attended during such periods by an individual who shall take the precautions necessary to prevent the exposure of any individual to radiation or radioactive material in excess of the limits established in this part, and (2) such area or room is subject to the licensee's or registrant's control.

(d) A room or other area is not required to be posted with a caution sign, and control is not required for each entrance or access point to a room or other area which is a high radiation area solely because of the presence of radioactive material prepared for transport and packaged and labeled in accordance with regulations of the Department of Transportation.

Sec. D.205 Instruction of Personnel

Instructions required for individuals working in or frequenting any portion of a restricted area are specified in J.12 of these regulations.

Sec. D.206 Storage of Sources of Radiation. Sources of radiation shall be secured against unauthorized removal from the place of storage.

Sec. D.207 Procedures for Picking Up, Receiving, and Opening Packages

(a) (1) Each licensee or registrant who expects to receive a package containing quantities of radioactive material in excess of the Type A quantities specified in D.207 (b) shall:

(i) if the package is to be delivered to the licensee's or registrant's facility by the carrier, make arrangements to receive the package when it is offered for delivery by the carrier; or

(ii) if the package is to be picked up by the licensee or registrant at the carrier's terminal, make arrangements to receive notification from the carrier of the arrival of the package, at the time of arrival.

(2) Each licensee or registrant who picks up a package of radioactive material from a carrier's terminal shall pick up the package expeditiously upon receipt of notification from the carrier of its arrival.

(b) (1) Each licensee or registrant, upon receipt of a package of radioactive material, shall monitor the external surfaces of the

package for radioactive contamination caused by leakage of the radioactive contents, except:

(i) Packages containing no more than the exempt quantity specified in the table in this paragraph;

(ii) Packages containing no more than 10 millicuries of radioactive material consisting solely of tritium, carbon-14, sulfur-35, or iodine-125;

(iii) Packages containing only radioactive material as gases or in special form;

(iv) Packages containing only radioactive material in other than liquid form (including Mo-99/Tc-99m generators) and not exceeding the Type A quantity limit specified in the table in this paragraph; and

(v) Packages containing only radionuclides with half-lives of less than 30 days and a total quantity of no more than 100 millicuries.

The monitoring shall be performed as soon as practicable after receipt, but no later than three hours after the package is received at the licensee's facility if received during the licensee's normal working hours, or eighteen hours if received after normal working hours.

(2) If removable radioactive contamination in excess of 0.01 microcurie (22,200 disintegrations per minute) per 100 square centimeters of package surface is found on the external surfaces of the package, the licensee shall immediately notify the final delivering carrier and, by telephone and telegraph, the Agency.

Table of Exempt and Type A Quantities

Transport Group 7/	Exempt Quantity Limit (in millicuries)	Type A Quantity Limit (in curies)
I	0.01	0.001
II	0.1	0.050
III	1	3
IV	1	20
V	1	20
VI	1	1,000
VII	25,000	1,000
Special form 7/	1	20

(c) (1) Each licensee or registrant, upon receipt of a package containing quantities of radioactive material in excess of the Type A quantities specified in D.207 (b), other than those transported by exclusive use vehicle, shall monitor the radiation levels external to the package. The package shall be monitored as soon as practicable after receipt, but no later than three hours after the package is received at the licensee's facility if received during the licensee's normal working hours, or 18 hours if received after normal working hours.

(2) If radiation levels are found on the external surface of the package in excess of 200 millirem per hour, or at three feet from the external surface of the package in excess of 10 millirem per hour, the licensee or registrant shall immediately notify, by telephone and telegraph, the final delivering carrier and the Agency.

(d) Each licensee or registrant shall establish and maintain procedures for safely opening packages in which radioactive material is received, and shall assure that such procedures are followed and that due

7/ The definitions of "transport group" and "special form" are specified in A.2 of these regulations.

consideration is given to special instructions for the type of package being opened.

Waste Disposal

Sec D.301 General Requirement. No licensee shall dispose of any radioactive material except:

(a) By transfer to an authorized recipient as provided in Part C, or

(b) As authorized pursuant to D.106, D.302, D.303 or D.304.

Sec. D.302 Method of Obtaining Approval of Proposed Disposal Procedures. Any person may apply to the Agency for approval of proposed procedures to dispose of radioactive material in a manner not otherwise authorized in this part. Each application shall include a description of the radioactive material, including the quantities and kinds of radioactive material and levels of radioactivity involved, and the proposed manner and conditions of disposal. The application, where appropriate, should also include an analysis and evaluation of pertinent information as to the nature of the environment, including topographical, geological, meteorological, and hydrological characteristics; usage of ground and surface waters in the general area; the nature and location of other potentially affected facilities; and procedures to be observed to minimize the risk of unexpected or hazardous exposures.

The Agency will not approve any application for a license to receive radioactive material from other persons for disposal on land not owned by a State or the Federal Government.

Sec. D.303 Disposal by Release Into Sanitary Sewerage Systems. No licensee shall discharge radioactive material into a sanitary sewerage system unless:

(a) It is readily soluble or dispersible in water;

(b) The quantity of any radioactive material released into the system by the licensee in any one day does not exceed the larger of D.303(b)(1) or (2):

(1) The quantity which, if diluted by the average daily quantity of sewage released into the sewer by the licensee, will result in an average concentration not greater than the limits specified in Appendix A, Table I, Column 2, of this part, or

(2) Ten (10) times the quantity of such material specified in Appendix B of this part;

(c) The quantity of any radioactive material released in any one month, if diluted by the average monthly quantity of water released by the

licensee, will not result in an average concentration exceeding the limits specified in Appendix A, Table I, Column 2, of this part; and

(d) The gross quantity of radioactive material released into the sewerage system by the licensee does not exceed one curie (1) per year.

Excreta from individuals undergoing medical diagnosis or therapy with radioactive material shall be exempt from any limitations contained in this section.

Sec. D.304 Disposal by Burial in Soil. No licensee shall dispose of radioactive material by burial in soil unless:

(a) The total quantity of radioactive material buried at any one location and time does not exceed, at the time of burial 1,000 times the amount specified in Appendix B of this part;

(b) Burial is at a minimum of four (4) feet; and

(c) Successive burials are separated by distances of at least six (6) feet and not more than 12 burials are made in any year.

Sec. D.305 Disposal by Incineration. No licensee shall incinerate radioactive material for the purpose of disposal or preparation for disposal except as specifically approved by the Agency pursuant to D.106 and D.302.

Records, Reports, and Notification

Sec. D.401 Records of Surveys, Radiation Monitoring, and Disposal

(a) Each licensee or registrant shall maintain records showing the radiation exposures of all individuals for whom personnel monitoring is required under D.202 of this part. Such records shall be kept on Agency Form "Z", in accordance with the instructions contained in that form, or on clear and legible records containing all the information required by Agency Form "Z". The doses entered on the forms or records shall be for periods of time not exceeding one calendar quarter.

(b) Each licensee or registrant shall maintain records in the same units used in this part, showing the results of surveys required by D.201, monitoring required by D.207(b) and D.207(c), and disposals made under D.302, D.303. and D.304.

(c) Records of individual exposure to radiation and to radioactive material which must be maintained pursuant to the provisions of D.401(a) and records of bioassays, including results of whole body counting examinations, made pursuant to D.107 shall be preserved indefinitely or until the Agency authorizes their disposal. [Records which must be

maintained pursuant to this part may be maintained in the form of microfilms].

(d) The discontinuance of or curtailment of activities, does not relieve the licensee or registrant of responsibility for retaining all records required by this section. A licensee or registrant may, however, request the Agency to accept such records. The acceptance of the records by the Agency relieves the licensee or registrant of subsequent responsibility only in respect to their preservation as required by this section.

Sec. D.402 Reports of Theft or Loss of Sources of Radiation. Each licensee or registrant shall report by telephone and telegraph to the Agency the theft or loss of any source of radiation immediately after such occurrence becomes known.

Sec. D.403 Notification of Incidents

(a) Immediate Notification. Each licensee or registrant shall immediately notify the Agency by telephone and telegraph of any incident involving any source of radiation possessed by him and which may have caused or threatens to cause:

(1) A dose to the whole body of any individual of 25 rems or more of radiation; a dose to the skin of the whole body of any individual of 150 rems or more of radiation; or a dose to the feet, ankles, hands, or forearms of any individual of 375 rems or more of radiation; or

(2) The release of radioactive material in concentrations which, if averaged over a period of 24 hours, would exceed 5,000 times the limits specified for such materials in Appendix A, Table II; or

(3) A loss of one working week or more of the operation of any facilities affected; or

(4) Damage to property in excess of $100,000.

(b) Twenty-four Hour Notification. Each licensee or registrant shall within 24 hours notify the Agency by telephone and telegraph of any incident involving any source of radiation possessed by him and which may have caused or threatens to cause:

(1) A dose to the whole body of any individual of 5 rems or more of radiation; a dose to the skin of the whole body of any individual of 30 rems or more of radiation; or a dose to the feet, ankles, hands, or forearms of 75 rems or more of radiation; or

(2) The release of radioactive material in concentrations which, if averaged over a period of 24 hours, would exceed 500 times the limits specified for such materials in Appendix A, Table II; or

(3) A loss of one day or more of the operation of any facilities affected; or

(4) Damage to property in excess of $1,000.

(c) Any report filed with the Agency pursuant to this section shall be prepared in such a manner that names of individuals who have received excessive doses will be stated in a separate part of the report.*

Sec. D.405 Reports of Overexposures and Excessive Levels and Concentrations

(a) In addition to any notification required by D.403, each licensee or registrant shall make a report in writing within 30 days to the Agency of (1) each exposure of an individual to radiation or concentrations of radioactive material in excess of any applicable limit as set forth in this part or as otherwise approved by the Agency; (2) any incident for which notification is required by D.403; and (3) levels of radiation or concentrations of radioactive material (not involving excessive exposure of any individual) in an unrestricted area in excess of ten (10) times any applicable limit as set forth in this part or as otherwise approved by the Agency. Each report required under this paragraph shall describe the extent of exposure of individuals to radiation or to radioactive material, including estimates of each individual's dose as required by D.405(b); levels of radiation and concentrations of radioactive material involved; the cause of exposure, levels or concentrations; and corrective steps taken or planned to assure against a recurrence.

(b) Any report filed with the Agency pursuant to this section shall include for each individual exposed the name, social security number, and date of birth, and an estimate of the individual's dose. The report shall be prepared so that this information is stated in a separate part of the report.*

Sec. D.407 Vacating Premises. Each specific licensee shall, no less than 30 days before vacating or relinquishing possession or control of premises which may have been contaminated with radioactive material as a result of his activities, notify the Agency in writing of intent to vacate. When deemed necessary by the Agency, the licensee shall decontaminate the premises in such a manner as the Agency may specify.

Sec. D.408 Notifications and Reports to Individuals

(a) Requirements for notification and reports to individuals of exposure to radiation or radioactive material are specified in J.13 of these regulations.

* This paragraph is suggested for use by states which have the authority to maintain the names of individuals as confidential information.

(b) When a licensee or registrant is required pursuant to D.405 to report to the Agency any exposure of an individual to radiation or radioactive material, the licensee or registrant shall also notify the individual. Such notice shall be transmitted at a time not later than the transmittal to the Agency, and shall comply with the provisions of J.13(a) of these regulations.

PART D

APPENDIX A

CONCENTRATIONS IN AIR AND WATER ABOVE NATURAL BACKGROUND

Element (atomic number)	Isotope[1]		Table I Column 1 Air (μCi/ml)	Table I Column 2 Water (μCi/ml)	Table II Column 1 Air (μCi/ml)	Table II Column 2 Water (μCi/ml)
Actinium (89)	Ac-227	S	$2X10^{-12}$	$6X10^{-5}$	$8X10^{-14}$	$2X10^{-6}$
		I	$3X10^{-11}$	$9X10^{-3}$	$9X10^{-13}$	$3X10^{-4}$
	Ac-228	S	$8X10^{-8}$	$3X10^{-3}$	$3X10^{-9}$	$9X10^{-5}$
		I	$2X10^{-8}$	$3X10^{-3}$	$6X10^{-10}$	$9X10^{-5}$
Americium (95)	Am-241	S	$6X10^{-12}$	$1X10^{-4}$	$2X10^{-13}$	$4X10^{-6}$
		I	$1X10^{-10}$	$8X10^{-4}$	$4X10^{-12}$	$3X10^{-5}$
	Am-242m	S	$6X10^{-12}$	$1X10^{-4}$	$2X10^{-13}$	$4X10^{-6}$
		I	$3X10^{-10}$	$3X10^{-3}$	$9X10^{-12}$	$9X10^{-5}$
	Am-242	S	$4X10^{-8}$	$4X10^{-3}$	$1X10^{-9}$	$1X10^{-4}$
		I	$5X10^{-8}$	$4X10^{-3}$	$2X10^{-9}$	$1X10^{-4}$
	Am-243	S	$6X10^{-12}$	$1X10^{-4}$	$2X10^{-13}$	$4X10^{-6}$
		I	$1X10^{-10}$	$8X10^{-4}$	$4X10^{-12}$	$3X10^{-5}$
	Am-244	S	$4X10^{-6}$	$1X10^{-1}$	$1X10^{-7}$	$5X10^{-3}$
		I	$2X10^{-5}$	$1X10^{-1}$	$8X10^{-7}$	$5X10^{-3}$
Antimony (51)	Sb-122	S	$2X10^{-7}$	$8X10^{-4}$	$6X10^{-9}$	$3X10^{-5}$
		I	$1X10^{-7}$	$8X10^{-4}$	$5X10^{-9}$	$3X10^{-5}$
	Sb-124	S	$2X10^{-7}$	$7X10^{-4}$	$5X10^{-9}$	$2X10^{-5}$
		I	$2X10^{-8}$	$7X10^{-4}$	$7X10^{-10}$	$2X10^{-5}$
	Sb-125	S	$5X10^{-7}$	$3X10^{-3}$	$2X10^{-8}$	$1X10^{-4}$
		I	$3X10^{-8}$	$3X10^{-3}$	$9X10^{-10}$	$1X10^{-4}$
Argon (18)	Ar-37	Sub[2]	$6X10^{-3}$	------	$1X10^{-4}$	------
	Ar-41	Sub	$2X10^{-6}$	------	$4X10^{-8}$	------
Arsenic (33)	As-73	S	$2X10^{-6}$	$1X10^{-2}$	$7X10^{-8}$	$5X10^{-4}$
		I	$4X10^{-7}$	$1X10^{-2}$	$1X10^{-8}$	$5X10^{-4}$
	As-74	S	$3X10^{-7}$	$2X10^{-3}$	$1X10^{-8}$	$5X10^{-5}$
		I	$1X10^{-7}$	$2X10^{-3}$	$4X10^{-9}$	$5X10^{-5}$

(See notes at end of appendix)

Element (atomic number)	Isotope[1]		Table I Column 1 Air (μCi/ml)	Table I Column 2 Water (μCi/ml)	Table II Column 1 Air (μCi/ml)	Table II Column 2 Water (μCi/ml)
	As-76	S	$1X10^{-7}$	$6X10^{-4}$	$4X10^{-9}$	$2X10^{-5}$
		I	$1X10^{-7}$	$6X10^{-4}$	$3X10^{-9}$	$2X10^{-5}$
	As-77	S	$5X10^{-7}$	$2X10^{-3}$	$2X10^{-8}$	$8X10^{-5}$
		I	$4X10^{-7}$	$2X10^{-3}$	$1X10^{-8}$	$8X10^{-5}$
Astatine (85)	At-211	S	$7X10^{-9}$	$5X10^{-5}$	$2X10^{-10}$	$2X10^{-6}$
		I	$3X10^{-8}$	$2X10^{-3}$	$1X10^{-9}$	$7X10^{-5}$
Barium (56)	Ba-131	S	$1X10^{-6}$	$5X10^{-3}$	$4X10^{-8}$	$2X10^{-4}$
		I	$4X10^{-7}$	$5X10^{-3}$	$1X10^{-8}$	$2X10^{-4}$
	Ba-140	S	$1X10^{-7}$	$8X10^{-4}$	$4X10^{-9}$	$3X10^{-5}$
		I	$4X10^{-8}$	$7X10^{-4}$	$1X10^{-9}$	$2X10^{-5}$
Berkelium (97)	Bk-249	S	$9X10^{-10}$	$2X10^{-2}$	$3X10^{-11}$	$6X10^{-4}$
		I	$1X10^{-7}$	$2X10^{-2}$	$4X10^{-9}$	$6X10^{-4}$
	Bk-250	S	$1X10^{-7}$	$6X10^{-3}$	$5X10^{-9}$	$2X10^{-4}$
		I	$1X10^{-6}$	$6X10^{-3}$	$4X10^{-8}$	$2X10^{-4}$
Beryllium (4)	Be-7	S	$6X10^{-6}$	$5X10^{-2}$	$2X10^{-7}$	$2X10^{-3}$
		I	$1X10^{-6}$	$5X10^{-2}$	$4X10^{-8}$	$2X10^{-3}$
Bismuth (83)	Bi-205	S	$2X10^{-7}$	$1X10^{-3}$	$6X10^{-9}$	$4X10^{-5}$
		I	$1X10^{-7}$	$1X10^{-3}$	$5X10^{-9}$	$4X10^{-5}$
	Bi-207	S	$2X10^{-7}$	$2X10^{-3}$	$6X10^{-9}$	$6X10^{-5}$
		I	$1X10^{-8}$	$2X10^{-3}$	$5X10^{-10}$	$6X10^{-5}$
	Bi-210	S	$6X10^{-9}$	$1X10^{-3}$	$2X10^{-10}$	$4X10^{-5}$
		I	$6X10^{-9}$	$1X10^{-3}$	$2X10^{-10}$	$4X10^{-5}$
	Bi-212	S	$1X10^{-7}$	$1X10^{-2}$	$3X10^{-9}$	$4X10^{-4}$
		I	$2X10^{-7}$	$1X10^{-2}$	$7X10^{-9}$	$4X10^{-4}$
Bromine (35)	Br-82	S	$1X10^{-6}$	$8X10^{-3}$	$4X10^{-8}$	$3X10^{-4}$
		I	$2X10^{-7}$	$1X10^{-3}$	$6X10^{-9}$	$4X10^{-5}$

(See notes at end of appendix)

Element (atomic number)	Isotope[1]		Table I Column 1 Air (μCi/ml)	Table I Column 2 Water (μCi/ml)	Table II Column 1 Air (μCi/ml)	Table II Column 2 Water (μCi/ml)	
Cadmium (48)	Cd-109	S	$5X10^{-8}$	$5X10^{-3}$	$2X10^{-9}$	$2X10^{-4}$	106
		I	$7X10^{-8}$	$5X10^{-3}$	$3X10^{-9}$	$2X10^{-4}$	107
	Cd-115m	S	$4X10^{-8}$	$7X10^{-4}$	$1X10^{-9}$	$3X10^{-5}$	108
		I	$4X10^{-8}$	$7X10^{-4}$	$1X10^{-9}$	$3X10^{-5}$	109
	Cd-115	S	$2X10^{-7}$	$1X10^{-3}$	$8X10^{-9}$	$3X10^{-5}$	110
		I	$2X10^{-7}$	$1X10^{-3}$	$6X10^{-9}$	$4X10^{-5}$	111
Calcium (20)	Ca-45	S	$3X10^{-8}$	$3X10^{-4}$	$1X10^{-9}$	$9X10^{-6}$	113
		I	$1X10^{-7}$	$5X10^{-3}$	$4X10^{-9}$	$2X10^{-4}$	114
	Ca-47	S	$2X10^{-7}$	$1X10^{-3}$	$6X10^{-9}$	$5X10^{-5}$	115
		I	$2X10^{-7}$	$1X10^{-3}$	$6X10^{-9}$	$3X10^{-5}$	116
Californium (98)	Cf-249	S	$2X10^{-12}$	$1X10^{-4}$	$5X10^{-14}$	$4X10^{-6}$	118
		I	$1X10^{-10}$	$7X10^{-4}$	$3X10^{-12}$	$2X10^{-5}$	119
	Cf-250	S	$5X10^{-12}$	$4X10^{-4}$	$2X10^{-13}$	$1X10^{-5}$	120
		I	$1X10^{-10}$	$7X10^{-4}$	$3X10^{-12}$	$3X10^{-5}$	121
	Cf-251	S	$2X10^{-12}$	$1X10^{-4}$	$6X10^{-14}$	$4X10^{-6}$	122
		I	$1X10^{-10}$	$8X10^{-4}$	$3X10^{-12}$	$3X10^{-5}$	123
	Cf-252	S	$6X10^{-12}$	$2X10^{-4}$	$2X10^{-13}$	$7X10^{-6}$	124
		I	$3X10^{-11}$	$2X10^{-4}$	$1X10^{-12}$	$7X10^{-6}$	125
	Cf-253	S	$8X10^{-10}$	$4X10^{-3}$	$3X10^{-11}$	$1X10^{-4}$	126
		I	$8X10^{-10}$	$4X10^{-3}$	$3X10^{-11}$	$1X10^{-4}$	127
	Cf-254	S	$5X10^{-12}$	$4X10^{-6}$	$2X10^{-13}$	$1X10^{-7}$	128
		I	$5X10^{-12}$	$4X10^{-6}$	$2X10^{-13}$	$1X10^{-7}$	129
Carbon (6)	C-14	S	$4X10^{-6}$	$2X10^{-2}$	$1X10^{-7}$	$8X10^{-4}$	131
	(CO_2)	Sub[2]	$5X10^{-5}$	------	$1X10^{-6}$	------	132
Cerium (58)	Ce-141	S	$4X10^{-7}$	$3X10^{-3}$	$2X10^{-8}$	$9X10^{-5}$	134
		I	$2X10^{-7}$	$3X10^{-3}$	$5X10^{-9}$	$9X10^{-5}$	135
	Ce-143	S	$3X10^{-7}$	$1X10^{-3}$	$9X10^{-9}$	$4X10^{-5}$	136
		I	$2X10^{-7}$	$1X10^{-3}$	$7X10^{-9}$	$4X10^{-5}$	137
	Ce-144	S	$1X10^{-8}$	$3X10^{-4}$	$3X10^{-10}$	$1X10^{-5}$	138
		I	$6X10^{-9}$	$3X10^{-4}$	$2X10^{-10}$	$1X10^{-5}$	139

(See notes at end of appendix)

Element (atomic number)	Isotope[1/]		Table I Column 1 Air (μCi/ml)	Table I Column 2 Water (μCi/ml)	Table II Column 1 Air (μCi/ml)	Table II Column 2 Water (μCi/ml)
Cesium (55)	Cs-131	S	$1X10^{-5}$	$7X10^{-2}$	$4X10^{-7}$	$2X10^{-3}$
		I	$3X10^{-6}$	$3X10^{-2}$	$1X10^{-7}$	$9X10^{-4}$
	Cs-134m	S	$4X10^{-5}$	$2X10^{-1}$	$1X10^{-6}$	$6X10^{-3}$
		I	$6X10^{-6}$	$3X10^{-2}$	$2X10^{-7}$	$1X10^{-3}$
	Cs-134	S	$4X10^{-8}$	$3X10^{-4}$	$1X10^{-9}$	$9X10^{-6}$
		I	$1X10^{-8}$	$1X10^{-3}$	$4X10^{-10}$	$4X10^{-5}$
	Cs-135	S	$5X10^{-7}$	$3X10^{-3}$	$2X10^{-8}$	$1X10^{-4}$
		I	$9X10^{-8}$	$7X10^{-3}$	$3X10^{-9}$	$2X10^{-4}$
	Cs-136	S	$4X10^{-7}$	$2X10^{-3}$	$1X10^{-8}$	$9X10^{-5}$
		I	$2X10^{-7}$	$2X10^{-3}$	$6X10^{-9}$	$6X10^{-5}$
	Cs-137	S	$6X10^{-8}$	$4X10^{-4}$	$2X10^{-9}$	$2X10^{-5}$
		I	$1X10^{-8}$	$1X10^{-3}$	$5X10^{-10}$	$4X10^{-5}$
Chlorine (17)	Cl-36	S	$4X10^{-7}$	$2X10^{-3}$	$1X10^{-8}$	$8X10^{-5}$
		I	$2X10^{-8}$	$2X10^{-3}$	$8X10^{-10}$	$6X10^{-5}$
	Cl-38	S	$3X10^{-6}$	$1X10^{-2}$	$9X10^{-8}$	$4X10^{-4}$
		I	$2X10^{-6}$	$1X10^{-2}$	$7X10^{-8}$	$4X10^{-4}$
Chromium (24)	Cr-51	S	$1X10^{-5}$	$5X10^{-2}$	$4X10^{-7}$	$2X10^{-3}$
		I	$2X10^{-6}$	$5X10^{-2}$	$8X10^{-8}$	$2X10^{-3}$
Cobalt (27)	Co-57	S	$3X10^{-6}$	$2X10^{-2}$	$1X10^{-7}$	$5X10^{-4}$
		I	$2X10^{-7}$	$1X10^{-2}$	$6X10^{-9}$	$4X10^{-4}$
	Co-58m	S	$2X10^{-5}$	$8X10^{-2}$	$6X10^{-7}$	$3X10^{-3}$
		I	$9X10^{-6}$	$6X10^{-2}$	$3X10^{-7}$	$2X10^{-3}$
	Co-58	S	$8X10^{-7}$	$4X10^{-3}$	$3X10^{-8}$	$1X10^{-4}$
		I	$5X10^{-8}$	$3X10^{-3}$	$2X10^{-9}$	$9X10^{-5}$
	Co-60	S	$3X10^{-7}$	$1X10^{-3}$	$1X10^{-8}$	$5X10^{-5}$
		I	$9X10^{-9}$	$1X10^{-3}$	$3X10^{-10}$	$3X10^{-5}$
Copper (29)	Cu-64	S	$2X10^{-6}$	$1X10^{-2}$	$7X10^{-8}$	$3X10^{-4}$
		I	$1X10^{-6}$	$6X10^{-3}$	$4X10^{-8}$	$2X10^{-4}$
Curium (96)	Cm-242	S	$1X10^{-10}$	$7X10^{-4}$	$4X10^{-12}$	$2X10^{-5}$
		I	$2X10^{-10}$	$7X10^{-4}$	$6X10^{-12}$	$2X10^{-5}$

(See notes at end of appendix)

Element (atomic number)	Isotope[1/]		Table I Column 1 Air (μCi/ml)	Table I Column 2 Water (μCi/ml)	Table II Column 1 Air (μCi/ml)	Table II Column 2 Water (μCi/ml)
	Cm-243	S	$6X10^{-12}$	$1X10^{-4}$	$2X10^{-13}$	$5X10^{-6}$
		I	$1X10^{-10}$	$7X10^{-4}$	$3X10^{-12}$	$2X10^{-5}$
	Cm-244	S	$9X10^{-12}$	$2X10^{-4}$	$3X10^{-13}$	$7X10^{-6}$
		I	$1X10^{-10}$	$8X10^{-4}$	$3X10^{-12}$	$3X10^{-5}$
	Cm-245	S	$5X10^{-12}$	$1X10^{-4}$	$2X10^{-13}$	$4X10^{-6}$
		I	$1X10^{-10}$	$8X10^{-4}$	$4X10^{-12}$	$3X10^{-5}$
	Cm-246	S	$5X10^{-12}$	$1X10^{-4}$	$2X10^{-13}$	$4X10^{-6}$
		I	$1X10^{-10}$	$8X10^{-4}$	$4X10^{-12}$	$3X10^{-5}$
	Cm-247	S	$5X10^{-12}$	$1X10^{-4}$	$2X10^{-13}$	$4X10^{-6}$
		I	$1X10^{-10}$	$6X10^{-4}$	$4X10^{-12}$	$2X10^{-5}$
	Cm-248	S	$6X10^{-13}$	$1X10^{-5}$	$2X10^{-14}$	$4X10^{-7}$
		I	$1X10^{-11}$	$4X10^{-5}$	$4X10^{-13}$	$1X10^{-6}$
	Cm-249	S	$1X10^{-5}$	$6X10^{-2}$	$4X10^{-7}$	$2X10^{-3}$
		I	$1X10^{-5}$	$6X10^{-2}$	$4X10^{-7}$	$2X10^{-3}$
Dysprosium (66)	Dy-165	S	$3X10^{-6}$	$1X10^{-2}$	$9X10^{-8}$	$4X10^{-4}$
		I	$2X10^{-6}$	$1X10^{-2}$	$7X10^{-8}$	$4X10^{-4}$
	Dy-166	S	$2X10^{-7}$	$1X10^{-3}$	$8X10^{-9}$	$4X10^{-5}$
		I	$2X10^{-7}$	$1X10^{-3}$	$7X10^{-9}$	$4X10^{-5}$
Einsteinium (99)	Es-253	S	$8X10^{-10}$	$7X10^{-4}$	$3X10^{-11}$	$2X10^{-5}$
		I	$6X10^{-10}$	$7X10^{-4}$	$2X10^{-11}$	$2X10^{-5}$
	Es-254m	S	$5X10^{-9}$	$5X10^{-4}$	$2X10^{-10}$	$2X10^{-5}$
		I	$6X10^{-9}$	$5X10^{-4}$	$2X10^{-10}$	$2X10^{-5}$
	Es-254	S	$2X10^{-11}$	$4X10^{-4}$	$6X10^{-13}$	$1X10^{-5}$
		I	$1X10^{-10}$	$4X10^{-4}$	$4X10^{-12}$	$1X10^{-5}$
	Es-255	S	$5X10^{-10}$	$8X10^{-4}$	$2X10^{-11}$	$3X10^{-5}$
		I	$4X10^{-10}$	$8X10^{-4}$	$1X10^{-11}$	$3X10^{-5}$
Erbium (68)	Er-169	S	$6X10^{-7}$	$3X10^{-3}$	$2X10^{-8}$	$9X10^{-5}$
		I	$4X10^{-7}$	$3X10^{-3}$	$1X10^{-8}$	$9X10^{-5}$
	Er-171	S	$7X10^{-7}$	$3X10^{-3}$	$2X10^{-8}$	$1X10^{-4}$
		I	$6X10^{-7}$	$3X10^{-3}$	$2X10^{-8}$	$1X10^{-4}$

(See notes at end of appendix)

Element (atomic number)	Isotope[1/]		Table I Column 1 Air (μCi/ml)	Table I Column 2 Water (μCi/ml)	Table II Column 1 Air (μCi/ml)	Table II Column 2 Water (μCi/ml)
Europium (63)	Eu-152 (T_r=9.2 hrs)	S	$4X10^{-7}$	$2X10^{-3}$	$1X10^{-6}$	$6X10^{-5}$
		I	$3X10^{-7}$	$2X10^{-3}$	$1X10^{-6}$	$6X10^{-5}$
	Eu-152 (T_r=13 yrs)	S	$1X10^{-8}$	$2X10^{-3}$	$4X10^{-10}$	$8X10^{-5}$
		I	$2X10^{-8}$	$2X10^{-3}$	$6X10^{-10}$	$8X10^{-5}$
	Eu-154	S	$2X10^{-9}$	$2X10^{-4}$	$1X10^{-10}$	$2X10^{-5}$
		I	$4X10^{-9}$	$6X10^{-4}$	$2X10^{-10}$	$2X10^{-5}$
	Eu-155	S	$7X10^{-9}$	$6X10^{-4}$	$2X10^{-9}$	$2X10^{-4}$
		I	$9X10^{-8}$	$6X10^{-3}$	$3X10^{-9}$	$2X10^{-4}$
Fermium (100)	Fm-254	S	$6X10^{-8}$	$4X10^{-3}$	$2X10^{-9}$	$1X10^{-4}$
		I	$7X10^{-8}$	$4X10^{-3}$	$2X10^{-9}$	$1X10^{-4}$
	Fm-255	S	$2X10^{-8}$	$1X10^{-3}$	$6X10^{-10}$	$3X10^{-5}$
		I	$1X10^{-8}$	$1X10^{-3}$	$4X10^{-10}$	$3X10^{-5}$
	Fm-256	S	$3X10^{-9}$	$3X10^{-5}$	$1X10^{-10}$	$9X10^{-7}$
		I	$2X10^{-9}$	$3X10^{-5}$	$6X10^{-11}$	$9X10^{-7}$
Fluorine (9)	F-18	S	$5X10^{-6}$	$2X10^{-2}$	$2X10^{-7}$	$8X10^{-4}$
		I	$3X10^{-6}$	$1X10^{-2}$	$9X10^{-8}$	$5X10^{-4}$
Gadolinium (64)	Gd-153	S	$2X10^{-7}$	$6X10^{-3}$	$8X10^{-9}$	$2X10^{-4}$
		I	$9X10^{-8}$	$6X10^{-3}$	$3X10^{-9}$	$2X10^{-4}$
	Gd-159	S	$5X10^{-7}$	$2X10^{-3}$	$2X10^{-8}$	$8X10^{-5}$
		I	$4X10^{-7}$	$2X10^{-3}$	$1X10^{-8}$	$8X10^{-5}$
Gallium (31)	Ga-72	S	$2X10^{-7}$	$1X10^{-3}$	$8X10^{-9}$	$4X10^{-5}$
		I	$2X10^{-7}$	$1X10^{-3}$	$6X10^{-9}$	$4X10^{-5}$
Germanium (32)	Ge-71	S	$1X10^{-5}$	$5X10^{-2}$	$4X10^{-7}$	$2X10^{-3}$
		I	$6X10^{-6}$	$5X10^{-2}$	$2X10^{-7}$	$2X10^{-3}$
Gold (79)	Au-196	S	$1X10^{-6}$	$5X10^{-3}$	$4X10^{-8}$	$2X10^{-4}$
		I	$6X10^{-7}$	$4X10^{-3}$	$2X10^{-8}$	$1X10^{-4}$
	Au-198	S	$3X10^{-7}$	$2X10^{-3}$	$1X10^{-8}$	$5X10^{-5}$
		I	$2X10^{-7}$	$1X10^{-3}$	$8X10^{-9}$	$5X10^{-5}$
	Au-199	S	$1X10^{-6}$	$5X10^{-3}$	$4X10^{-8}$	$2X10^{-4}$
		I	$8X10^{-7}$	$4X10^{-3}$	$3X10^{-8}$	$2X10^{-4}$

(See notes at end of appendix)

Element (atomic number)	Isotope[1]		Table I Column 1 Air (μCi/ml)	Table I Column 2 Water (μCi/ml)	Table II Column 1 Air (μCi/ml)	Table II Column 2 Water (μCi/ml)
Hafnium (72)	Hf-181	S	$4X10^{-8}$	$2X10^{-3}$	$1X10^{-9}$	$7X10^{-5}$
		I	$7X10^{-8}$	$2X10^{-3}$	$3X10^{-9}$	$7X10^{-5}$
Holmium (67)	Ho-166	S	$2X10^{-7}$	$9X10^{-4}$	$7X10^{-9}$	$3X10^{-5}$
		I	$2X10^{-7}$	$9X10^{-4}$	$6X10^{-9}$	$3X10^{-5}$
Hydrogen (1)	H-3	S	$5X10^{-6}$	$1X10^{-1}$	$2X10^{-7}$	$3X10^{-3}$
		I	$5X10^{-6}$	$1X10^{-1}$	$2X10^{-7}$	$3X10^{-3}$
		Sub[2]	$2X10^{-3}$	———	$4X10^{-5}$	———
Indium (49)	In-113m	S	$8X10^{-6}$	$4X10^{-2}$	$3X10^{-7}$	$1X10^{-3}$
		I	$7X10^{-6}$	$4X10^{-2}$	$2X10^{-7}$	$1X10^{-3}$
	In-114m	S	$1X10^{-7}$	$5X10^{-4}$	$4X10^{-9}$	$2X10^{-5}$
		I	$2X10^{-8}$	$5X10^{-4}$	$7X10^{-10}$	$2X10^{-5}$
	In-115m	S	$2X10^{-6}$	$1X10^{-2}$	$8X10^{-8}$	$4X10^{-4}$
		I	$2X10^{-6}$	$1X10^{-2}$	$6X10^{-8}$	$4X10^{-4}$
	In-115	S	$2X10^{-7}$	$3X10^{-3}$	$9X10^{-9}$	$9X10^{-5}$
		I	$3X10^{-8}$	$3X10^{-3}$	$1X10^{-9}$	$9X10^{-5}$
Iodine (53)	I-125	S	$5X10^{-9}$	$4X10^{-5}$	$8X10^{-11}$	$2X10^{-7}$
		I	$2X10^{-7}$	$6X10^{-3}$	$6X10^{-9}$	$2X10^{-4}$
	I-126	S	$8X10^{-9}$	$5X10^{-5}$	$9X10^{-11}$	$2X10^{-7}$
		I	$3X10^{-7}$	$3X10^{-3}$	$1X10^{-8}$	$3X10^{-5}$
	I-129	S	$2X10^{-9}$	$1X10^{-5}$	$2X10^{-11}$	$9X10^{-8}$
		I	$7X10^{-8}$	$6X10^{-3}$	$2X10^{-9}$	$6X10^{-4}$
	I-131	S	$9X10^{-9}$	$6X10^{-5}$	$2X10^{-10}$	$2X10^{-7}$
		I	$3X10^{-7}$	$2X10^{-3}$	$1X10^{-8}$	$3X10^{-5}$
	I-132	S	$2X10^{-7}$	$2X10^{-3}$	$1X10^{-9}$	$6X10^{-6}$
		I	$9X10^{-7}$	$5X10^{-3}$	$3X10^{-8}$	$8X10^{-4}$
	I-133	S	$3X10^{-8}$	$2X10^{-4}$	$3X10^{-10}$	$2X10^{-6}$
		I	$3X10^{-7}$	$1X10^{-3}$	$4X10^{-9}$	$1X10^{-5}$
	I-134	S	$2X10^{-7}$	$1X10^{-3}$	$7X10^{-9}$	$4X10^{-5}$
		I	$5X10^{-7}$	$4X10^{-3}$	$6X10^{-9}$	$2X10^{-5}$
			$3X10^{-6}$	$2X10^{-2}$	$1X10^{-7}$	$6X10^{-4}$

(See notes at end of appendix)

Element (atomic number)	Isotope[1]		Table I Column 1 Air (μCi/ml)	Table I Column 2 Water (μCi/ml)	Table II Column 1 Air (μCi/ml)	Table II Column 2 Water (μCi/ml)
	I-135	S	$1X10^{-7}$	$7X10^{-4}$	$1X10^{-9}$	$4X10^{-6}$
		I	$4X10^{-7}$	$2X10^{-3}$	$1X10^{-8}$	$7X10^{-5}$
Iridium (77)	Ir-190	S	$1X10^{-6}$	$6X10^{-3}$	$4X10^{-8}$	$2X10^{-4}$
		I	$4X10^{-7}$	$5X10^{-3}$	$1X10^{-8}$	$2X10^{-4}$
	Ir-192	S	$1X10^{-7}$	$1X10^{-3}$	$4X10^{-9}$	$4X10^{-5}$
		I	$3X10^{-8}$	$1X10^{-3}$	$9X10^{-10}$	$4X10^{-5}$
	Ir-194	S	$2X10^{-7}$	$1X10^{-3}$	$8X10^{-9}$	$3X10^{-5}$
		I	$2X10^{-7}$	$9X10^{-4}$	$5X10^{-9}$	$3X10^{-5}$
Iron (26)	Fe-55	S	$9X10^{-7}$	$2X10^{-2}$	$3X10^{-8}$	$8X10^{-4}$
		I	$1X10^{-6}$	$7X10^{-2}$	$3X10^{-8}$	$2X10^{-3}$
	Fe-59	S	$1X10^{-7}$	$2X10^{-3}$	$5X10^{-9}$	$6X10^{-5}$
		I	$5X10^{-8}$	$2X10^{-3}$	$2X10^{-9}$	$5X10^{-5}$
Krypton (36)	Kr-85m	Sub[2]	$6X10^{-6}$	———	$1X10^{-7}$	———
	Kr-85	Sub	$1X10^{-5}$	———	$3X10^{-7}$	———
	Kr-87	Sub	$1X10^{-6}$	———	$2X10^{-8}$	———
	Kr-88	Sub	$1X10^{-6}$	———	$2X10^{-8}$	———
Lanthanum (57)	La-140	S	$2X10^{-7}$	$7X10^{-4}$	$5X10^{-9}$	$2X10^{-5}$
		I	$1X10^{-7}$	$7X10^{-4}$	$4X10^{-9}$	$2X10^{-5}$
Lead (82)	Pb-203	S	$3X10^{-6}$	$1X10^{-2}$	$9X10^{-8}$	$4X10^{-4}$
		I	$2X10^{-6}$	$1X10^{-2}$	$6X10^{-8}$	$4X10^{-4}$
	Pb-210	S	$1X10^{-10}$	$4X10^{-6}$	$4X10^{-12}$	$1X10^{-7}$
		I	$2X10^{-10}$	$5X10^{-3}$	$8X10^{-12}$	$2X10^{-4}$
	Pb-212	S	$2X10^{-8}$	$6X10^{-4}$	$6X10^{-10}$	$2X10^{-5}$
		I	$2X10^{-8}$	$5X10^{-4}$	$7X10^{-10}$	$2X10^{-5}$
Lutetium (71)	Lu-177	S	$6X10^{-7}$	$3X10^{-3}$	$2X10^{-8}$	$1X10^{-4}$
		I	$5X10^{-7}$	$3X10^{-3}$	$2X10^{-8}$	$1X10^{-4}$
Manganese (25)	Mn-52	S	$2X10^{-7}$	$1X10^{-3}$	$7X10^{-9}$	$3X10^{-5}$
		I	$1X10^{-7}$	$9X10^{-4}$	$5X10^{-9}$	$3X10^{-5}$
	Mn-54	S	$4X10^{-7}$	$4X10^{-3}$	$1X10^{-8}$	$1X10^{-4}$
		I	$4X10^{-8}$	$3X10^{-3}$	$1X10^{-9}$	$1X10^{-4}$
	Mn-56	S	$8X10^{-7}$	$4X10^{-3}$	$3X10^{-8}$	$1X10^{-4}$

(See notes at end of appendix)

Element (atomic number)	Isotope[1/]		Table I Column 1 Air (μCi/ml)	Table I Column 2 Water (μCi/ml)	Table II Column 1 Air (μCi/ml)	Table II Column 2 Water (μCi/ml)
		I	$5X10^{-7}$	$3X10^{-3}$	$2X10^{-8}$	$1X10^{-4}$
Mercury (80)	Hg-197m	S	$7X10^{-7}$	$6X10^{-3}$	$3X10^{-8}$	$2X10^{-4}$
		I	$8X10^{-7}$	$5X10^{-3}$	$3X10^{-8}$	$2X10^{-4}$
	Hg-197	S	$1X10^{-6}$	$9X10^{-3}$	$4X10^{-8}$	$3X10^{-4}$
		I	$3X10^{-6}$	$1X10^{-2}$	$9X10^{-8}$	$5X10^{-4}$
	Hg-203	S	$7X10^{-8}$	$5X10^{-4}$	$2X10^{-9}$	$2X10^{-5}$
		I	$1X10^{-7}$	$3X10^{-3}$	$4X10^{-9}$	$1X10^{-4}$
Molybdenum (42)	Mo-99	S	$7X10^{-7}$	$5X10^{-3}$	$3X10^{-8}$	$2X10^{-4}$
		I	$2X10^{-7}$	$1X10^{-3}$	$7X10^{-9}$	$4X10^{-5}$
Neodymium (60)	Nd-144	S	$8X10^{-11}$	$2X10^{-3}$	$3X10^{-12}$	$7X10^{-5}$
		I	$3X10^{-10}$	$2X10^{-3}$	$1X10^{-11}$	$8X10^{-5}$
	Nd-147	S	$4X10^{-7}$	$2X10^{-3}$	$1X10^{-8}$	$6X10^{-5}$
		I	$2X10^{-7}$	$2X10^{-3}$	$8X10^{-9}$	$6X10^{-5}$
	Nd-149	S	$2X10^{-6}$	$8X10^{-3}$	$6X10^{-8}$	$3X10^{-4}$
		I	$1X10^{-6}$	$8X10^{-3}$	$5X10^{-8}$	$3X10^{-4}$
Neptunium (93)	Np-237	S	$4X10^{-12}$	$9X10^{-5}$	$1X10^{-13}$	$3X10^{-5}$
		I	$1X10^{-10}$	$9X10^{-4}$	$4X10^{-12}$	$3X10^{-5}$
	Np-239	S	$8X10^{-7}$	$4X10^{-3}$	$3X10^{-8}$	$1X10^{-4}$
		I	$7X10^{-7}$	$4X10^{-3}$	$2X10^{-8}$	$1X10^{-4}$
Nickel (28)	Ni-59	S	$5X10^{-7}$	$6X10^{-3}$	$2X10^{-8}$	$2X10^{-4}$
		I	$8X10^{-7}$	$6X10^{-2}$	$3X10^{-8}$	$2X10^{-3}$
	Ni-63	S	$6X10^{-8}$	$8X10^{-4}$	$2X10^{-9}$	$3X10^{-5}$
		I	$3X10^{-7}$	$2X10^{-2}$	$1X10^{-8}$	$7X10^{-4}$
	Ni-65	S	$9X10^{-7}$	$4X10^{-3}$	$3X10^{-8}$	$1X10^{-4}$
		I	$5X10^{-7}$	$3X10^{-3}$	$2X10^{-8}$	$1X10^{-4}$
Niobium (41)	Nb-93m	S	$1X10^{-7}$	$1X10^{-2}$	$4X10^{-9}$	$4X10^{-4}$
		I	$2X10^{-7}$	$1X10^{-2}$	$5X10^{-9}$	$4X10^{-4}$
	Nb-95	S	$5X10^{-7}$	$3X10^{-3}$	$2X10^{-8}$	$1X10^{-4}$
		I	$1X10^{-6}$	$3X10^{-3}$	$3X10^{-9}$	$1X10^{-4}$
	Nb-97	S	$6X10^{-6}$	$3X10^{-2}$	$2X10^{-7}$	$9X10^{-4}$
		I	$5X10^{-6}$	$3X10^{-2}$	$2X10^{-7}$	$9X10^{-4}$

(See notes at end of appendix)

Element (atomic number)	Isotope[1/]		Table I Column 1 Air (μCi/ml)	Table I Column 2 Water (μCi/ml)	Table II Column 1 Air (μCi/ml)	Table II Column 2 Water (μCi/ml)
Osmium (76)	Os-185	S	$5X10^{-7}$	$2X10^{-3}$	$2X10^{-8}$	$7X10^{-5}$
		I	$5X10^{-8}$	$2X10^{-3}$	$2X10^{-9}$	$7X10^{-5}$
	Os-191m	S	$2X10^{-5}$	$7X10^{-2}$	$6X10^{-7}$	$3X10^{-3}$
		I	$9X10^{-6}$	$7X10^{-2}$	$3X10^{-7}$	$2X10^{-3}$
	Os-191	S	$1X10^{-6}$	$5X10^{-3}$	$4X10^{-8}$	$2X10^{-4}$
		I	$4X10^{-7}$	$5X10^{-3}$	$1X10^{-8}$	$2X10^{-4}$
	Os-193	S	$4X10^{-7}$	$2X10^{-3}$	$1X10^{-8}$	$6X10^{-5}$
		I	$3X10^{-7}$	$2X10^{-3}$	$9X10^{-9}$	$5X10^{-5}$
Palladium (46)	Pd-103	S	$1X10^{-6}$	$1X10^{-2}$	$5X10^{-8}$	$3X10^{-4}$
		I	$7X10^{-7}$	$8X10^{-3}$	$3X10^{-8}$	$3X10^{-4}$
	Pd-109	S	$6X10^{-7}$	$3X10^{-3}$	$2X10^{-8}$	$9X10^{-5}$
		I	$4X10^{-7}$	$2X10^{-3}$	$1X10^{-8}$	$7X10^{-5}$
Phosphorus (15)	P-32	S	$7X10^{-8}$	$5X10^{-4}$	$2X10^{-9}$	$2X10^{-5}$
		I	$8X10^{-8}$	$7X10^{-4}$	$3X10^{-9}$	$2X10^{-5}$
Platinum (78)	Pt-191	S	$8X10^{-7}$	$4X10^{-3}$	$3X10^{-8}$	$1X10^{-4}$
		I	$6X10^{-7}$	$3x10^{-3}$	$2X10^{-8}$	$1X10^{-4}$
	Pt-193m	S	$7X10^{-6}$	$3X10^{-2}$	$2X10^{-7}$	$1X10^{-3}$
		I	$5X10^{-6}$	$3X10^{-2}$	$2X10^{-7}$	$1X10^{-3}$
	Pt-193	S	$1X10^{-6}$	$3X10^{-2}$	$4X10^{-8}$	$9X10^{-4}$
		I	$3X10^{-7}$	$5X10^{-2}$	$1X10^{-8}$	$2X10^{-3}$
	Pt-197m	S	$6X10^{-6}$	$3X10^{-2}$	$2X10^{-7}$	$1X10^{-3}$
		I	$5X10^{-6}$	$3X10^{-2}$	$2X10^{-7}$	$9X10^{-4}$
	Pt-197	S	$8X10^{-7}$	$4X10^{-3}$	$3X10^{-8}$	$1X10^{-4}$
		I	$6X10^{-7}$	$3X10^{-3}$	$2X10^{-8}$	$1X10^{-4}$
Plutonium (94)	Pu-238	S	$2X10^{-12}$	$1X10^{-4}$	$7X10^{-14}$	$5X10^{-6}$
		I	$3X10^{-11}$	$8X10^{-4}$	$1X10^{-12}$	$3X10^{-5}$
	Pu-239	S	$2X10^{-12}$	$1X10^{-4}$	$6X10^{-14}$	$5X10^{-6}$
		I	$4X10^{-11}$	$8X10^{-4}$	$1X10^{-12}$	$3X10^{-5}$
	Pu-240	S	$2X10^{-12}$	$1X10^{-4}$	$6X10^{-14}$	$5X10^{-6}$
		I	$4X10^{-11}$	$8X10^{-4}$	$1X10^{-12}$	$3X10^{-5}$

See notes at end of appendix

Element (atomic number)	Isotope[1/]		Table I Column 1 Air (μCi/ml)	Table I Column 2 Water (μCi/ml)	Table II Column 1 Air (μCi/ml)	Table II Column 2 Water (μCi/ml)
	Pu-241	S	$9X10^{-11}$	$7X10^{-3}$	$3X10^{-12}$	$2X10^{-4}$
		I	$4X10^{-8}$	$4X10^{-2}$	$1X10^{-9}$	$1X10^{-3}$
	Pu-242	S	$2X10^{-12}$	$1X10^{-4}$	$6X10^{-14}$	$5X10^{-6}$
		I	$4X10^{-11}$	$9X10^{-4}$	$1X10^{-12}$	$3X10^{-5}$
	Pu-243	S	$2X10^{-6}$	$1X10^{-2}$	$6X10^{-8}$	$3X10^{-4}$
		I	$2X10^{-6}$	$1X10^{-2}$	$8X10^{-8}$	$3X10^{-4}$
	Pu-244	S	$2X10^{-12}$	$1X10^{-4}$	$6X10^{-14}$	$4X10^{-6}$
		I	$3X10^{-11}$	$3X10^{-4}$	$1X10^{-12}$	$1X10^{-5}$
Polonium (84)	Po-210	S	$5X10^{-10}$	$2X10^{-5}$	$2X10^{-11}$	$7X10^{-7}$
		I	$2X10^{-10}$	$8X10^{-4}$	$7X10^{-12}$	$3X10^{-5}$
Potassium (19)	K-42	S	$2X10^{-6}$	$9X10^{-3}$	$7X10^{-8}$	$3X10^{-4}$
		I	$1X10^{-7}$	$6X10^{-4}$	$4X10^{-9}$	$2X10^{-5}$
Praseodymium (59)	Pr-142	S	$2X10^{-7}$	$9X10^{-4}$	$7X10^{-9}$	$3X10^{-5}$
		I	$2X10^{-7}$	$9X10^{-4}$	$5X10^{-9}$	$3X10^{-5}$
	Pr-143	S	$3X10^{-7}$	$1X10^{-3}$	$1X10^{-8}$	$5X10^{-5}$
		I	$2X10^{-7}$	$1X10^{-3}$	$6X10^{-9}$	$5X10^{-5}$
Promethium (61)	Pm-147	S	$6X10^{-8}$	$6X10^{-3}$	$2X10^{-9}$	$2X10^{-4}$
		I	$1X10^{-7}$	$6X10^{-3}$	$3X10^{-9}$	$2X10^{-4}$
	Pm-149	S	$3X10^{-7}$	$1X10^{-3}$	$1X10^{-8}$	$4X10^{-5}$
		I	$2X10^{-7}$	$1X10^{-3}$	$8X10^{-9}$	$4X10^{-5}$
Protactinium (91)	Pa-230	S	$2X10^{-9}$	$7X10^{-3}$	$6X10^{-11}$	$2X10^{-4}$
		I	$8X10^{-10}$	$7X10^{-3}$	$3X10^{-11}$	$2X10^{-4}$
	Pa-231	S	$1X10^{-12}$	$3X10^{-5}$	$4X10^{-14}$	$9X10^{-7}$
		I	$1X10^{-10}$	$8X10^{-4}$	$4X10^{-12}$	$2X10^{-5}$
	Pa-233	S	$6X10^{-7}$	$4X10^{-3}$	$2X10^{-8}$	$1X10^{-4}$
		I	$2X10^{-7}$	$3X10^{-3}$	$6X10^{-9}$	$1X10^{-4}$
Radium (88)	Ra-223	S	$2X10^{-9}$	$2X10^{-5}$	$6X10^{-11}$	$7X10^{-7}$
		I	$2X10^{-10}$	$1X10^{-5}$	$8X10^{-12}$	$4X10^{-6}$
	Ra-224	S	$5X10^{-9}$	$7X10^{-4}$	$2X10^{-10}$	$2X10^{-6}$
		I	$7X10^{-10}$	$2X10^{-4}$	$2X10^{-11}$	$5X10^{-6}$

(See notes at end of appendix)

Element (atomic number)	Isotope[1]		Table I Column 1 Air (μCi/ml)	Table I Column 2 Water (μCi/ml)	Table II Column 1 Air (μCi/ml)	Table II Column 2 Water (μCi/ml)
	Ra-226	S	$3X10^{-11}$	$4X10^{-4}$	$3X10^{-12}$	$3X10^{-8}$
		I	$5X10^{-11}$	$9X10^{-4}$	$2X10^{-12}$	$3X10^{-5}$
	Ra-228	S	$7X10^{-11}$	$8X10^{-4}$	$2X10^{-12}$	$3X10^{-8}$
		I	$4X10^{-11}$	$7X10^{-4}$	$1X10^{-12}$	$3X10^{-5}$
Radon (86)	Rn-220	S	$3X10^{-7}$	———	$1X10^{-8}$	———
		I	———	———	———	———
	Rn-222[3]	S	$1X10^{-7}$	———	$3X10^{-9}$	———
Rhenium (75)	Re-183	S	$3X10^{-6}$	$2X10^{-2}$	$9X10^{-8}$	$6X10^{-4}$
		I	$2X10^{-7}$	$8X10^{-3}$	$5X10^{-9}$	$3X10^{-4}$
	Re-186	S	$6X10^{-7}$	$3X10^{-3}$	$2X10^{-8}$	$9X10^{-5}$
		I	$2X10^{-7}$	$1X10^{-3}$	$8X10^{-9}$	$5X10^{-5}$
	Re-187	S	$9X10^{-6}$	$7X10^{-2}$	$3X10^{-7}$	$3X10^{-3}$
		I	$5X10^{-7}$	$4X10^{-2}$	$2X10^{-8}$	$2X10^{-3}$
	Re-188	S	$4X10^{-7}$	$2X10^{-3}$	$1X10^{-8}$	$6X10^{-5}$
		I	$2X10^{-7}$	$9X10^{-4}$	$6X10^{-9}$	$3X10^{-5}$
Rhodium (45)	Rh-103m	S	$8X10^{-5}$	$4X10^{-1}$	$3X10^{-6}$	$1X10^{-2}$
		I	$6X10^{-5}$	$3X10^{-1}$	$2X10^{-6}$	$1X10^{-2}$
	Rh-105	S	$8X10^{-7}$	$4X10^{-3}$	$3X10^{-8}$	$1X10^{-4}$
		I	$5X10^{-7}$	$3X10^{-3}$	$2X10^{-8}$	$1X10^{-4}$
Rubidium (37)	Rb-86	S	$3X10^{-7}$	$2X10^{-3}$	$1X10^{-8}$	$7X10^{-5}$
		I	$7X10^{-8}$	$7X10^{-4}$	$2X10^{-9}$	$2X10^{-5}$
	Rb-87	S	$7X10^{-7}$	$3X10^{-3}$	$2X10^{-8}$	$1X10^{-4}$
		I	$5X10^{-8}$	$3X10^{-3}$	$2X10^{-9}$	$2X10^{-4}$
Ruthenium (44)	Ru-97	S	$2X10^{-6}$	$1X10^{-2}$	$8X10^{-8}$	$4X10^{-4}$
		I	$2X10^{-6}$	$1X10^{-2}$	$6X10^{-8}$	$3X10^{-4}$
	Ru-103	S	$5X10^{-7}$	$2X10^{-3}$	$2X10^{-8}$	$8X10^{-5}$
		I	$8X10^{-8}$	$2X10^{-3}$	$3X10^{-9}$	$8X10^{-5}$
	Ru-105	S	$7X10^{-7}$	$3X10^{-3}$	$2X10^{-8}$	$1X10^{-4}$
		I	$5X10^{-7}$	$3X10^{-3}$	$2X10^{-8}$	$1X10^{-4}$
	Ru-106	S	$8X10^{-8}$	$4X10^{-4}$	$3X10^{-9}$	$1X10^{-5}$
		I	$6X10^{-9}$	$3X10^{-4}$	$2X10^{-10}$	$1X10^{-5}$

(See notes at end of appendix)

Element (atomic number)	Isotope[1/]		Table I Column 1 Air (μCi/ml)	Table I Column 2 Water (μCi/ml)	Table II Column 1 Air (μCi/ml)	Table II Column 2 Water (μCi/ml)
Samarium (62)	Sm-147	S	$7X10^{-11}$	$2X10^{-3}$	$2X10^{-12}$	$6X10^{-5}$
		I	$3X10^{-10}$	$2X10^{-3}$	$9X10^{-12}$	$7X10^{-5}$
	Sm-151	S	$6X10^{-8}$	$1X10^{-2}$	$2X10^{-9}$	$4X10^{-4}$
		I	$1X10^{-7}$	$1X10^{-2}$	$5X10^{-9}$	$4X10^{-4}$
	Sm-153	S	$5X10^{-7}$	$2X10^{-3}$	$2X10^{-8}$	$8X10^{-5}$
		I	$4X10^{-7}$	$2X10^{-3}$	$1X10^{-8}$	$8X10^{-5}$
Scandium (21)	Sc-46	S	$2X10^{-7}$	$1X10^{-3}$	$8X10^{-9}$	$4X10^{-5}$
		I	$2X10^{-8}$	$1X10^{-3}$	$8X10^{-10}$	$4X10^{-5}$
	Sc-47	S	$6X10^{-7}$	$3X10^{-3}$	$2X10^{-8}$	$9X10^{-5}$
		I	$5X10^{-7}$	$3X10^{-3}$	$2X10^{-8}$	$9X10^{-5}$
	Sc-48	S	$2X10^{-7}$	$8X10^{-4}$	$6X10^{-9}$	$3X10^{-5}$
		I	$1X10^{-7}$	$8x10^{-4}$	$5X10^{-9}$	$3X10^{-5}$
Selenium (34)	Se-75	S	$1X10^{-6}$	$9X10^{-3}$	$4X10^{-8}$	$3X10^{-4}$
		I	$1X10^{-7}$	$8X10^{-3}$	$4X10^{-9}$	$3X10^{-4}$
Silicon (14)	Si-31	S	$6X10^{-6}$	$3X10^{-2}$	$2X10^{-7}$	$9X10^{-4}$
		I	$1X10^{-6}$	$6X10^{-3}$	$3X10^{-8}$	$2X10^{-4}$
Silver (47)	Ag-105	S	$6X10^{-7}$	$3X10^{-3}$	$2X10^{-8}$	$1X10^{-4}$
		I	$8X10^{-8}$	$3X10^{-3}$	$3X10^{-9}$	$1X10^{-4}$
	Ag-110m	S	$2X10^{-7}$	$9X10^{-4}$	$7X10^{-9}$	$3X10^{-5}$
		I	$1X10^{-8}$	$9X10^{-4}$	$3X10^{-10}$	$3X10^{-5}$
	Ag-111	S	$3X10^{-7}$	$1X10^{-3}$	$1X10^{-8}$	$4X10^{-5}$
		I	$2X10^{-7}$	$1X10^{-3}$	$8X10^{-9}$	$4X10^{-5}$
Sodium (11)	Na-22	S	$2X10^{-7}$	$1X10^{-3}$	$6X10^{-9}$	$4X10^{-5}$
		I	$9X10^{-9}$	$9X10^{-4}$	$3X10^{-10}$	$3X10^{-5}$
	Na-24	S	$1X10^{-6}$	$6X10^{-3}$	$4X10^{-8}$	$2X10^{-4}$
		I	$1X10^{-7}$	$8X10^{-4}$	$5X10^{-9}$	$3X10^{-5}$
Strontium (38)	Sr-85m	S	$4X10^{-5}$	$2X10^{-1}$	$1X10^{-6}$	$7X10^{-3}$
		I	$3X10^{-5}$	$2X10^{-1}$	$1X10^{-6}$	$7X10^{-3}$
	Sr-85	S	$2X10^{-7}$	$3X10^{-3}$	$8X10^{-9}$	$1X10^{-4}$
		I	$1X10^{-7}$	$5X10^{-3}$	$4X10^{-9}$	$2X10^{-4}$

(See notes at end of appendix)

Element (atomic number)	Isotope[1/]		Table I Column 1 Air (μCi/ml)	Table I Column 2 Water (μCi/ml)	Table II Column 1 Air (μCi/ml)	Table II Column 2 Water (μCi/ml)
	Sr-89	S	$3X10^{-8}$	$3X10^{-4}$	$3X10^{-10}$	$3X10^{-6}$
		I	$4X10^{-8}$	$8X10^{-4}$	$1X10^{-9}$	$3X10^{-5}$
	Sr-90	S	$1X10^{-9}$	$1X10^{-5}$	$3X10^{-11}$	$3X10^{-7}$
		I	$5X10^{-9}$	$1X10^{-3}$	$2X10^{-10}$	$4X10^{-5}$
	Sr-91	S	$4X10^{-7}$	$2X10^{-3}$	$2X10^{-8}$	$7X10^{-5}$
		I	$3X10^{-7}$	$1X10^{-3}$	$9X10^{-9}$	$5X10^{-5}$
	Sr-92	S	$4X10^{-7}$	$2X10^{-3}$	$2X10^{-8}$	$7X10^{-5}$
		I	$3X10^{-7}$	$2X10^{-3}$	$1X10^{-8}$	$6X10^{-5}$
Sulfur (16)	S-35	S	$3X10^{-7}$	$2X10^{-3}$	$9X10^{-9}$	$6X10^{-5}$
		I	$3X10^{-7}$	$8X10^{-3}$	$9X10^{-9}$	$3X10^{-4}$
Tantalum (73)	Ta-182	S	$4X10^{-8}$	$1X10^{-3}$	$1X10^{-9}$	$4X10^{-5}$
		I	$2X10^{-8}$	$1X10^{-3}$	$7X10^{-10}$	$4X10^{-5}$
Technetium (43)	Tc-96m	S	$8X10^{-5}$	$4X10^{-1}$	$3X10^{-6}$	$1X10^{-2}$
		I	$3X10^{-5}$	$3X10^{-1}$	$1X10^{-6}$	$1X10^{-2}$
	Tc-96	S	$6X10^{-7}$	$3X10^{-3}$	$2X10^{-8}$	$1X10^{-4}$
		I	$2X10^{-7}$	$1X10^{-3}$	$8X10^{-9}$	$5X10^{-5}$
	Tc-97m	S	$2X10^{-6}$	$1X10^{-2}$	$8X10^{-8}$	$4X10^{-4}$
		I	$2X10^{-7}$	$5X10^{-3}$	$5X10^{-9}$	$2X10^{-4}$
	Tc-97	S	$1X10^{-5}$	$5X10^{-2}$	$4X10^{-7}$	$2X10^{-3}$
		I	$3X10^{-7}$	$2X10^{-2}$	$1X10^{-8}$	$8X10^{-4}$
	Tc-99m	S	$4X10^{-5}$	$2X10^{-1}$	$1X10^{-6}$	$6X10^{-3}$
		I	$1X10^{-5}$	$8X10^{-2}$	$5X10^{-7}$	$3X10^{-3}$
	Tc-99	S	$2X10^{-6}$	$1X10^{-2}$	$7X10^{-8}$	$3X10^{-4}$
		I	$5X10^{-8}$	$5X10^{-3}$	$2X10^{-9}$	$2X10^{-4}$
Tellurium (52)	Te-125m	S	$4X10^{-7}$	$5X10^{-3}$	$1X10^{-8}$	$2X10^{-4}$
		I	$1X10^{-7}$	$3X10^{-3}$	$4X10^{-9}$	$1X10^{-4}$
	Te-127m	S	$1X10^{-7}$	$2X10^{-3}$	$5X10^{-9}$	$6X10^{-5}$
		I	$4X10^{-8}$	$2X10^{-3}$	$1X10^{-9}$	$5X10^{-5}$
	Te-127	S	$2X10^{-6}$	$8X10^{-3}$	$6X10^{-8}$	$3X10^{-4}$
		I	$9X10^{-7}$	$5X10^{-3}$	$3X10^{-8}$	$2X10^{-4}$

(See notes at end of appendix)

Element (atomic number)	Isotope[1]		Table I Column 1 Air (μCi/ml)	Table I Column 2 Water (μCi/ml)	Table II Column 1 Air (μCi/ml)	Table II Column 2 Water (μCi/ml)
	Te-129m	S	$8X10^{-8}$	$1X10^{-3}$	$3X10^{-9}$	$3X10^{-5}$
		I	$3X10^{-8}$	$6X10^{-4}$	$1X10^{-9}$	$2X10^{-5}$
	Te-129	S	$5X10^{-6}$	$2X10^{-2}$	$2X10^{-7}$	$8X10^{-4}$
		I	$4X10^{-6}$	$2X10^{-2}$	$1X10^{-7}$	$8X10^{-4}$
	Te-131m	S	$4X10^{-7}$	$2X10^{-3}$	$1X10^{-8}$	$6X10^{-5}$
		I	$2X10^{-7}$	$1X10^{-3}$	$6X10^{-9}$	$4X10^{-5}$
	Te-132	S	$2X10^{-7}$	$9X10^{-4}$	$7X10^{-9}$	$3X10^{-5}$
		I	$1X10^{-7}$	$6X10^{-4}$	$4X10^{-9}$	$2X10^{-5}$
Terbium (65)	Tb-160	S	$1X10^{-7}$	$1X10^{-3}$	$3X10^{-9}$	$4X10^{-5}$
		I	$3X10^{-8}$	$1X10^{-3}$	$1X10^{-9}$	$4X10^{-5}$
Thallium (81)	Tl-200	S	$3X10^{-6}$	$1X10^{-2}$	$9X10^{-8}$	$4X10^{-4}$
		I	$1X10^{-6}$	$7X10^{-3}$	$4X10^{-8}$	$2X10^{-4}$
	Tl-201	S	$2X10^{-6}$	$9X10^{-3}$	$7X10^{-8}$	$3X10^{-4}$
		I	$9X10^{-7}$	$5X10^{-3}$	$3X10^{-8}$	$2X10^{-4}$
	Tl-202	S	$8X10^{-7}$	$4X10^{-3}$	$3X10^{-8}$	$1X10^{-4}$
		I	$2X10^{-7}$	$2X10^{-3}$	$8X10^{-9}$	$7X10^{-5}$
	Tl-204	S	$6X10^{-7}$	$3X10^{-3}$	$2X10^{-8}$	$1X10^{-4}$
		I	$3X10^{-8}$	$2X10^{-3}$	$9X10^{-10}$	$6X10^{-5}$
Thorium (90)	Th-227	S	$3X10^{-10}$	$5X10^{-4}$	$1X10^{-11}$	$2X10^{-5}$
		I	$2X10^{-10}$	$5X10^{-4}$	$6X10^{-12}$	$2X10^{-5}$
	Th-228	S	$9X10^{-12}$	$2X10^{-4}$	$3X10^{-13}$	$7X10^{-6}$
		I	$6X10^{-12}$	$4X10^{-4}$	$2X10^{-13}$	$1X10^{-5}$
	Th-230	S	$2X10^{-12}$	$5X10^{-5}$	$8X10^{-14}$	$2X10^{-6}$
		I	$1X10^{-11}$	$9X10^{-4}$	$3X10^{-13}$	$3X10^{-5}$
	Th-231	S	$1X10^{-6}$	$7X10^{-3}$	$5X10^{-8}$	$2X10^{-4}$
		I	$1X10^{-6}$	$7X10^{-3}$	$4X10^{-8}$	$2X10^{-4}$
	Th-232	S	$3X10^{-11}$	$5X10^{-5}$	$1X10^{-12}$	$2X10^{-6}$
		I	$3X10^{-11}$	$1X10^{-3}$	$1X10^{-12}$	$4X10^{-5}$
	Th-natural	S	$6X10^{-11}$	$6X10^{-5}$	$2X10^{-12}$	$2X10^{-6}$
		I	$6X10^{-11}$	$6X10^{-4}$	$2X10^{-12}$	$2X10^{-5}$

(See notes at end of appendix)

Element (atomic number)	Isotope[1]		Table I Column 1 Air (μCi/ml)	Table I Column 2 Water (μCi/ml)	Table II Column 1 Air (μCi/ml)	Table II Column 2 Water (μCi/ml)
	Th-234	S	$6X10^{-8}$	$5X10^{-4}$	$2X10^{-9}$	$2X10^{-5}$
		I	$3X10^{-8}$	$5X10^{-4}$	$1X10^{-9}$	$2X10^{-5}$
Thulium (69)	Tm-170	S	$4X10^{-8}$	$1X10^{-3}$	$1X10^{-9}$	$5X10^{-5}$
		I	$3X10^{-8}$	$1X10^{-3}$	$1X10^{-9}$	$5X10^{-5}$
	Tm-171	S	$1X10^{-7}$	$1X10^{-2}$	$4X10^{-9}$	$5X10^{-4}$
		I	$2X10^{-7}$	$1X10^{-2}$	$8X10^{-9}$	$5X10^{-4}$
Tin (50)	Sn-113	S	$4X10^{-7}$	$2X10^{-3}$	$1X10^{-8}$	$9X10^{-5}$
		I	$5X10^{-8}$	$2X10^{-3}$	$2X10^{-9}$	$8X10^{-5}$
	Sn-125	S	$1X10^{-7}$	$5X10^{-4}$	$4X10^{-9}$	$2X10^{-5}$
		I	$8X10^{-8}$	$5X10^{-4}$	$3X10^{-9}$	$2X10^{-5}$
Tungsten (74)	W-181	S	$2X10^{-6}$	$1X10^{-2}$	$8X10^{-8}$	$4X10^{-4}$
		I	$1X10^{-7}$	$1X10^{-2}$	$4X10^{-9}$	$3X10^{-4}$
	W-185	S	$8X10^{-7}$	$4X10^{-3}$	$3X10^{-8}$	$1X10^{-4}$
		I	$1X10^{-7}$	$3X10^{-3}$	$4X10^{-9}$	$1X10^{-4}$
	W-187	S	$4X10^{-7}$	$2X10^{-3}$	$2X10^{-8}$	$7X10^{-5}$
		I	$3X10^{-7}$	$2X10^{-3}$	$1X10^{-8}$	$6X10^{-5}$
Uranium (92)	U-230	S	$3X10^{-10}$	$1X10^{-4}$	$1X10^{-11}$	$5X10^{-6}$
		I	$1X10^{-10}$	$1X10^{-4}$	$4X10^{-12}$	$5X10^{-6}$
	U-232	S	$1X10^{-10}$	$8X10^{-4}$	$3X10^{-12}$	$3X10^{-5}$
		I	$3X10^{-11}$	$8X10^{-4}$	$9X10^{-13}$	$3X10^{-5}$
	U-233	S	$5X10^{-10}$	$9X10^{-4}$	$2X10^{-11}$	$3X10^{-5}$
		I	$1X10^{-10}$	$9X10^{-4}$	$4X10^{-12}$	$3X10^{-5}$
	U-234	S[4]	$6X10^{-10}$	$9X10^{-4}$	$2X10^{-11}$	$3X10^{-5}$
		I	$1X10^{-10}$	$9X10^{-4}$	$4X10^{-12}$	$3X10^{-5}$
	U-235	S[4]	$5X10^{-10}$	$8X10^{-4}$	$2X10^{-11}$	$3X10^{-5}$
		I	$1X10^{-10}$	$8X10^{-4}$	$4X10^{-12}$	$3X10^{-5}$
	U-236	S	$6X10^{-10}$	$1X10^{-3}$	$2X10^{-11}$	$3X10^{-5}$
		I	$1X10^{-10}$	$1X10^{-3}$	$4X10^{-12}$	$3X10^{-5}$
	U-238	S[4]	$7X10^{-11}$	$1X10^{-3}$	$3X10^{-12}$	$4X10^{-5}$
		I	$1X10^{-10}$	$1X10^{-3}$	$5X10^{-12}$	$4X10^{-5}$
	U-240	S	$2X10^{-7}$	$1X10^{-3}$	$8X10^{-9}$	$3X10^{-5}$
		I	$2X10^{-7}$	$1X10^{-3}$	$6X10^{-9}$	$3X10^{-5}$

(See notes at end of appendix)

Element (atomic number)	Isotope[1]		Table I Column 1 Air (μCi/ml)	Table I Column 2 Water (μCi/ml)	Table II Column 1 Air (μCi/ml)	Table II Column 2 Water (μCi/ml)
	U-natural	S[4]	$1X10^{-10}$	$1X10^{-3}$	$5X10^{-12}$	$3X10^{-5}$
		I	$1X10^{-10}$	$1X10^{-3}$	$5X10^{-12}$	$3X10^{-5}$
Vanadium (23)	V-48	S	$2X10^{-7}$	$9X10^{-4}$	$6X10^{-9}$	$3X10^{-5}$
		I	$6X10^{-8}$	$8X10^{-4}$	$2X10^{-9}$	$3X10^{-5}$
Xenon (54)	Xe-131m	Sub[2]	$2X10^{-5}$	------	$4X10^{-7}$	------
	Xe-133m	Sub	$1X10^{-5}$	------	$3X10^{-7}$	------
	Xe-133	Sub	$1X10^{-5}$	------	$3X10^{-7}$	------
	Xe-135	Sub	$4X10^{-6}$	------	$1X10^{-7}$	------
Ytterbium (70)	Yb-175	S	$7X10^{-7}$	$3X10^{-3}$	$2X10^{-8}$	$1X10^{-4}$
		I	$6X10^{-7}$	$3X10^{-3}$	$2X10^{-8}$	$1X10^{-4}$
Yttrium (39)	Y-90	S	$1X10^{-7}$	$6X10^{-4}$	$4X10^{-9}$	$2X10^{-5}$
		I	$1X10^{-7}$	$6X10^{-4}$	$3X10^{-9}$	$2X10^{-5}$
	Y-91m	S	$2X10^{-5}$	$1X10^{-1}$	$8X10^{-7}$	$3X10^{-3}$
		I	$2X10^{-5}$	$1X10^{-1}$	$6X10^{-7}$	$3X10^{-3}$
	Y-91	S	$4X10^{-8}$	$8X10^{-4}$	$1X10^{-9}$	$3X10^{-5}$
		I	$3X10^{-8}$	$8X10^{-4}$	$1X10^{-9}$	$3X10^{-5}$
	Y-92	S	$4X10^{-7}$	$2X10^{-3}$	$1X10^{-8}$	$6X10^{-5}$
		I	$3X10^{-7}$	$2X10^{-3}$	$1X10^{-8}$	$6X10^{-5}$
	Y-93	S	$2X10^{-7}$	$8X10^{-4}$	$6X10^{-9}$	$3X10^{-5}$
		I	$1X10^{-7}$	$8X10^{-4}$	$5X10^{-9}$	$3X10^{-5}$
Zinc (30)	Zn-65	S	$1X10^{-7}$	$3X10^{-3}$	$4X10^{-9}$	$1X10^{-4}$
		I	$6X10^{-8}$	$5X10^{-3}$	$2X10^{-9}$	$2X10^{-4}$
	Zn-69m	S	$4X10^{-7}$	$2X10^{-3}$	$1X10^{-8}$	$7X10^{-5}$
		I	$3X10^{-7}$	$2X10^{-3}$	$1X10^{-8}$	$6X10^{-5}$
	Zn-69	S	$7X10^{-6}$	$5X10^{-2}$	$2X10^{-7}$	$2X10^{-3}$
		I	$9X10^{-6}$	$5X10^{-2}$	$3X10^{-7}$	$2X10^{-3}$
Zirconium (40)	Zr-93	S	$1X10^{-7}$	$2X10^{-2}$	$4X10^{-9}$	$8X10^{-4}$
		I	$3X10^{-7}$	$2X10^{-2}$	$1X10^{-8}$	$8X10^{-4}$
	Zr-95	S	$1X10^{-7}$	$2X10^{-3}$	$4X10^{-9}$	$6X10^{-5}$
		I	$3X10^{-8}$	$2X10^{-3}$	$1X10^{-9}$	$6X10^{-5}$
	Zr-97	S	$1X10^{-7}$	$5X10^{-4}$	$4X10^{-9}$	$2X10^{-5}$
		I	$9X10^{-8}$	$5X10^{-4}$	$3X10^{-9}$	$2X10^{-5}$

(See notes at end of appendix)

Element (atomic number)	Isotope[1]	Table I Column 1 Air (μCi/ml)	Table I Column 2 Water (μCi/ml)	Table II Column 1 Air (μCi/ml)	Table II Column 2 Water (μCi/ml)
Any single radionuclide not listed above with decay mode other than alpha emission or spontaneous fission and with radioactive half-life less than 2 hours.	Sub[2]	$1X10^{-6}$	———	$3X10^{-8}$	———
Any single radionuclide not listed above with decay mode other than alpha emission or spontaneous fission and with radioactive half-life greater than 2 hours.		$3X10^{-9}$	$9X10^{-5}$	$1X10^{-10}$	$3X10^{-6}$
Any single radionuclide not listed above, which decays by alpha emission or spontaneous fission.		$6X10^{-13}$	$4X10^{-7}$	$2X10^{-14}$	$3X10^{-8}$

1/ Soluble (S); Insoluble (I).

2/ "Sub" means that values given are for submersion in a semi-spherical infinite cloud of airborne material.

3/ For purposes of these regulations, it may be assumed that the daughter activity concentrations in the following table are equivalent to an air concentration of 10^{-7} microcuries of radon-222 per milliliter of air in equilibrium with the daughters RaA, RaB, RaC, and RaC':

Maximum Time Between Collection and Measurement (hours)[a]	Alpha-Emitting Daughter Activity Collected Per Milliliter of Air	
	Microcuries/ml	Total alpha disintegrations per minute per ml.
0.5	7.2×10^{-8}	0.16
1.0	4.5×10^{-8}	0.10
2.0	1.3×10^{-8}	0.028
3.0	0.3×10^{-8}	0.0072

a/ The duration of sample collection and the duration of measurement should be sufficiently short compared to the time between collection and measurement, as not to have a statistically significant effect upon the results.

4/ For soluble mixtures of U-238, U-234 and U-235 in air chemical toxicity may be the limiting factor. If the percent by weight (enrichment) of U-235 is less than 5, the concentration value for a 40-hour workweek, Table I, is 0.2 milligrams uranium per cubic meter of air average. For any enrichment, the product of the average concentration and time of exposure during a 40-hour workweek shall not exceed 8×10^{-3} SA μCi-hr/ml, where SA is the specific activity of the uranium inhaled. The concentration value for Table II is 0.007 milligrams uranium per cubic meter of air. The specific activity for natural uranium is 6.77×10^{-7} curies per gram U. The specific activity for other mixtures of U-238, U-235 and U-234, if not known, shall be:

$SA = 3.6 \times 10^{-7}$ curies/gram U U-depleted

$SA = (0.4 + 0.38\ E + 0.0034\ E^2)\ 10^{-6}$ $E \geq 0.72$

where E is the percentage by weight of U-235, expressed as percent.

APPENDIX A

Note: In any case where there is a mixture in air or water of more than one radionuclide, the limiting values for purposes of this Appendix should be determined as follows:

1. If the identity and concentration of each radionuclide in the mixture are known, the limiting values should be derived as follows: Determine, for each radionuclide in the mixture, the ratio between the quantity present in the mixture and the limit otherwise established in Appendix "A" for the specific radionuclide when not in a mixture. The sum of such ratios for all the radionuclides in the mixture may not exceed "1" (i.e., "unity").

Example: If radionuclides a, b, and c are present in concentrations C_a, C_b, and C_c, and if the applicable MPC's are MPC_a, MPC_b, and MPC_c respectively, then the concentrations shall be limited so that the following relationship exists:

$$\frac{C_a}{MPC_a} + \frac{C_b}{MPC_b} + \frac{C_c}{MPC_c} \leq 1$$

2. If either the identity or the concentration of any radionuclide in the mixture is not known, the limiting values for purposes of Appendix "A" shall be:

a.	For purposes of Table I, Col. 1	$6X10^{-13}$
b.	For purposes of Table I, Col. 2	$4X10^{-7}$
c.	For purposes of Table II, Col. 1	$2X10^{-14}$
d.	For purposes of Table II, Col. 2	$3X10^{-8}$

3. If any of the conditions specified below are met, the corresponding values specified below may be used in lieu of those specified in paragraph 2 above.

a. If the identity of each radionuclide in the mixture is known but the concentration of one or more of the radionuclides in the mixture is not known, the concentration limit for the mixture is the limit specified in Appendix "A" for the radionuclide in the mixture having the lowest concentration limit; or

b. If the identity of each radionuclide in the mixture is not known, but it is known that certain radionuclides specified in Appendix "A" are not present in the mixture, the concentration limit for the mixture is the lowest concentration limit specified in Appendix "A" for any radionuclide which is not known to be absent from the mixture; or

c. Radionuclide	Table I		Table II	
	Column 1 Air (μCi/ml)	Column 2 Water (μCi/ml)	Column 1 Air (μCi/ml)	Column 2 Water (μCi/ml)
If it is known that Sr-90, I-125, I-126, I-129, I-131, (I-133 Table II only), Pb-210, Po-210, At-211, Ra-223, Ra-224, Ra-226, Ac-227, Ra-228, Th-230, Pa-231, Th-232, Th-nat, Cm-248, Cf-254, and Fm-256 are not present	———	$9X10^{-5}$	———	$3X10^{-6}$
If it is known that Sr-90, I-125, I-126, I-129, (I-131, I-133, Table II only), Pb-210, Po-210, Ra-223, Ra-226, Ra-228, Pa-231, Th-nat, Cm-248, Cf-254, and Fm-256 are not present	———	$6X10^{-5}$	———	$2X10^{-6}$
If it is know that Sr-90, I-129, (I-125, I-126, I-131, Table II only), Pb-210, Ra-226, Ra-228, Cm-248, and Cf-254 are not present	———	$2X10^{-5}$	———	$6X10^{-7}$
If it is known that (I-129, Table II only), Ra-226, and Ra-228 are not present	———	$3X10^{-6}$	———	$1X10^{-7}$
If it is known that alpha-emitters and Sr-90, I-129, Pb-210, Ac-227, Ra-228, Pa-230, Pu-241, and Bk-249 are not present	$3X10^{-9}$	———	$1X10^{-10}$	———
If it is known that alpha-emitters and Pb-210, Ac-227, Ra-228, and Pu-241 are not present	$3X10^{-10}$	———	$1X10^{-11}$	———
If it is known that alpha-emitters and Ac-227 are not present	$3X10^{-11}$	———	$1X10^{-12}$	———

c. Radionuclide	Table I		Table II	
	Column 1 Air (μCi/ml)	Column 2 Water (μCi/ml)	Column 1 Air (μCi/ml)	Column 2 Water (μCi/ml)
If it is known that Ac-227, Th-230, Pa-231, Pu-238, Pu-239, Pu-240, Pu-242, Pu-244, Cm-248, Cf-249 and Cf-251 are not present ----------	$3X10^{-12}$	------	$1X10^{-13}$	------

4. If the mixture of radionuclides consists of uranium and its daughter products in ore dust prior to chemical processing of the uranium ore, the values specified below may be used in lieu of those determined in accordance with paragraph 1 above or those specified in paragraphs 2 and 3 above.

a. For purposes of Table I, Column 1, 1×10^{-10} μCi/ml gross alpha activity; or 5×10^{-11} μCi/ml natural uranium; or 75 micrograms per cubic meter of air natural uranium.

b. For purposes of Table II, Column 1, 3×10^{-12} μCi/ml gross alpha activity; 2×10^{-12} μCi/ml natural uranium; or 3 micrograms per cubic meter of air natural uranium.

5. For purposes of this note, a radionuclide may be considered as not present in a mixture if (a) the ratio of the concentration of that radionuclide in the mixture (C_a) to the concentration limit for that radionuclide specified in Table II of Appendix "A" (MPC_a) does not exceed 1/10, (i.e., $C_a/MPC_a \leq 1/10$ and (b) the sum of such ratios for all radionuclides considered as not present in the mixture does not exceed 1/4, (i.e., $C_a/MPC_a + C_b/MPC_b + \ldots\ldots \leq 1/4$).

PART D

APPENDIX B

(For use in D.203, D.303, and D.304)

Material	Microcuries
Americium-241	0.01
Antimony-122	100
Antimony-124	10
Antimony-125	10
Arsenic-73	100
Arsenic-74	10
Arsenic-76	10
Arsenic-77	100
Barium-131	10
Barium-133	10
Barium-140	10
Bismuth-210	1
Bromine-82	10
Cadmium-109	10
Cadmium-115m	10
Cadmium-115	100
Calcium-45	10
Calcium-47	10
Carbon-14	100
Cerium-141	100
Cerium-143	100
Cerium-144	1
Cesium-131	1,000
Cesium-134m	100
Cesium-134	1
Cesium-135	10
Cesium-136	10
Cesium-137	10
Chlorine-36	10
Chlorine-38	10
Chromium-51	1,000
Cobalt-58m	10
Cobalt-58	10
Cobalt-60	1
Copper-64	100
Dysprosium-165	10
Dysprosium-166	100
Erbium-169	100
Erbium-171	100
Europium-152 (9.2 h)	100
Europium-152 (13 yr)	1

Material	Microcuries
Europium-154	1
Europium-155	10
Fluorine-18	1,000
Gadolinium-153	10
Gadolinium-159	100
Gallium-72	10
Germanium-71	100
Gold-198	100
Gold-199	100
Hafnium-181	10
Holmium-166	100
Hydrogen-3	1,000
Indium-113m	100
Indium-114m	10
Indium-115m	100
Indium-115	10
Iodine-125	1
Iodine-126	1
Iodine-129	0.1
Iodine-131	1
Iodine-132	10
Iodine-133	1
Iodine-134	10
Iodine-135	10
Iridium-192	10
Iridium-194	100
Iron-55	100
Iron-59	10
Krypton-85	100
Krypton-87	10
Lanthanum-140	10
Lutetium-177	100
Manganese-52	10
Manganese-54	10
Manganese-56	10
Mercury-197m	100
Mercury-197	100
Mercury-203	10
Molybdenum-99	100
Neodymium-147	100
Neodymium-149	100
Nickel-59	100
Nickel-63	10
Nickel-65	100
Niobium-93m	10
Niobium-95	10
Niobium-97	10
Osmium-185	10

Material	Microcuries
Osmium-191m	100
Osmium-191	100
Osmium-193	100
Palladium-103	100
Palladium-109	100
Phosphorus-32	10
Platinum-191	100
Platinum-193m	100
Platinum-193	100
Platinum-197m	100
Platinum-197	100
Plutonium-239	0.01
Polonium-210	0.1
Potassium-42	10
Praseodymium-142	100
Praseodymium-143	100
Promethium-147	10
Promethium-149	10
Radium-226	0.01
Rhenium-186	100
Rhenium-188	100
Rhodium-103m	100
Rhodium-105	100
Rubidium-86	10
Rubidium-87	10
Ruthenium-97	100
Ruthenium-103	10
Ruthenium-105	10
Ruthenium-106	1
Samarium-151	10
Samarium-153	100
Scandium-46	10
Scandium-47	100
Scandium-48	10
Selenium-75	10
Silicon-31	100
Silver-105	10
Silver-110m	1
Silver-111	100
Sodium-24	10
Strontium-85	10
Strontium-89	1
Strontium-90	0.1
Strontium-91	10
Strontium-92	10
Sulphur-35	100
Tantalum-182	10
Technetium-96	10

Material	Microcuries
Technetium-97m	100
Technetium-97	100
Technetium-99m	100
Technetium-99	10
Tellurium-125m	10
Tellurium-127m	10
Tellurium-127	100
Tellurium-129m	10
Tellurium-129	100
Tellurium-131m	10
Tellurium-132	10
Terbium-160	10
Thallium-200	100
Thallium-201	100
Thallium-202	100
Thallium-204	10
Thorium (natural)[1/]	100
Thulium-170	10
Thulium-171	10
Tin-113	10
Tin-125	10
Tungsten-181	10
Tungsten-185	10
Tungsten-187	100
Uranium (natural)[2/]	100
Uranium-233	0.01
Uranium-234 - Uranium-235	0.01
Vanadium-48	10
Xenon-131m	1,000
Xenon-133	100
Xenon-135	100
Ytterbium-175	100
Yttrium-90	10
Yttrium-91	10
Yttrium-92	100
Yttrium-93	100
Zinc-65	10
Zinc-69m	100
Zinc-69	1,000
Zirconium-93	10
Zirconium-95	10
Zirconium-97	10

1/ Based on alpha disintegration rate of Th-232, Th-230 and their daughter products.

2/ Based on alpha disintegration rate of U-238, U-234, and U-235.

Material	Microcuries
Any alpha emitting radionuclide not listed above or mixtures of alpha emitters of unknown composition	0.01
Any radionuclide other than alpha emitting radionuclides, not listed above or mixtures of beta emitters of unknown composition	0.1

NOTE: For purposes of D.203, D.303 and D.304, where there is involved a combination of isotopes in known amounts, the limit for the combination should be derived as follows: Determine, for each isotope in the combination, the ratio between the quantity present in the combination and the limit otherwise established for the specific isotope when not in combination. The sum of such ratios for all the isotopes in the combination may not exceed "1" (i.e., "unity"). Example: For purposes of D.304, if a particular batch contains 20,000 µCi of Au-198 and 50,000 µCi of C-14, it may also include not more than 300 µCi of I-131. This limit was determined as follows:

20,000 µCi Au-198/100,000 µCi + 50,000 µCi C-14/100,000 µCi
+ 300 µCi I-131/1,000 µCi = 1

The denominator in each of the above ratios was obtained by multiplying the figure in the table by 1,000 as provided in D.304.

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PART J

NOTICES, INSTRUCTIONS AND REPORTS TO WORKERS; INSPECTIONS

Sec. J.1 Purpose and Scope

This part establishes requirements for notices, instructions and reports by licensees or registrants to individuals engaged in work under a license or registration and options available to such individuals in connection with Agency inspections of licensees or registrants to ascertain compliance with the provisions of the Act and regulations, orders and licenses issued thereunder regarding radiological working conditions. The regulations in this part apply to all persons who receive, possess, use, own or transfer material licensed by or registered with the Agency pursuant to the regulations in Part B and Part C.

Sec. J.11 Posting of Notices to Workers

(a) Each licensee or registrant shall post current copies of the following documents: (1) the regulations in this part and in Part D; (2) the license, certificate of registration, conditions or documents incorporated into the license by reference and amendments thereto; (3) the operating procedures applicable to work under the license or registration; (4) any notice of violation involving radiological working conditions, proposed imposition of civil penalty, or order issued pursuant to Part A, and any response from the licensee or registrant.

(b) If posting of a document specified in J.11(a)(1), (2) or (3) is not practicable, the licensee or registrant may post a notice which describes the document and states where it may be examined.

(c) Agency Form X "Notice to Employees" shall be posted by each licensee or registrant wherever individuals work in or frequent any portion of a restricted area.

(d) Documents, notices or forms posted pursuant to this section shall appear in a sufficient number of places to permit individuals engaged in work under the license or registration to observe them on the way to or from any particular work location to which the document applies, shall be conspicuous, and shall be replaced if defaced or altered.

(e) Agency documents posted pursuant to J.11(a)(4) shall be posted within 2 working days after receipt of the documents from the Agency; the licensee's or registrant's response, if any, shall be posted within 2 working days after dispatch from the licensee or registrant. Such documents shall remain posted for a minimum of 5 working days or until action correcting the violation has been completed, whichever is later.

Sec. J.12 Instructions to Workers

All individuals working in or frequenting any portion of a restricted area shall be kept informed of the storage, transfer, or use of radioactive material or of radiation in such portions of the restricted area; shall be instructed in the health protection problems associated with exposure to such radioactive material or radiation, in precautions or procedures to minimize exposure, and in the purposes and functions of protective devices employed; shall be instructed in, and instructed to observe, to the extent within the worker's control, the applicable provisions of Agency regulations and licenses for the protection of personnel from exposures to radiation or radioactive material occurring in such areas; shall be instructed of their responsibility to report promptly to the licensee or registrant any condition which may lead to or cause a violation of Agency regulations and licenses or unnecessary exposure to radiation or radioactive material; shall be instructed in the appropriate response to warnings made in the event of any unusual occurrence or malfunction that may involve exposure to radiation or radioactive material; and shall be advised as to the radiation exposure reports which workers may request pursuant to J.13. The extent of these instructions shall be commensurate with potential radiological health protection problems in the restricted area.

Sec. J.13 Notifications and Reports to Individuals

(a) Radiation exposure data for an individual and the results of any measurements, analyses, and calculations of radioactive material deposited or retained in the body of an individual shall be reported to the individual as specified in this section. The information reported shall include data and results obtained pursuant to Agency regulations, orders, or license conditions, as shown in records maintained by the licensee or registrant pursuant to Agency regulations. Each notification and report shall: be in writing; include appropriate identifying data such as the name of the licensee or registrant, the name of the individual, and the individual's social security number; include the individual's exposure information; and contain the following statement:

> "This report is furnished to you under the provisions of [cite appropriate Agency regulations] Part J. You should preserve this report for further reference."

(b) At the request of any worker, each licensee or registrant shall advise such worker annually of the worker's exposure to radiation or radioactive material as shown in records maintained by the licensee or registrant pursuant to D.401 (a) and (c).

(c) At the request of a worker formerly engaged in work controlled by the licensee or the registrant, each licensee or registrant shall furnish to the worker a report of the worker's exposure to radiation or

radioactive material. Such report shall be furnished within 30 days from the time the request is made, or within 30 days after the exposure of the individual has been determined by the licensee or registrant, whichever is later; shall cover, within the period of time specified in the request, each calendar quarter in which the worker's activities involved exposure to radiation from radioactive material licensed by, or radiation machines registered with the Agency; and shall include the dates and locations of work under the license or registration in which the worker participated during this period.

(d) When a licensee or registrant is required pursuant to D.405 to report to the Agency any exposure of an individual to radiation or radioactive material, the licensee or the registrant shall also provide the individual a report on his exposure data included therein. Such reports shall be transmitted at a time not later than the transmittal to the Agency.

Sec. J.14 Presence of Representatives of Licensees or Registrants and Workers During Inspection

(a) Each licensee or registrant shall afford to the Agency at all reasonable times opportunity to inspect materials, machines, activities, facilities, premises, and records pursuant to these regulations.

(b) During an inspection, Agency inspectors may consult privately with workers as specified in J.15. The licensee or registrant may accompany Agency inspectors during other phases of an inspection.

(c) If, at the time of inspection, an individual has been authorized by the workers to represent them during Agency inspections, the licensee or registrant shall notify the inspectors of such authorization and shall give the workers' representative an opportunity to accompany the inspectors during the inspection of physical working conditions.

(d) Each workers' representative shall be routinely engaged in work under control of the licensee or registrant and shall have received instructions as specified in J.12.

(e) Different representatives of licensees or registrants and workers may accompany the inspectors during different phases of an inspection if there is no resulting interference with the conduct of the inspection. However, only one workers' representative at a time may accompany the inspectors.

(f) With the approval of the licensee or registrant and the workers' representative an individual who is not routinely engaged in work under control of the licensee or registrant, for example, a consultant to the licensee or registrant or to the workers' representative, shall be afforded the opportunity to accompany Agency inspectors during the inspection of physical working conditions.

(g) Notwithstanding the other provisions of this section, Agency inspectors are authorized to refuse to permit accompaniment by any individual who deliberately interferes with a fair and orderly inspection. With regard to any area containing proprietary information, the workers' representative for that area shall be an individual previously authorized by the licensee or registrant to enter that area.

Sec. J.15 Consultation with Workers During Inspections

(a) Agency inspectors may consult privately with workers concerning matters of occupational radiation protection and other matters related to applicable provisions of Agency regulations and licenses to the extent the inspectors deem necessary for the conduct of an effective and thorough inspection.

(b) During the course of an inspection any worker may bring privately to the attention of the inspectors, either orally or in writing, any past or present condition which he has reason to believe may have contributed to or caused any violation of the Act, these regulations, or license condition, or any unnecessary exposure of an individual to radiation from licensed radioactive material or a registered radiation machine under the licensee's or registrant's control. Any such notice in writing shall comply with the requirements of J.16(a).

(c) The provisions of J.15(b) shall not be interpreted as authorization to disregard instructions pursuant to J.12.

Sec. J.16 Requests by Workers for Inspections

(a) Any worker or representative of workers who believes that a violation of the Act, these regulations or license conditions exists or has occurred in work under a license or registration with regard to radiological working conditions in which the worker is engaged, may request an inspection by giving notice of the alleged violation to the [cite appropriate State agency]. Any such notice shall be in writing, shall set forth the specific grounds for the notice, and shall be signed by the worker or representative of the workers. A copy shall be provided to the licensee or registrant by the [cite appropriate State Agency] no later than at the time of inspection except that, upon the request of the worker giving such notice, his name and the name of individuals referred to therein shall not appear in such copy or on any record published, released, or made available by the Agency, except for good cause shown.

(b) If, upon receipt of such notice, the [cite appropriate State official] determines that the complaint meets the requirements set forth in J.16(a), and that there are reasonable grounds to believe that the alleged violation exists or has occurred, he shall cause an inspection to be made as soon as practicable, to determine if such alleged violation exists or has occurred. Inspections pursuant to this section need not be limited to matters referred to in the complaint.

(c) No licensee or registrant shall discharge or in any manner discriminate against any worker because such worker has filed any complaint or instituted or caused to be instituted any proceeding under these regulations or has testified or is about to testify in any such proceeding or because of the exercise by such worker on behalf of himself or others of any option afforded by this part.

Sec. J.17 Inspections Not Warranted; Informal Review

(a) If the [cite appropriate State Agency] determines, with respect to a complaint under J.16, that an inspection is not warranted because there are no reasonable grounds to believe that a violation exists or has occurred, the [cite appropriate State Agency] shall notify the complainant in writing of such determination. The complainant may obtain review of such determination by submitting a written statement of position with the [cite appropriate State agency*] who will provide the licensee or registrant with a copy of such statement by certified mail, excluding, at the request of the complainant, the name of the complainant. The licensee or registrant may submit an opposing written statement of position with the [cite appropriate State agency*] who will provide the complainant with a copy of such statement by certified mail. Upon the request of the complainant, the [cite appropriate State agency*] may hold an informal conference in which the complainant and the licensee or registrant may orally present their views. An informal conference may also be held at the request of the licensee or registrant, but disclosure of the identity of the complainant will be made only following receipt of written authorization from the complainant. After considering all written or oral views presented, the [cite appropriate State agency*] shall affirm, modify, or reverse the determination of the [cite appropriate State Agency] and furnish the complainant and the licensee or registrant a written notification of his decision and the reason therefor.

(b) If the [cite appropriate State Agency] determines that an inspection is not warranted because the requirements of J.16(a) have not been met, he shall notify the complainant in writing of such determination. Such determination shall be without prejudice to the filing of a new complaint meeting the requirements of J.16(a).

* The agency cited here should be the agency which under State administrative procedures has the power to review decisions made by the Radiation Control Agency.

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EXECUTIVE ORDER

POLICIES TO GUIDE STATE ACTIONS FOR THE PHYSICAL AND ECONOMIC DEVELOPMENT OF MARYLAND

WHEREAS, The State of Maryland is committed to increasing the economic well-being of its residents, while maintaining the quality of the State's air, water, land, historic, natural and cultural resources; and

WHEREAS, The need exists for more consistent policies with respect to the State's role in physical and economic development in urban, suburban, and rural areas within Maryland; and

WHEREAS, The State government has a responsibility for protecting the health and welfare of its residents through improvements to the quality of the environment, and protection of its abundant natural resources; and

WHEREAS, The State government and its citizens are committed to the conservation and wise use of energy, especially non-renewable energy resources; and

WHEREAS, The State is committed to reducing the level of unemployment in Maryland; and

WHEREAS, The State government acts in partnership with the private sector and other levels of government towards these ends, and local governments have and will continue to exercise primary responsibility for land use and planning controls; and

WHEREAS, A Cabinet-level Development Council has been created in the State of Maryland to examine issues where comprehensive and consistent State policies are required to guide the effective and efficient allocation of State resources for physical development decisions concerning (1) location of State facilities (2) construction, improvement of, and access to existing and proposed State highways and other transportation facilities (3) water and sewerage treatment facilities and environmental quality (4) exercise of intervention and critical areas powers (5) State economic development and housing programs and business promotion activities (6) natural resource conservation (7) agricultural land preservation (8) parks and open space acquisition (9) historic preservation and (10) other State and federal programs targeted to areas of special need; and

WHEREAS, The State General Assembly, from time to time, has enacted legislation addressing responsibilities for planning and development by State government, among which are:

Article 88C, Section 2 of the Maryland Code, which directs the Department of State Planning with the cooperation and advice of other appropriate departments, agencies and instrumentalities of federal, State and local governments and other organizations to prepare a State development plan and to "advise the Governor on the means and methods available to coordinate plans and programs of all State departments,

agencies, commissions and instrumentalities in order to establish relative priorities and to avoid duplication and conflicts," and Article 88C, Section 5 requires the Governor to comment upon and file a State development plan and to "transmit copies thereof together with copies of his comments to the heads of all departments and agencies of State government and to the General Assembly;" and

Section 1-303 of the Natural Resources Article enacted by the Maryland Environmental Policy Act which directs "all State Agencies, except where existing law expressly prohibits, to identify, develop and adopt methods and procedures that will assure that environmental amenities and values are given appropriate consideration in planning and decision-making", and that decision-making involving environmental effects be undertaken "in coordination with public and private organizations and individuals with jurisdiction by law, special expertise and recognized interest," and

Section 2-501 of the Agriculture Article of the Annotated Code of Maryland which declares that "it is the intent of the Maryland General Assembly to preserve agricultural land and woodland in order to: provide sources of agricultural products within the State for the citizens of the State; control the urban expansion which is consuming the agricultural land and woodland of the State; curb the spread of urban blight and deterioration; and protect agricultural land and woodland as open space land;" and

WHEREAS, The Development Council has studied the impact of State government policies, programs and regulations on patterns of physical and economic development in Maryland, and has concluded that State programs and investments should be directed toward efficient and energy conscious development, concentrated in and around existing communities, and protecting health and natural resources.

NOW, THEREFORE, I, HARRY HUGHES, GOVERNOR OF MARYLAND, PURSUANT TO ARTICLE II, SECTION 24 OF THE CONSTITUTION OF MARYLAND, ARTICLE 41, SECTION 15C OF THE ANNOTATED CODE OF MARYLAND, SECTION 1-303 OF THE NATURAL RESOURCES ARTICLE AND ARTICLE 88C, SECTION 5 OF THE ANNOTATED CODE OF MARYLAND PROMULGATE THE FOLLOWING EXECUTIVE ORDER:

1. The principles and policies stated herein shall guide decisions by all State departments, agencies and commissions and other official State bodies for purposes of investments, financial or technical assistance, participation in development of local or regional plans, project or plan review, A-95 clearinghouse review, exercise of intervention powers and all other official acts, including cooperation with federal and local governments and agencies.

2. State investments and actions are to be guided by the following six principles:

A. The viability of Maryland's existing communities and urban areas will be enhanced.

B. Productive agricultural land will be protected, the conservation and wise, balanced use of Maryland's natural resources will be assured, and recreation and open space resources for the use of and enjoyment of this and future generations will be secured.

C. Economic development and employment opportunities throughout the State will be increased for the well-being of Maryland's residents.

D. The quality of the environment will be protected and improved to ensure the health and well-being of residents.

E. The efficient use of non-renewable energy resources will be promoted and the exploration and development of new and alternate energy sources will be encouraged.

F. The efficient provision of transportation, utilities, water and sewer facilities, and other public investments will be pursued.

3. In order to follow these principles, State officials and appropriate departments will carry out their programs, in cooperation with the private sector and other levels of government, in accordance with the following policies.

A. Policies to enhance the viability of existing communities and urban areas:

A(1) Direct and encourage future physical growth and economic development to existing communities and their planned growth areas.

A(2) Direct recreational, cultural, and public services and facilities to support existing population centers.

A(3) Maintain and improve the structures and infrastructure in existing urban areas.

A(4) Give priority to the provision of transportation services supporting existing population centers and within existing transportation corridors.

A(5) Encourage development around existing or proposed rail transit stations and mass transit services.

A(6) Encourage the protection, restoration, and re-use of significant historic or architectural structures.

A(7) Encourage housing, industrial and business financing in support of existing population centers.

A(8) Encourage development of suitable vacant land within existing communities not needed for open space.

A(9) Give priority to the maintenance and improvement of water supply and sewerage facilities to serve existing communities.

A(10) Reduce the impact of flooding on existing communities.

B. Policies to protect agricultural land, assure the conservation and wise, balanced use of Maryland's natural resources, and secure recreation and open space resources for the use of and enjoyment of this and future generations:

B(1) Promote the retention, conservation and preservation of productive agricultural land.

B(2) Direct State projects, programs, and investments such as highways, major public facilities, and sewerage and water facilities to minimize the conversion of productive agricultural and forest land.

B(3) Discourage residential sprawl.

B(4) Continue to acquire and develop land for open space and recreation.

B(5) Assure that privately owned sewerage systems are not used to facilitate residential, recreational, or commercial development on productive agricultural or forest land.

B(6) Direct new transportation construction in rural areas to support growth and development compatible with the scale and character of the areas.

B(7) Discourage development in areas with inadequate or inconsistent groundwater yields not served by public

water facilities.

B(8) Promote the retention, conservation, and cooperative management of private forest lands.

B(9) Ensure the preservation of fish and wildlife habitats in State development actions.

B(10) Protect the delicate nature and habitat of wetlands.

B(11) Minimize soil erosion.

B(12) Protect Maryland's shores from erosion and incompatible development.

B(13) Emphasize the protection of significant natural resources in the acquisition of parks and open space.

B(14) Manage renewable resources for productivity and continued usefulness and availability.

B(15) Conserve and protect non-renewable resources.

B(16) Protect significant historical and archaeological sites.

C. Policies to increase economic development and employment opportunities throughout the State for the well-being of Maryland's residents:

C(1) Assist local governments and the private sector in encouraging industrial and business development.

C(2) Bring new businesses and industries to Maryland and promote the retention and growth of existing enterprises.

C(3) Promote employment opportunities for unemployed, under-employed, and low income persons.

C(4) Promote economic development to support Maryland's current labor force near places of residence.

C(5) Pursue the consolidation and simplification of the State's permit procedures and aid businesses in obtaining State and local permits in a timely manner.

C(6) Preserve existing rail freight lines, encourage retention of services and pursue associated business development.

C(7) Provide and improve transportation access needed to support employment centers.

C(8) Support the maintenance and improvement of the State's shipping and commercial boating channels.

C(9) Encourage development of Maryland's ports, with emphasis on Baltimore and other existing complexes.

C(10) Plan for, make available and assure the safety of suitable sites for industrial waste disposal and resource recovery.

C(11) Encourage and support agriculture, agri-business, forestry, and supportive businesses.

C(12) Encourage State and private recreational investments and tourism in public and private properties, particularly in parts of the State where other economic development opportunities are limited.

C(13) Protect, regulate and provide for the recovery of Maryland's mineral resources, and provide for reclamation of land after extraction.

C(14) Promote and support sport and commercial fishing, harvesting of shellfish, harvesting of fur-bearing animals and waterfowl and their supportive businesses.

D. Policies to protect and improve the quality of the environment to ensure the health and well-being of residents.

D(1) Protect the quality and productivity of the Chesapeake Bay, its tributaries, other water bodies of the State, and groundwater resources.

D(2) Protect water resources from sediments, hazards, incompatible development, inappropriate land management, and toxic wastes.

D(3) Manage air emissions to achieve air quality standards in an economically efficient way.

D(4) Manage air emissions to improve the quality of the environment in non-attainment areas.

D(5) Discourage the extensive or environmentally incompatible use of private septic systems.

D(6) Ensure safe waste management and resource recovery programs.

D(7) Ensure the handling of toxic and hazardous materials in a way which protects public health and the environment.

D(8) Minimize the potential dangers to population from natural and man-made hazards.

D(9) Consider and control the impacts of noise in development decisions.

E. Policies to promote the efficient use of non-renewable energy resources and to encourage the exploration and development of new and alternate energy sources:

E(1) Promote exploration and development of new sources of energy, both renewable and non-renewable.

E(2) Monitor and pursue energy efficiency in State programs and building.

E(3) Ensure that major energy facilities are sited so that adequate energy is provided at reasonable cost with minimum adverse environmental impact.

E(4) Assure the orderly development of coal, gas, and other non-renewable resources with minimum adverse impacts.

E(5) Encourage alternatives to single occupancy automobile use, such as mass transit, and promote more efficient use of existing transportation facilities.

E(6) Promote the design and development of energy efficient communities and living and travel patterns.

E(7) Promote the wise use of energy.

E(8) Promote energy recovery programs in waste disposal programs.

F. Policies to pursue the efficient provision of transportation, utilities, water and sewer facilities, and other public investments:

F(1) Promote density and compact development where the infrastructure and open space can sustain it.

F(2) Discourage diffused and leap frog residential and commercial growth.

F(3) Encourage the maximum use of the existing infrastructure in the State.

F(4) Maintain the capacity of State primary highways and avoid strip development along them by careful limitation of access.

F(5) Align the construction of new water and sewer capacity consistent with accepted population projections and anticipated development.

The State of Maryland

Executive Department

01.01.1980.01

EXECUTIVE ORDER

STATE DEVELOPMENT COUNCIL

WHEREAS, There is need for development of a more consistent State policy with respect to physical development decisions and local and State government policies and regulations which impact upon them in order to relate economic development, transportation and physical infrastructure and natural and historic environment, and to define development policies with respect to urban, suburban and rural areas within the State; and

WHEREAS, This need is evidenced by a number of recent developments, including recommendations of the Department of State Planning concerning location of new State facilities within existing developed areas, suggestions of the Maryland Department of Agriculture and the Maryland Environmental Trust relating to discouragement of development of agricultural land, increased emphasis by the Maryland Department of Transportation on management of existing roads and facilities, and recent proposals of Federal agencies, including the United States Departments of Agriculture, Commerce, Housing and Urban Development, Interior and Transportation, concerning preparation of State development policies; and

WHEREAS, Other developments, including increasing energy costs, the costs of construction and maintenance of new transportation facilities, and the limited availability of funds for sewer treatment facilities render desirable a comprehensive review of State laws, regulations and policies affecting physical development decisions and economic growth.

NOW, THEREFORE, I, HARRY HUGHES, GOVERNOR OF MARYLAND, PURSUANT TO ARTICLE II, SECTION 24 OF THE CONSTITUTION OF MARYLAND AND ARTICLE 41, SECTION 15C OF THE ANNOTATED CODE OF MARYLAND, PROMULGATE THE FOLLOWING EXECUTIVE ORDER:

1. There is hereby created a State Development Council;

2. The Council shall be composed as follows: the Secretaries of Planning, Economic and Community Development, Health and Mental Hygiene, Agriculture, Natural Resources, and Transportation, or their designees, and the Lieutenant Governor. Principal staff support to the Council shall be provided by the Departments of State Planning and Economic and Community Development. The Secretary of State Planning shall be Chairman;

3. The Council shall make recommendations concerning, but not limited to, the following:

(a) The appropriate content of an Executive Order relating to policies to guide the effective and efficient allocation of State resources for physical and economic development decisions concerning (1) location of State facilities provided for in the capital budget (2) policies of the State Department of Transportation concerning construction and improvement of, and acquisition of access rights to, existing and proposed State highways and other transportation facilities (3) policies of the State Department of Health and Mental Hygiene concerning local sewage treatment facilities and environmental standards (4) exercise of the intervention and critical areas powers of the Department of State Planning (5) targeting of State business and housing loan programs, and marketing and business promotion activities (6) the State Outdoor Recreation Plan and plans for community facilities and (7) other forms of State and Federal aid targeted to areas of greatest need;

(b) Review of existing State laws and constitutional provisions granting local zoning, growth management and bond-issuing powers and regulating sewer grants and highway construction as they relate to (1) rezoning of agricultural land (2) location of necessary public social service facilities and new major commercial and industrial facilities in existing developed areas and areas identified as targets for economic development (3) location of cultural and commercial facilities in residential areas (4) the operational integrity and consistency of the zoning and land use and economic development planning process and (5) adequate building code standards; and

(c) Existing tax policies affecting development.

4. The Council shall recommend to the Governor by July 1, 1980, the appropriate structure of a Task Force, including local government and legislative representation, to review and hold hearings on the Council's proposals. The report of the Council concerning the matters set forth in paragraph 3(a), including a proposed Executive Order, shall be submitted to the Task Force by October 1, 1980 and the report of the Task Force on these matters by January 1, 1981. The final report of the Council concerning the matters set forth in paragraphs 3(b) and (c) shall be submitted to the Task Force by June 1, 1981 and the final report of the Task Force, including appropriate legislative proposals shall be submitted to me by November 1, 1981; and

(5) All departments and agencies of State government shall cooperate with the Council in carrying out its work.

GIVEN Under My Hand and the Great Seal of the State of Maryland in the City of Annapolis, this 17th day of January, 1980.

Harry Hughes
Governor of Maryland

ATTEST:

Fred L. Wineland
Secretary of State

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HOUSE BILL No. 1481
(01r3529)

Introduced by The Speaker and Environmental Matters Committee (Administration)

Read and Examined by Proofreader:

_____
Proofreader.

_____
Proofreader.

Sealed with the Great Seal and presented to the Governor, for his approval this_____ day of_____ at_____o'clock,_____M.

_____
Speaker.

CHAPTER _____

AN ACT concerning

Hazardous Waste Facility Siting Program

FOR the purpose of creating a Hazardous Waste Facility Siting Board; providing for the membership, compensation, tenure, and voting requirements of the Board; defining certain terms; providing legislative purpose; providing certain powers, duties, and responsibilities of the Board; requiring certain reports prior to issuance of a certificate of public necessity of the siting of hazardous waste facilities by the Board; providing the procedures for application and effect and purpose of the certificate issued by the Board; providing that certain changes may not be made in a certified site or facility without Board approval; providing staff and funding for the Board; requiring that prior to a certain date and annually thereafter the Maryland Environmental Service must prepare an inventory of potential hazardous waste facility sites, in consultation with certain agencies and governing bodies; requiring certain governing bodies to prepare a certain list; providing that the Service may select certain sites if a condition is not met; requiring the

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EXPLANATION: CAPITALS INDICATE MATTER ADDED TO EXISTING LAW.
[Brackets] indicate matter deleted from existing law.
Underlining indicates amendments to bill.
~~Strike--out~~ indicates matter stricken by amendment.

Maryland Environmental Service to carry out certain duties, functions, and responsibilities in relation to the siting of hazardous waste facilities; permitting the Maryland Environmental Service to carry out certain functions dealing with the siting of hazardous waste facilities; providing for the judicial review of the decisions of the Board; providing that as a condition to the issuance of a permit issued under § 8-1413.2 of the Natural Resources Article, the operator shall be required to allow inspection by certain representatives of the State and of the political subdivision in which the facility is located; requiring that the State authority perform regular inspections of each facility that is required to have a permit under that section, specifying the minimum frequency for the inspection of certain of those facilities, and providing that all or part of this responsibility may be delegated to certain local officials; providing for the maintenance and the availability to the public of certain records regarding these inspections; making certain corresponding changes in related sections of the law; and generally relating to the siting of hazardous waste facilities.

BY repealing and reenacting, without amendments,

Article - Natural Resources
Section 3-105(a)
Annotated Code of Maryland
(1974 Volume and 1979 Supplement)

BY adding to

Article - Natural Resources
Section 3-105(f); 3-701 through ~~3-712~~ 3-713, inclusive, to be under the new subtitle "Subtitle 7. Hazardous Waste Facility Siting Program"; and 8-1413.3
Annotated Code of Maryland
(1974 Volume and 1979 Supplement)

By repealing and reenacting, with amendments,

Article - Natural Resources
Section 8-1413.2(c)(7) and 8-1413.2(k)
Annotated Code of Maryland
(1974 Volume and 1979 Supplement)

Preamble

The primary concerns of this Act are to insure proper safeguards to the health and safety of the public and to protect the quality of the environment.

SECTION 1. BE IT ENACTED BY THE GENERAL ASSEMBLY OF MARYLAND, That section(s) of the Annotated Code of Maryland be repealed, amended, or enacted to read as follows:

Article - Natural Resources

3-105.

(a) The Service is responsible for carrying out the following general activities subject to the limitations stated in this section.

(F) EXECUTE THE POWERS AND PERFORM THE DUTIES SET FORTH IN SUBTITLE 7 OF THIS TITLE, INCLUDING THE FINANCING, ACQUISITION, LEASING, AND OPERATION OF HAZARDOUS WASTE DISPOSAL FACILITIES.

SUBTITLE 7. HAZARDOUS WASTE FACILITY SITING PROGRAM

3-701.

(A) IN THIS SUBTITLE THE FOLLOWING WORDS HAVE THE MEANINGS INDICATED.

(B) "BOARD" MEANS THE HAZARDOUS WASTE FACILITIES SITING BOARD.

(C) "CERTIFICATE" MEANS A CERTIFICATE OF PUBLIC NECESSITY ISSUED BY THE BOARD.

(D) "FACILITY" MEANS ANY STRUCTURE, EQUIPMENT, MACHINERY, BINS, TANKS, PIPES, PUMPS, CONVEYORS, WELLS, TRENCHES, PITS, OR CELLS USED FOR TREATMENT, PROCESSING, RECONDITIONING, EXCHANGE, INCIDENTAL STORAGE IN CONNECTION WITH THE PRECEDING ACTIVITIES, LONG-TERM STORAGE, OR ULTIMATE DISPOSAL OF HAZARDOUS WASTE.

(E) "HAZARDOUS WASTE" MEANS ANY WASTE SUBSTANCE OR MATERIAL DESIGNATED AS A HAZARDOUS SUBSTANCE PURSUANT TO § 8-1413.2 OF THIS ARTICLE.

(F) "SERVICE" MEANS THE MARYLAND ENVIRONMENTAL SERVICE.

(G) "SITE" MEANS THE GEOGRAPHIC AREA TO BE OCCUPIED BY A FACILITY, INCLUDING BUFFER OR SECURITY AREAS AND AREAS USED FOR ANY APPURTENANT FUNCTIONS.

(H) "SUBDIVISION" MEANS THE 23 COUNTIES OR BALTIMORE CITY AND INCORPORATED MUNICIPALITIES.

3-702.

THE PURPOSE OF THIS SUBTITLE IS TO PROTECT THE PUBLIC HEALTH AND THE ENVIRONMENT BY ENSURING THE AVAILABILITY OF SITES AND PROPERLY DESIGNED FACILITIES TO DISPOSE OF, REUSE, RECYCLE, INCINERATE, OR OTHERWISE RENDER NONHAZARDOUS, HAZARDOUS WASTE MATERIALS AND TO ELIMINATE ILLEGAL DUMPING

OR IMPROPER DISPOSAL. THESE FACILITIES SHALL BE LOCATED SUBJECT TO THE FOLLOWING CONSIDERATIONS:

(1) THAT THERE ARE PROPER SAFEGUARDS TO THE HEALTH AND SAFETY OF THE PUBLIC AND THE QUALITY OF THE ENVIRONMENT;

(2) THAT FACILITIES ARE AVAILABLE AT REASONABLE COST COMMENSURATE WITH ADEQUATE PROTECTION OF PUBLIC HEALTH AND SAFETY, AND OF THE ENVIRONMENT;

(3) THAT THERE IS DUE CONSIDERATION OF SOCIAL VALUES AND OF THE REASONABLE AND BENEFICIAL USE OF LAND AND NATURAL RESOURCES;

(4) THAT THERE IS DUE CONSIDERATION FOR INDUSTRY AND COMMERCE, THE REVENUES, AND DEVELOPMENT OF THE STATE AND ITS POLITICAL SUBDIVISIONS, AND THE EMPLOYMENT AND WELFARE OF THE PEOPLE;

(5) THAT THERE IS DUE CONSIDERATION ~~FOR THE ADVANTAGES OF~~ OF ALTERNATIVES OVER BURIAL OR OTHER LAND DISPOSAL OF HAZARDOUS WASTE, SUCH AS SOURCE REDUCTION, REUSE, ~~AND--BENEFICIAL--RECOVERY--OF--THE--HAZARDOUS--WASTE MATERIAL~~ RESOURCE RECOVERY, AND INCINERATION;

(6) THAT THERE IS DUE CONSIDERATION FOR THE EXPEDITIOUS ULTIMATE DISPOSAL OF HAZARDOUS WASTE IN ORDER TO MINIMIZE RELIANCE ON INTERIM STORAGE; ~~AND~~

(7) THAT THERE IS DUE CONSIDERATION FOR MANAGING SITES FOLLOWING CESSATION OF OPERATIONS~~.~~;

(8) THAT THERE IS DUE CONSIDERATION FOR THE EQUITABLE GEOGRAPHIC DISTRIBUTION OF SITES, INCLUDING:

(I) CONSIDERATION OF THE FEASIBILITY OF SITING A FACILITY WITHIN THE SAME POLITICAL SUBDIVISION FROM WHICH THE WASTES PRINCIPALLY ORIGINATE;

(II) CONSIDERATION OF THOSE SUBDIVISIONS THAT PRESENTLY HAVE SITES, TO AVOID TO THE EXTENT FEASIBLE CERTIFYING SITES DISPROPORTIONATELY IN ANY ONE SUBDIVISION;

(9) THAT THERE IS DUE CONSIDERATION FOR LOCAL LAND USE PREFERENCE, AS EXPRESSED IN LOCAL PLANNING AND ZONING PROVISIONS; AND

(10) THAT ~~THERE IS~~ WHERE AFTER DUE CONSIDERATION FOR THE GEOLOGICAL STABILITY OF A LOCATION AND ANY POSSIBLE EFFECTS TO A PUBLIC OR PRIVATE WATER SUPPLY BECOME KNOWN, THE FACILITY SITE MAY NOT BE USED.

3-703.

(A) THERE IS A HAZARDOUS WASTE FACILITIES SITING BOARD.

(B) (1) THE BOARD CONSISTS OF SEVEN MEMBERS APPOINTED BY THE GOVERNOR, WHO SHALL REPRESENT THE VARIOUS GEOGRAPHICAL AREAS OF THE STATE. NO MORE THAN ONE MEMBER OF THE BOARD SHALL BE A RESIDENT OF THE SAME COUNTY OR OF BALTIMORE CITY.

(2) OF THE SEVEN MEMBERS:

(I) TWO SHALL BE MEMBERS OF THE SCIENTIFIC COMMUNITY IN THE STATE, ONE OF WHOM SHALL BE A GEOLOGIST;

(II) TWO SHALL BE MEMBERS OF THE GENERAL PUBLIC WHO HAVE NO FINANCIAL INTEREST IN THE WASTE DISPOSAL INDUSTRY, AT LEAST ONE OF WHOM HAS HAD A DEMONSTRATED INVOLVEMENT IN ENVIRONMENTAL MATTERS;

(III) ONE SHALL BE APPOINTED FROM A LIST OF THREE OR MORE PERSONS NOMINATED BY THE MARYLAND ASSOCIATION OF COUNTIES;

(IV) ONE SHALL BE APPOINTED FROM A LIST OF THREE OR MORE PERSONS NOMINATED BY THE MARYLAND CHAMBER OF COMMERCE; AND

(V) ONE SHALL BE APPOINTED FROM A LIST OF THREE OR MORE PERSONS NOMINATED BY THE MARYLAND MUNICIPAL LEAGUE.

(C) BEFORE TAKING OFFICE, EACH APPOINTEE TO THE BOARD SHALL TAKE THE OATH REQUIRED BY ARTICLE I, § 9 OF THE STATE CONSTITUTION.

(D) (1) THE TERM OF A MEMBER IS 4 YEARS.

(2) THE TERMS OF THE INITIAL APPOINTEES EXPIRE AS FOLLOWS: ~~THE MEMBERS~~ ONE MEMBER REPRESENTING THE GENERAL PUBLIC AND ONE MEMBER REPRESENTING THE SCIENTIFIC COMMUNITY ON JANUARY 1, ~~1982, THE MEMBERS REPRESENTING THE SCIENTIFIC COMMUNITY ON JANUARY 1, 1983,~~ 1984, ONE MEMBER REPRESENTING THE GENERAL PUBLIC AND ONE MEMBER REPRESENTING THE SCIENTIFIC COMMUNITY ON JANUARY 1, 1985 AND THE REMAINING MEMBERS ON JANUARY 1, ~~1984~~ 1983.

(E) THE GOVERNOR SHALL APPOINT A CHAIRMAN FROM AMONG THE SEVEN MEMBERS.

(F) AT THE END OF A TERM, A MEMBER CONTINUES TO SERVE UNTIL A SUCCESSOR IS APPOINTED AND QUALIFIES.

(G) A MEMBER WHO IS APPOINTED AFTER A TERM HAS BEGUN SERVES ONLY THE REMAINDER OF THAT TERM AND UNTIL A SUCCESSOR IS APPOINTED AND QUALIFIES.

(H) A MEMBER MAY BE REMOVED BY THE APPOINTING AUTHORITY FOR INCOMPETENCY OR MISCONDUCT.

(I) EACH MEMBER OF THE BOARD IS ENTITLED TO:

(1) COMPENSATION IN ACCORDANCE WITH THE STATE BUDGET; AND

(2) REIMBURSEMENT FOR EXPENSES UNDER THE STANDARD TRAVEL REGULATIONS, AS PROVIDED IN THE STATE BUDGET.

(J) THE AFFIRMATIVE VOTE OF A MAJORITY OF THE MEMBERS OF THE BOARD THEN SERVING IS NECESSARY FOR ANY DECISION OF THE BOARD.

3-704.

IN ADDITION TO THE POWERS SET FORTH ELSEWHERE IN THIS SUBTITLE, THE BOARD MAY ADOPT RULES AND REGULATIONS TO CARRY OUT THE PROVISIONS OF THIS SUBTITLE.

3-705.

(A) (1) THE BOARD SHALL ISSUE CERTIFICATES OF PUBLIC NECESSITY FOR THE SITING OF HAZARDOUS WASTE FACILITIES PURSUANT TO THE PROVISIONS OF THIS SUBTITLE.

(2) A CERTIFICATE UNDER THIS SUBTITLE IS NOT REQUIRED IF A SITE AND FACILITY ARE OTHERWISE AUTHORIZED BY LAW.

(3) A CERTIFICATE IS NOT REQUIRED FOR A FACILITY USED FOR RECEIPT, TRANSFER, RECOVERY, OR DISPOSAL OF NONHAZARDOUS RESIDENTIAL, COMMERCIAL, OR INDUSTRIAL WASTE.

(B) IN DECIDING WHETHER TO ISSUE A CERTIFICATE, THE BOARD SHALL CONSIDER BUT NOT BE LIMITED TO THE FOLLOWING:

(1) ENVIRONMENTAL, SOCIAL, TECHNICAL, AND ECONOMIC FACTORS AS THEY APPLY TO A PARTICULAR PROPOSED SITE; AND

(2) THE NEED FOR AND PROBLEMS ASSOCIATED WITH THE COMPREHENSIVE STATEWIDE DISPOSAL OF HAZARDOUS WASTE.

(C) THE DESIGN, CONSTRUCTION, AND OPERATION OF A FACILITY ON A SITE FOR WHICH A CERTIFICATE HAS BEEN ISSUED, AND THE ASSOCIATED TRANSPORTATION OF HAZARDOUS WASTE TO AND FROM THE FACILITY, SHALL BE SUBJECT TO ALL ENVIRONMENTAL, HEALTH, AND SAFETY RESTRICTIONS THAT MAY BE IMPOSED BY STATE REGULATORY AGENCIES UNDER APPLICABLE LAW AND REGULATION.

(D) THE ISSUANCE OF A CERTIFICATE OF PUBLIC NECESSITY FOR A SITE EXEMPTS THE SITE, THE DESIGN, CONSTRUCTION, AND OPERATION OF THE FACILITIES ON THE SITE, AND THE TRANSPORTATION OF HAZARDOUS WASTE TO AND FROM THE FACILITIES ON THE SITE FROM ANY REGULATION, POLICY, LAW, OR ORDINANCE,

INCLUDING ZONING, OF ANY POLITICAL SUBDIVISION OF THIS STATE, AND FROM ANY STATE LAW OR REGULATION THAT REQUIRES APPROVAL OF ANY POLITICAL SUBDIVISION OF THIS STATE.

(E) THE ISSUANCE OF A CERTIFICATE DOES NOT REQUIRE THE APPROVAL OF ANY COUNTY OR MUNICIPAL COUNCIL, BOARD, AUTHORITY, OR UNIT. ANY PLAN FOR MANAGEMENT OF LIQUID, SOLID, OR HAZARDOUS WASTE ADOPTED BY ANY SUBDIVISION OF THE STATE SHALL BE CONSISTENT WITH THE TERMS OF THE CERTIFICATE.

(F) THE CERTIFICATE SHALL CONTAIN A STATEMENT OF THE PURPOSE FOR WHICH IT IS ISSUED AND A DESCRIPTION OF THE SITE AND PROPOSED FACILITY, AND SHALL INDICATE THE LOCATIONS ON THE SITE OF ALL FACILITIES, ALL BUFFER AND SECURITY AREAS, AND ALL AREAS TO BE USED FOR APPURTENANT FUNCTIONS.

(G) A CERTIFICATE IS VALID ONLY FOR THE SITE AND FACILITY FOR WHICH IT IS ISSUED.

(H) A PERSON MAY NOT MAKE ANY MATERIAL CHANGE THAT, AS TO A FACILITY OR THE USE OF A SITE, IS CONTRARY TO THE PURPOSE OR CONDITIONS FOR WHICH A CERTIFICATE WAS ISSUED, UNLESS:

(1) THE PERSON FIRST SUBMITS THE PROPOSED CHANGE TO THE BOARD FOR RECONSIDERATION OF THE CERTIFICATE; ~~AND~~

(2) THE BOARD APPROVES THE CHANGE~~.~~; AND

(3) AN APPLICATION FOR RECONSIDERATION SHALL BE MADE BY AN APPLICANT AND PROCESSED BY THE BOARD IN ACCORDANCE WITH THE SAME REQUIREMENTS, PROCEDURES, AND RESTRICTIONS THAT ARE APPLICABLE TO AN INITIAL APPLICATION FOR A CERTIFICATE UNDER THIS SUBTITLE.

3-706.

(A) EACH APPLICATION FOR A CERTIFICATE SUBMITTED TO THE BOARD SHALL CONTAIN A REPORT WITH INFORMATION OF THE TYPE, QUALITY, AND DETAIL THAT WILL PERMIT ADEQUATE CONSIDERATION OF THE ENVIRONMENTAL, SOCIAL, TECHNICAL, AND ECONOMIC FACTORS INVOLVED IN THE ESTABLISHMENT AND OPERATION OF THE PROPOSED FACILITIES. THE APPLICANT SHALL MAKE THE REPORT AVAILABLE TO AFFECTED SUBDIVISIONS AND TO THE PUBLIC.

(B) (1) ON RECEIPT OF THE APPLICATION FOR A CERTIFICATE THE BOARD SHALL FORWARD A COPY OF THAT APPLICATION TO THE DEPARTMENT OF HEALTH AND MENTAL HYGIENE. THE DEPARTMENT OF HEALTH AND MENTAL HYGIENE SHALL CONSIDER THE APPLICATION FOR A CERTIFICATE AS AN APPLICATION FOR THE FACILITY PERMIT THAT IS REQUIRED UNDER ARTICLE 43 OF THE ANNOTATED CODE.

(2) ON RECEIPT OF ANY APPLICATION FOR A FACILITY PERMIT THAT IS REQUIRED UNDER ARTICLE 43 OF THE ANNOTATED CODE, THE DEPARTMENT OF HEALTH AND MENTAL HYGIENE SHALL

FORWARD A COPY OF THE FACILITY PERMIT APPLICATION TO THE BOARD.

(C) (1) THE PORTION OF THE APPLICANT'S REPORT DEALING WITH ENVIRONMENTAL AND SOCIAL ASSESSMENTS SHALL CONTAIN, BUT NOT BE LIMITED TO:

(I) THE POTENTIAL IMPACT OF THE METHOD AND ROUTE OF TRANSPORTATION OF HAZARDOUS WASTE TO THE SITE AND THE POTENTIAL IMPACT OF THE ESTABLISHMENT AND OPERATION OF THE PROPOSED FACILITY ON AIR AND WATER QUALITY, EXISTING LAND USE, TRANSPORTATION, AND NATURAL RESOURCES IN THE AREA AFFECTED BY PROPOSED FACILITIES;

(II) A DESCRIPTION OF THE EXPECTED EFFECT OF THE FACILITY; AND

(III) RECOMMENDATIONS FOR MINIMIZING ANY ADVERSE IMPACT.

(2) THE PORTION OF THE APPLICANT'S REPORT DEALING WITH TECHNICAL AND ECONOMIC ASSESSMENTS SHALL CONTAIN, BUT NOT BE LIMITED TO:

(I) DETAILED DESCRIPTIONS OF THE PROPOSED SITE AND FACILITY, INCLUDING SITE LOCATION AND BOUNDARIES AND FACILITY PURPOSE, TYPE, SIZE, CAPACITY, AND LOCATION ON THE SITE AND ESTIMATES OF THE COST AND CHARGES TO BE MADE FOR MATERIAL ACCEPTED; AND

(II) PROVISIONS FOR MANAGING THE SITE FOLLOWING CESSATION OF OPERATION OF THE FACILITY.

(D) ACCEPTANCE BY THE BOARD OF ANY APPLICATION FOR PROCESSING DOES NOT PRECLUDE THE BOARD FROM REQUIRING FURTHER INFORMATION FROM THE APPLICANT IF THE BOARD CONSIDERS THE ADDITIONAL INFORMATION NECESSARY FOR ADEQUATE CONSIDERATION OF THE APPLICATION.

(E) PRIOR TO MARCH 1, 1981, THE BOARD SHALL PRESENT AT PUBLIC HEARING, ADOPT, AND PUBLISH RULES DESCRIBING AND GOVERNING THE PROCEDURE FOR OBTAINING A CERTIFICATE. THE PROVISIONS OF THIS SECTION DO NOT EXEMPT THE BOARD FROM THE REQUIREMENTS OF ARTICLE 41, § 244 ET SEQ. OF THE CODE.

(F) (1) AT LEAST 90 DAYS PRIOR TO ISSUANCE OF A CERTIFICATE, THE BOARD SHALL SEEK THE ADVICE AND COMMENT OF THE FOLLOWING:

(I) THE SECRETARIES OF NATURAL RESOURCES, HEALTH AND MENTAL HYGIENE, ECONOMIC AND COMMUNITY DEVELOPMENT, STATE PLANNING, AND AGRICULTURE;

(II) THE COUNCIL ON TOXIC SUBSTANCES AND THE HAZARDOUS SUBSTANCES ADVISORY COUNCIL; AND

(III) THE GOVERNING BODY OF ANY SUBDIVISION OF THE STATE WITHIN WHICH ALL OR PART OF THE PROPOSED SITE IS TO BE LOCATED AND THE GOVERNING BODIES OF ADJOINING SUBDIVISIONS.

(2) AT LEAST 90 DAYS PRIOR TO THE ISSUANCE OF A CERTIFICATE, THE BOARD SHALL SEEK THE COMMENTS OF EACH LANDOWNER OF RECORD ~~THAT~~ WHOSE PROPERTY IS WITHIN 1000 FEET OF THE PROPOSED SITE.

~~(2)~~ (3) WITHIN 30 DAYS AFTER THE BOARD SEEKS THE ADVICE OF A PARTY LISTED UNDER SUBSECTION ~~(E)~~ (F)(1) OF THIS SECTION, THE PARTY SHALL RESPOND TO THE BOARD IN WRITING BY EITHER:

(I) SETTING FORTH THE ADVICE AND COMMENTS OF THE PARTY AS TO THE PROPOSED CERTIFICATION; OR

(II) STATING THAT THE PARTY HAS NO COMMENTS AS TO THE PROPOSED CERTIFICATION.

(G) (1) BEFORE IT MAY ISSUE A CERTIFICATE, THE BOARD SHALL HOLD A PUBLIC HEARING IN THE SUBDIVISION IN WHICH THE PROPOSED SITE IS TO BE LOCATED FOR THE PURPOSE OF RECEIVING ADVICE AND COMMENTS FROM THE PUBLIC.

(2) THE HEARING SHALL BE HELD AT LEAST 60 DAYS PRIOR TO THE ISSUANCE OF A CERTIFICATE.

(3) IF A SITE IS LOCATED IN MORE THAN ONE SUBDIVISION, THE HEARING SHALL BE HELD AT A LOCATION REASONABLY CONVENIENT AND ACCESSIBLE TO THE AFFECTED JURISDICTIONS.

(4) THE HEARING MAY NOT BE HELD UNTIL THE APPLICATION IS COMPLETE.

(H) (1) THE BOARD SHALL MAKE A DECISION TO ISSUE OR DENY A CERTIFICATE WITHIN 6 MONTHS OF RECEIPT OF AN APPLICATION AND ANY ADDITIONAL INFORMATION REQUIRED UNDER THIS SECTION, AND SHALL ADVISE THE GOVERNING BODY OF A SUBDIVISION IN WRITING OF ANY REJECTION OF A SITE THAT IT RECOMMENDED AND OF THE REASONS FOR THE REJECTION.

(2) WITH THE CONCURRENCE OF THE APPLICANT, THE BOARD MAY EXTEND THIS PERIOD FOR NO MORE THAN AN ADDITIONAL 6 MONTHS.

(I) THE BOARD SHALL SET BY RULE AND REGULATION A REASONABLE SCHEDULE OF FEES NECESSARY TO RECOVER THE COSTS OF PROCESSING APPLICATIONS AND ISSUING CERTIFICATES UNDER THIS SUBTITLE.

(J) ON ISSUANCE OF A CERTIFICATE THE BOARD SHALL FILE A COPY OF THAT CERTIFICATE WITH THE SECRETARY TO THE BOARD AND THE SECRETARY OF STATE. COPIES OF THE CERTIFICATE SHALL BE SENT BY THE SECRETARY TO THE BOARD TO:

(1) THE GOVERNING BODY OF ANY POLITICAL SUBDIVISION OF THE STATE WITHIN WHICH ALL OR PART OF THE PROPOSED SITE IS TO BE LOCATED AND THE GOVERNING BODIES OF ADJOINING SUBDIVISIONS;

(2) THE RECORD OWNER(S) OF THE SITE AND THE RECORD OWNERS OF ADJOINING PROPERTY;

(3) THE APPLICANT, IF DIFFERENT FROM THE RECORD OWNER;

(4) THE DEPARTMENT OF NATURAL RESOURCES;

(5) THE DEPARTMENT OF HEALTH AND MENTAL HYGIENE;

(6) THE DEPARTMENT OF STATE PLANNING;

(7) THE DEPARTMENT OF AGRICULTURE; AND

(8) THE DEPARTMENT OF ECONOMIC AND COMMUNITY DEVELOPMENT.

(K) THE BOARD SHALL MAINTAIN RECORDS OF ITS TRANSACTIONS INCLUDING THE APPLICATIONS AND SUPPORTING DATA SUBMITTED BY THOSE SEEKING CERTIFICATES FROM THE BOARD AND ANY OTHER TECHNICAL DATA CONSIDERED IN ISSUING OR DENYING A CERTIFICATE. THESE RECORDS ARE PUBLIC RECORDS FOR THE PURPOSES OF ARTICLE 76A, §§ 1 THROUGH 5 OF THE CODE.

(L) THE BOARD SHALL CONSIDER, REVIEW, AND APPROVE OR DENY HAZARDOUS WASTE SITES RECOMMENDED BY THE DEPARTMENT OF NATURAL RESOURCES IN THE SAME MANNER IN WHICH IT ACTS UPON APPLICATIONS FOR ISSUANCE OF CERTIFICATES FROM OTHER PARTIES.

3-707.

~~(A)--A--CERTIFICATE-UNDER-THIS-SUBTITLE-IS-NOT-REQUIRED IF-A-SITE-AND-FACILITY-ARE-OTHERWISE-AUTHORIZED-BY-LAW.~~

~~(B)~~ REGARDLESS OF WHETHER A SITE AND FACILITY ARE APPROVED BY A SUBDIVISION OR ARE CERTIFIED UNDER THIS SUBTITLE:

(1) ALL OTHER REQUIREMENTS FOR PERMITS BY STATE HEALTH OR ANY OTHER STATE REGULATORY AGENCY REMAIN APPLICABLE; AND

(2) ALL OTHER STATE ENVIRONMENTAL, HEALTH, AND SAFETY RESTRICTIONS SHALL APPLY, AS PROVIDED IN § 3-705(C) OF THIS SUBTITLE.

3-708.

(A) A CERTIFICATE AUTOMATICALLY SHALL BE NULL AND VOID IF:

(1) CONSTRUCTION OR OTHER PREPARATION OF THE SITE FOR ITS INTENDED USE OF THE FACILITY FOR WHICH THE CERTIFICATE WAS ISSUED HAS NOT COMMENCED WITHIN 2 YEARS FOLLOWING ISSUANCE OF THE CERTIFICATE; OR

(2) THE FACILITY HAS NOT COMMENCED OPERATION WITHIN 4 YEARS FOLLOWING ISSUANCE OF THE CERTIFICATE.

(E) THE BOARD MAY EXTEND THE TIME LIMITS IMPOSED UNDER SUBSECTION (A) OF THIS SECTION IF THE CERTIFICATE HOLDER:

(1) APPLIES TO THE BOARD FOR AN EXTENSION; AND

(2) SHOWS GOOD CAUSE FOR ALLOWING THE EXTENSION.

3-709.

(A) THE SERVICE SHALL SERVE AS PRIMARY STAFF AGENCY FOR THE BOARD. THE SERVICE SHALL SUBMIT ANNUALLY, ACCORDING TO NORMAL BUDGET PROCEDURES AND WITH THE CONCURRENCE OF THE BOARD, A BUDGET REQUEST CALCULATED TO SUPPORT THE SERVICE'S EXPECTED EXPENDITURES IN SUPPORT OF THE BOARD. THE SUPPORT OF THE BOARD BY THE SERVICE SHALL BE BASED ON THE BUDGET AS ENACTED.

(B) THE DIRECTOR OF THE SERVICE OR A STAFF MEMBER DESIGNATED BY THE DIRECTOR SHALL SERVE AS SECRETARY TO THE BOARD. THE SECRETARY IS RESPONSIBLE FOR MAINTAINING RECORDS OF THE BOARD'S TRANSACTIONS AND OTHER RECORDS WHICH THE BOARD IS OBLIGATED OR CONSIDERS DESIRABLE TO MAINTAIN.

3-710.

(A) (1) (I) 1. IN CONSULTATION WITH THE APPROPRIATE AGENCIES OF STATE AND LOCAL GOVERNMENT, THE SERVICE SHALL PREPARE BY ~~JANUARY~~ JUNE 1, 1981, AN INITIAL INVENTORY OF POTENTIAL HAZARDOUS WASTE FACILITY SITES AND A PROGRAM FOR UTILIZING THESE SITES THAT APPEAR SUITABLE FOR AND CAPABLE OF MEETING DISPOSAL DEMANDS.

2. THE SERVICE SHALL DEVELOP GUIDELINES, CONSISTENT WITH THE PROVISION OF THIS SUBTITLE, FOR EVALUATING TYPES OF SITES FOR PLACEMENT ON THE INVENTORY, AND SHALL APPLY SAID GUIDELINES UNIFORMLY TO ALL SITES OF A GIVEN TYPE CONSIDERED FOR PLACEMENT ON THE INVENTORY.

(II) IN PREPARING THE INVENTORY, THE SERVICE SHALL SOLICIT AND CONSIDER RECOMMENDATIONS FROM THE GOVERNING BODY OF EACH SUBDIVISION~~,~~ WHO SHALL PREPARE A LIST OF SITES WHICH ARE BELIEVED TO MEET OR EXCEED THE REQUIREMENT FOR FACILITIES OF THE TYPES UNDER CONSIDERATION BY THE BOARD. IF THE GOVERNING BODY CANNOT AGREE UPON SPECIFIC SITES WITHIN 6 MONTHS OF THE REQUEST, THE SERVICE MAY SELECT THE SITES FOR INCLUSION ON THE INVENTORY.

(III) THE SERVICE SHALL CONSIDER ANY RECOMMENDATION THAT IS SUBMITTED UNDER THIS SUBSECTION ON OR BEFORE SEPTEMBER 1, 1980, AND SHALL ADVISE THE GOVERNING BODY OF A SUBDIVISION IN WRITING OF ANY REJECTION OF A SITE THAT IT RECOMMENDED AND OF THE REASONS FOR THE REJECTION.

(2) (I) THE INVENTORY AND PROGRAM SHALL BE MAINTAINED AND, NO LATER THAN DECEMBER 31 OF 1981 AND OF EACH YEAR THEREAFTER, UPDATED IN CONSULTATION WITH THE APPROPRIATE STATE AND LOCAL AGENCIES AND LOCAL GOVERNING BODIES.

(II) IN PREPARING THE INVENTORY UPDATES, THE SERVICE SHALL SOLICIT AND CONSIDER RECOMMENDATIONS FROM THE GOVERNING BODY OF EACH SUBDIVISION.

(III) THE SERVICE SHALL CONSIDER ANY RECOMMENDATION THAT IS SUBMITTED UNDER THIS SUBSECTION ON OR BEFORE THE APRIL 1 PRECEDING THE UPDATE TO WHICH IT IS ADDRESSED, AND SHALL ADVISE THE GOVERNING BODY OF A SUBDIVISION IN WRITING OF ANY REJECTION OF A SITE THAT IT RECOMMENDED AND OF THE REASONS FOR THE REJECTION.

(B) (1) AT THE DIRECTION OF THE BOARD, AND IN CONSULTATION WITH THE APPROPRIATE AGENCIES OF STATE AND LOCAL GOVERNMENT, THE SERVICE SHALL PREPARE PLANS, SURVEYS, INVESTIGATIONS, OR STUDIES BEARING ON THE CHARACTERISTICS OF ANY SITE OR ON THE NEED FOR AND EMPLOYMENT OF SITES AND FACILITIES THROUGHOUT THE STATE.

(2) TO THIS PURPOSE, THE DEPARTMENT OF HEALTH AND MENTAL HYGIENE ROUTINELY SHALL FURNISH THE SERVICE WITH COPIES OF RELEVANT INFORMATION AND DATA FILED WITH THE DEPARTMENT UNDER THE PROVISIONS OF ARTICLE 43 THAT ARE APPLICABLE TO THE GENERATION, TRANSPORT, AND DISPOSAL OF HAZARDOUS WASTE.

(C) AT THE DIRECTION OF THE BOARD, THE SERVICE SHALL CARRY OUT COORDINATING FUNCTIONS WITH STATE OR FEDERAL AGENCIES, OTHER STATE GOVERNMENTS, GOVERNMENTS OF POLITICAL SUBDIVISIONS, INDUSTRY, AND THE PUBLIC AT LARGE.

(D) (1) THE DETERMINATION BY THE BOARD OF STATEWIDE NEED AND THE PLANS AND SURVEYS PREPARED BY THE SERVICE AS AUTHORIZED BY SUBSECTION (B) OF THIS SECTION SHALL BE PREPARED IN FORM AND SUBSTANCE SUITABLE FOR INCLUSION IN THE STATEWIDE SOLID WASTE MANAGEMENT PLAN REQUIRED BY THE RESOURCE CONSERVATION AND RECOVERY ACT OF 1976 (RCRA).

(2) IN THE EVENT THAT THE RCRA STATEWIDE PLAN IS NO LONGER REQUIRED, THE SERVICE SHALL PREPARE A 10-YEAR HAZARDOUS WASTE MANAGEMENT PLAN AND PROPOSE PROCEDURES FOR ITS ADOPTION.

3-711.

(A) THE SERVICE MAY APPLY TO THE BOARD FOR A CERTIFICATE FOR ONE OR MORE SITES INCLUDED IN THE STATEWIDE INVENTORY.

(B) THE BOARD MAY DIRECT THE SERVICE TO PREPARE AND SUBMIT A PROPOSAL FOR ACQUISITION OR UTILIZATION OR BOTH OF ANY INVENTORIED SITE. THE BOARD MAY FURTHER DIRECT THE SERVICE TO PERFORM ANY ACT AUTHORIZED BY SUBTITLE 1 OF TITLE 3 OF THIS ARTICLE TO IMPLEMENT THE PROPOSAL IF A CERTIFICATE IS ISSUED.

(C) WHEN THE SERVICE ACTS WITH RESPECT TO A SITE FOR WHICH A CERTIFICATE HAS BEEN ISSUED, §§ 3-102(C) AND 3-104(U) OF THIS ARTICLE DO NOT APPLY.

(D) (1) IF THE SERVICE OWNS A SITE OR PROPERTY ON A SITE THAT IS NOT, BECAUSE OF ITS OWNERSHIP, SUBJECT TO ORDINARY LOCAL TAXES, AND IF A CERTIFICATE HAS BEEN ISSUED FOR THE SITE, THE SERVICE SHALL MAKE PAYMENTS IN LIEU OF TAXES TO THE SUBDIVISION IN WHICH THE SITE IS LOCATED.

(2) THE COST OF THESE PAYMENTS SHALL BE INCLUDED AS A PART OF PROJECT COSTS IN THE ACCOUNTS OF THE SERVICE AND MAY BE RECOVERED BY THE SERVICE FROM THE USERS OF THE FACILITIES ON THE SITE.

(3) PAYMENT SHALL EQUAL THE AMOUNT OF ORDINARY LOCAL TAXES THAT WOULD BE DUE IF THE PROPERTY WERE SUBJECT TO TAXATION.

(4) IMMEDIATELY UPON ACQUISITION OF AN INTEREST IN ANY SITE OR PROPERTY ON A SITE, THE SERVICE SHALL REQUEST THE STATE DEPARTMENT OF ASSESSMENTS AND TAXATION TO CERTIFY TO THE LOCAL TAXING AUTHORITY THE ASSESSMENT ASSOCIATED WITH THE PROPERTY.

3-712.

(A) THE BOARD OF REVIEW OF THE DEPARTMENT OF NATURAL RESOURCES DOES NOT HAVE JURISDICTION OVER ANY PROCEEDING ARISING UNDER THIS SUBTITLE, AND §§ 1-105 AND 1-106 OF THIS ARTICLE ARE NOT APPLICABLE TO THE BOARD.

(B) ANY INTERESTED PARTY, INCLUDING A PROSPECTIVE USER OF A HAZARDOUS WASTE FACILITY SITE WHO GENERATES HAZARDOUS WASTE IN THIS STATE, MAY APPEAL A DECISION OF THE BOARD DIRECTLY TO THE CIRCUIT ~~COURTS OR (IF THE SITE IS LOCATED IN BALTIMORE CITY) TO THE BALTIMORE CITY COURT~~ COURT OF THE JURISDICTION OF THE PROPOSED SITE. THE DECISION OF THE CIRCUIT COURT ~~OR THE BALTIMORE CITY COURT~~ MAY BE APPEALED TO THE COURT OF SPECIAL APPEALS OF MARYLAND.

(C) ANY ISSUE IN AN APPEAL FROM A DECISION OF THE BOARD HAS PREFERENCE OVER ~~ALL~~ OTHER CIVIL ACTIONS AND PROCEEDINGS IN BOTH TRIAL AND APPELLATE COURTS.

~~(D)--AS--TO--ANY-CASE-THAT-NOTES-AN-APPEAL-FROM-A-BOARD DECISION-THAT-GRANTS-A-CERTIFICATE-UNDER--THIS--SUBTITLE,--A COURT--MAY--NOT-STAY-THE-OPERATION-OF-THE-CERTIFICATE-OR-THE PROCESSING-OF--ANY--APPLICATION--FOR--A--STATE--PERMIT--THAT RELATES--TO-THE-SITE-OR-A-FACILITY-FOR-WHICH-THE-CERTIFICATE WAS-GRANTED.~~

~~(E)~~ (D) IN ANY APPEAL, THE DECISION OF THE BOARD IS PRIMA FACIE CORRECT AND SHALL BE AFFIRMED UNLESS CLEARLY SHOWN TO BE:

(1) IN VIOLATION OF CONSTITUTIONAL PROVISIONS;

(2) MADE ON UNLAWFUL PROCEDURE;

(3) ARBITRARY AND CAPRICIOUS; OR

(4) AFFECTED BY OTHER ERROR OF LAW.

3-713.

(A) EXCEPT AS PROVIDED UNDER SUBSECTION (B) OF THIS SECTION, A SUBDIVISION MAY NOT BE HELD LIABLE FOR ANY DAMAGES TO ANY PARTY THAT HAVE ARISEN FROM THE SELECTION OR CERTIFICATION OF ANY SITE OR FACILITY UNDER THIS SUBTITLE OR FROM THE REGULATION, OPERATION, OR CONTROL OF ANY SITE OR FACILITY CERTIFIED UNDER THIS SUBTITLE.

(B) THE PROVISIONS OF SUBSECTION (A) OF THIS SECTION SHALL NOT APPLY TO ANY LIABILITY IMPOSED ON A SUBDIVISION:

(1) FOR ANY DAMAGE IF THE SUBDIVISION, ITSELF, OPERATED THE FACILITY; OR

(2) FOR ANY DAMAGE THAT RESULTED FROM THE FAILURE OF THE POLITICAL SUBDIVISION: (I) TO CARRY OUT PROPERLY ANY RESPONSIBILITY ASSIGNED TO IT UNDER THE LAW FOR CONDUCTING INSPECTIONS; OR (II) TO REPORT IN A TIMELY MANNER TO THE APPROPRIATE AUTHORITIES THE RESULTS OF ANY INSPECTION THAT IT CONDUCTS.

8-1413.2.

(c) The Department, in its regulations, shall:

(7) Set requirements and provide [for] procedures for [selection] THE PERMITTING of designated hazardous substance disposal sites and disposal methods;

(k) (1) As a condition to the issuance of a permit, the Department ~~may require~~ SHALL REQUIRE WHEN APPLICABLE a permit holder to:

[(1)] (I) Report periodically on the volume and chemical, physical, and biological nature of material received and discharged by the facility;

[(2)] (II) Provide evidence of financial ability to properly operate a facility;

[(3)] (III) Restore, to the extent reasonably practicable, the facility site to its original condition when use of the area for designated hazardous substances disposal is terminated;

[(4)] (IV) Establish emergency procedures and safeguards necessary to prevent accidents and reasonable foreseeable damage to humans and the environment;

[(5)] (V) Design, construct, and operate the facility in the manner approved by the Department;

[(6) Provide access to the facility at any reasonable time for the purpose of obtaining water samples, drilling test wells, measuring volumes and kinds of substances received and discharged, and inspecting the facility;]

[(7)] (VI) File with the Department acceptable evidence of a bond or other security deemed sufficient and adequate by the Department to cover any costs for:

[(i)] 1. The monitoring, maintaining, and closing of the facility;

[(ii)] 2. The security of the facility after its closure; and

[(iii)] 3. Guaranteeing fulfillment of all permit requirements; [or] AND

[(8)] (VII) Assist, under appropriate circumstances, in the transfer of public ownership or operation of a facility by a qualified agency of any subdivision of the State or by the Maryland Environmental Service.

(2) AS A CONDITION TO THE ISSUANCE OF A PERMIT, THE DEPARTMENT SHALL REQUIRE A PERMIT HOLDER TO PROVIDE ACCESS TO THE FACILITY BY ANY AUTHORIZED OFFICIAL, AGENT, OR EMPLOYEE OF THE DEPARTMENT ~~OR~~ AND OF THE LOCAL HEALTH DEPARTMENT OF THE POLITICAL SUBDIVISION IN WHICH THE FACILITY IS LOCATED AT ANY REASONABLE TIME FOR THE PURPOSE OF OBTAINING WATER SAMPLES, DRILLING TEST WELLS, MEASURING VOLUMES AND KINDS OF SUBSTANCES RECEIVED AND DISCHARGED, AND INSPECTING THE FACILITY.

(3) IF A MUNICIPALITY DOES NOT HAVE A LOCAL HEALTH DEPARTMENT, THE DEPARTMENT ALSO SHALL REQUIRE AS A CONDITION TO THE ISSUANCE OF A PERMIT THAT A PERMIT HOLDER SHALL PROVIDE ACCESS TO THE FACILITY BY ANY AUTHORIZED OFFICIAL, AGENT, OR EMPLOYEE OF AN AGENCY DESIGNATED BY THE

MAYOR OF THE MUNICIPALITY, FOR THE PURPOSES SET FORTH UNDER SUBSECTION (K)(2) OF THIS SECTION.

8-1413.3.

(A) (1) THE DEPARTMENT SHALL MAKE ~~REGULAR~~ AT LEAST MONTHLY INSPECTIONS OF EACH FACILITY THAT IS REQUIRED TO HAVE A PERMIT UNDER § 8-1413.2 OF THIS SUBTITLE.

(2) AS TO ANY OPERATING LANDFILL THAT IS REQUIRED TO HAVE A PERMIT UNDER § 8-1413.2 OF THIS SUBTITLE, THE INSPECTIONS SHALL BE MADE AT LEAST ONCE A WEEK.

(B) (1) THE DEPARTMENT SHALL RECORD THE DATE AND FINDINGS OF EACH INSPECTION MADE UNDER THIS SECTION.

(2) THESE RECORDS SHALL BE PUBLIC RECORDS OPEN FOR INSPECTION UNDER THE PROVISIONS OF ARTICLE 76A OF THE CODE.

(3) THE DEPARTMENT PERIODICALLY SHALL PUBLISH AND MAKE AVAILABLE TO THE PUBLIC A LIST OF DATES THAT EACH FACILITY WAS INSPECTED UNDER THIS SECTION.

(C) THE SECRETARY MAY DELEGATE TO THE APPROPRIATE HEALTH OFFICER OF ANY COUNTY AND THE HEALTH COMMISSIONER OF BALTIMORE CITY ALL OR ANY PART OF THE RESPONSIBILITY OF PERFORMING THE INSPECTIONS REQUIRED UNDER THIS SECTION.

SECTION 2. AND BE IT FURTHER ENACTED, That if Executive Order No. 01.01.1980.04, "Reorganization of State Government Environmental Area" is not disapproved by the General Assembly pursuant to Article II, Section 24 of the Constitution of this State, the provisions of this Act shall be read to be consistent with the transfer and consolidation of functions under that Order and, in particular, as to the amendments in this Act to Title 8, Subtitle 14 of the Natural Resources Article, the references to "Department" and "Secretary" shall mean the "Department of Health and Mental Hygiene" and the Secretary of that Department, respectively.

SECTION 3. AND BE IT FURTHER ENACTED, That this Act shall take effect July 1, 1980.

Approved:

_____
Governor.

_____
Speaker of the House of Delegates.

_____
President of the Senate.

S E N A T E O F M A R Y L A N D

01r0834 No. 536

By: Senator Lapides
Introduced and read first time: February 1, 1980
Assigned to: Economic Affairs

Committee Report: Favorable with amendments
Senate action: Adopted
Read second time: February 27, 1980

CHAPTER _____

AN ACT concerning

Natural Resources - Hazardous Substances

FOR the purpose of permitting transportation of designated hazardous substances only by designated hazardous substance haulers who are certified by the Department of Natural Resources; requiring a designated hazardous substance producer to report periodically on, among other things, the identities of the hauler and of the facility to which a designated hazardous substance is intended to be transported; and ~~forbidding a designated hazardous substance producer to pay certain types of designated hazardous substance haulers for disposal at a facility~~ allowing for contracting of certain treatment, storage, or disposal.

BY repealing and reenacting, with amendments,

Article - Natural Resources
Section 8-1413.2(m)
Annotated Code of Maryland
(1974 Volume and 1979 Supplement)

SECTION 1. BE IT ENACTED BY THE GENERAL ASSEMBLY OF MARYLAND, That section(s) of the Annotated Code of Maryland be repealed, amended, or enacted to read as follows:

Article - Natural Resources

8-1413.2.

(m) Every person who produces a designated hazardous substance that is transported away from the place of generation to a facility[, shall]:

EXPLANATION: CAPITALS INDICATE MATTER ADDED TO EXISTING LAW.
[Brackets] indicate matter deleted from existing law.
Underlining indicates amendments to bill.
~~Strike--out~~ indicates matter stricken by amendment.

(1) [Attach] SHALL ATTACH a label approved by the Department to any designated hazardous substance container, except as may be in conflict with other State and federal law; [and]

(2) [Provide] SHALL PROVIDE a manifest to a certified designated hazardous substance hauler for any vehicle he uses to transport the substance, that describes the volume and chemical, physical, and biological characteristics of the substance[.];

(3) SHALL PERMIT ONLY A DESIGNATED HAZARDOUS SUBSTANCE HAULER, WHO SUPPLIES TO THE GENERATOR COPIES OF ITS CURRENT REQUIRED CERTIFICATES, AND REPRESENTS IN WRITING TO THE GENERATOR THAT THE HAULER IS FULLY CERTIFIED UNDER SUBSECTION (L) OF THIS SECTION, TO TRANSPORT A DESIGNATED HAZARDOUS SUBSTANCE FROM ITS PLACE OF GENERATION;

(4) SHALL REPORT PERIODICALLY, ON A FORM PRESCRIBED BY THE DEPARTMENT, ON THE SOURCE, HAULER, FACILITY DESTINATION INTENDED BY THE HAULER AT THE TIME OF RECEIPT FROM THE GENERATOR, VOLUME AND NATURE OF THE DESIGNATED HAZARDOUS SUBSTANCE TRANSPORTED; AND

~~(5)--MAY-NOT-PAY-A-DESIGNATED-HAZARDOUS-SUBSTANCE HAULER--FOR--TREATMENT,--STORAGE--RELATED--TO--TREATMENT--OR DISPOSAL,--OR--DISPOSAL-OF-A-DESIGNATED-HAZARDOUS-SUBSTANCE, UNLESS-THE-DESIGNATED-HAZARDOUS-SUBSTANCE-HAULER-SUPPLIES-TO THE-GENERATOR-A-COPY-OF--ITS--CURRENT--FACILITY--PERMIT--AND REPRESENTS--IN-WRITING-TO-THE-GENERATOR-THAT-THE-HAULER-ALSO OPERATES-THE-FACILITY--TO--WHICH--THE--DESIGNATED--HAZARDOUS SUBSTANCE-WAS-IN-FACT-TRANSPORTED.~~

(5) MAY CONTRACT FOR THE TREATMENT, STORAGE RELATED TO TREATMENT OR DISPOSAL, OR DISPOSAL OF DESIGNATED HAZARDOUS SUBSTANCES ONLY WITH AN OPERATOR OF A CURRENTLY AUTHORIZED FACILITY OR WITH A DESIGNATED HAZARDOUS SUBSTANCE HAULER WHO OPERATES A CURRENTLY AUTHORIZED FACILITY OR WHO HAS A VALID CONTRACT FOR THE TREATMENT, STORAGE RELATED TO TREATMENT OR DISPOSAL, OR DISPOSAL OF DESIGNATED HAZARDOUS SUBSTANCES WITH AN OPERATOR OF A CURRENTLY AUTHORIZED FACILITY.

SECTION 2. AND BE IT FURTHER ENACTED, That this Act shall take effect June 1, 1980.

Approved:

_____
Governor.

_____
President of the Senate.

_____
Speaker of the House of Delegates.

S E N A T E O F M A R Y L A N D

01r3662 No. 976

By: Senator McGuirk (Departmental - Natural Resources)
Introduced and read first time: February 18, 1980
Assigned to: Economic Affairs

Committee Report: Favorable with amendments
Senate action: Adopted
Read second time: March 24, 1980

CHAPTER _____

AN ACT concerning

The Safe Disposal of Designated Hazardous Substances

FOR the purpose of authorizing the use of the Hazardous Substance Control Fund for the cleanup of spills wherever they occur, making civil penalties and court fines payable to the Fund, and making costs of cleanup from the Fund reimbursable by the person responsible; requiring a certificate from the Department for transportation of designated hazardous substances from a source within the State; establishing requirements for ~~driver--certification~~, display of manifests and containers, and authorization of inspection of vehicles engaged in transportation of hazardous substances; changing a yearly certification fee to a transporting vehicle certification fee; requiring generators to report source, destination, volume, and nature of substances removed from the site; and establishing a class of knowing offenses under this section punishable by a fine not exceeding $25,000 or imprisonment in the penitentiary for up to 3 years or both, and making each day upon which such an offense occurs a separate violation.

BY repealing and reenacting, with amendments,

Article - Natural Resources
Section 8-1413.2(f), (l), and (m)
Annotated Code of Maryland
(1974 Volume and 1979 Supplement)

BY adding to

Article - Natural Resources

EXPLANATION: CAPITALS INDICATE MATTER ADDED TO EXISTING LAW.
[Brackets] indicate matter deleted from existing law.
Underlining indicates amendments to bill.
~~Strike--out~~ indicates matter stricken by amendment.

Section 8-1413.2(f-1) and (p)
Annotated Code of Maryland
(1974 Volume and 1979 Supplement)

SECTION 1. BE IT ENACTED BY THE GENERAL ASSEMBLY OF MARYLAND, That section(s) of the Annotated Code of Maryland be repealed, amended, or enacted to read as follows:

Article - Natural Resources

8-1413.2.

(f) There is a Maryland Hazardous Substance Control Fund. EXCEPT FOR APPLICATION FEES, ALL PERMIT FEES, RENEWAL FEES, AND ANY ~~OTHER---CHARGES~~ TRANSPORTING VEHICLE CERTIFICATION FEES MADE BY THE DEPARTMENT UNDER THIS SECTION, ANY CIVIL PENALTY, AND ANY FINE IMPOSED BY ANY COURT, SHALL BE CREDITED TO THE FUND. The Department shall use the fund for:

(1) Emergency removal or mitigation of the effect of designated hazardous substances [contained in the waters of the State;] WHICH ENDANGER THE PUBLIC HEALTH, SAFETY, ~~AND~~ OR WELFARE OR WHICH ENDANGER OR DAMAGE THE NATURAL RESOURCES;

(2) Identifying and, where feasible, restoring natural resources that have been damaged by designated hazardous substances; and

(3) ~~Program--development~~ activities ~~designed~~ to identify, monitor, and control the proper disposal of designated hazardous substances, AND PROGRAM DEVELOPMENT FOR THESE ACTIVITIES.

[Except for application fees, all permit fees, renewal fees, and any other charges, made by the Department under this section, shall be credited to the fund.]

(F-1) ALL COSTS TO THE HAZARDOUS SUBSTANCE CONTROL FUND RELATING TO EMERGENCY REMOVAL AND MITIGATION OF THE EFFECT OF DESIGNATED HAZARDOUS SUBSTANCES AND TO IDENTIFICATION AND RESTORATION OF NATURAL RESOURCES THAT HAVE BEEN DAMAGED BY DESIGNATED HAZARDOUS SUBSTANCES, SHALL BE REIMBURSED TO THE FUND BY THE PERSONS RESPONSIBLE FOR THE PRESENCE OF THE DESIGNATED HAZARDOUS SUBSTANCES IN A MANNER WHICH ENDANGERED THE PUBLIC HEALTH, SAFETY, OR WELFARE, OR WHICH ENDANGERED OR DAMAGED NATURAL RESOURCES. IN ADDITION TO ANY OTHER LEGAL ACTION AUTHORIZED BY THIS TITLE, THE ATTORNEY GENERAL MAY BRING AN ACTION TO RECOVER COSTS AGAINST ANY PERSON WHO FAILS TO MAKE REIMBURSEMENT AS REQUIRED BY THIS SUBSECTION.

(1) Except for designated hazardous substances used for residential purposes or those regulated by the Department of Agriculture, a person may not transport a

designated hazardous substance FROM A SOURCE WITHIN THE STATE OR to a facility within the State unless the person first obtains a certificate from the Department and the transporting vehicle ~~-[-is-]-~~ ~~AND--VEHICLE---DRIVER---ARE~~ certified by the Department. ~~As-a-condition-to-the-issuance of--a--certificate,-the-Department-may-require-a-prospective holder-of-certificate--to~~ EVERY PERSON HOLDING A HAULER CERTIFICATE SHALL:

(1) Report periodically, on a form prescribed by the Department, on the source, disposal destination, volume, and nature of the designated hazardous substance transported;

(2) Secure a bond for the purpose of indemnifying the State for abatement of pollution resulting from the improper transportation of designated hazardous substances; [and]

(3) Pay a yearly fee for A TRANSPORTING VEHICLE certification not to exceed $50.00[.];

(4) DURING TRANSPORTATION, CARRY WITHIN THE VEHICLE CAB THE MANIFEST ~~AND--THE--VEHICLE--DRIVER'S CERTIFICATE~~, CARRY PROMINENTLY DISPLAYED OR AFFIXED TO THE OUTSIDE OF THE LEFT DOOR OF THE VEHICLE CAB THE VEHICLE CERTIFICATE, AND CARRY ONLY PROPERLY LABELED AND SECURE CONTAINERS OF DESIGNATED HAZARDOUS SUBSTANCES;

(5) STOP THE VEHICLE UPON REQUEST OF ANY POLICE OFFICER, DISPLAY ALL REQUIRED DOCUMENTATION, AND ALLOW INSPECTION, INVESTIGATION, AND SAMPLING FOR ACTUAL OR POTENTIAL VIOLATIONS OF A CERTIFICATE OR OF APPLICABLE STATE OR FEDERAL LAW; AND

(6) REMOVE FROM THE TRANSPORTING VEHICLE, TREAT, BLEND, OR MIX, OR STORE FOR ANY PERIOD OF TIME, DESIGNATED HAZARDOUS SUBSTANCES, ONLY IN A FACILITY, EXCEPT UNDER DEPARTMENT SUPERVISION DURING AN EMERGENCY.

(m) Every person who produces a designated hazardous substance that is transported away from the place of generation to a facility, shall:

(1) Attach a label approved by the Department to any designated hazardous substance container, except as may be in conflict with other State and federal law; [and]

(2) Provide a manifest to a certified designated hazardous substance hauler for any vehicle he uses to transport the substance, that describes the volume and chemical, physical and biolcgical characteristics of the substance[.]; ~~AND~~

~~(3)--REPORT--ON--A---FORM---PRESCRIBED---BY---THE DEPARTMENT--THE--SOURCE,--DISPOSAL--DESTINATION,-VOLUME,-AND NATURE-OF-THE-DESIGNATED-HAZARDOUS-SUBSTANCE-TRANSPORTED.~~

(3) PERMIT ONLY A DESIGNATED HAZARDOUS SUBSTANCE HAULER, WHO SUPPLIES TO THE GENERATOR COPIES OF ITS CURRENT REQUIRED CERTIFICATES, AND REPRESENTS IN WRITING TO THE GENERATOR THAT THE HAULER IS FULLY CERTIFIED UNDER SUBSECTION (L) OF THIS SECTION, TO TRANSPORT A DESIGNATED HAZARDOUS SUBSTANCE FROM ITS PLACE OF GENERATION; AND

(4) REPORT PERIODICALLY, ON A FORM PRESCRIBED BY THE DEPARTMENT, ON THE SOURCE, HAULER, FACILITY DESTINATION INTENDED BY THE HAULER AT THE TIME OF RECEIPT FROM THE GENERATOR, VOLUME AND NATURE OF THE DESIGNATED HAZARDOUS SUBSTANCE TRANSPORTED.

(P) THERE IS A CLASS OF OFFENSES UNDER THIS SECTION WHICH SHALL BE MISDEMEANORS, EACH PUNISHABLE BY A FINE NOT EXCEEDING $25,000, OR BY CONFINEMENT IN THE PENITENTIARY FOR UP TO 3 YEARS, OR BOTH. EACH DAY ON WHICH A VIOLATION OCCURS CONSTITUTES A SEPARATE OFFENSE. VIOLATIONS OF THE PROVISIONS OF THIS SECTION OR ANY RULE, REGULATION, ORDER, OR PERMIT ISSUED PURSUANT THERETO WHICH ARE NOT ENUMERATED AS OFFENSES UNDER THIS SUBSECTION SHALL BE SUBJECT TO OTHER PENALTIES ESTABLISHED BY THIS SUBTITLE. PERSONS CONVICTED OF THE FOLLOWING OFFENSES ARE PUNISHABLE UNDER THIS SUBSECTION;

(1) ANY PERSON WHO ~~KNOWINGLY~~ STORES OR DUMPS, DISCHARGES, ABANDONS, OR OTHERWISE DISPOSES OF, OR WHO ~~KNOWINGLY~~ AUTHORIZES, DIRECTS, OR PERMITS ANY PERSON TO STORE OR DUMP, DISCHARGE, ABANDON, OR OTHERWISE DISPOSE OF, A DESIGNATED HAZARDOUS SUBSTANCE IN ANY PLACE OTHER THAN A FACILITY FOR WHICH A PERMIT HAS BEEN ISSUED BY THE DEPARTMENT PURSUANT TO THIS SUBSECTION;

(2) ANY PERSON WHO ~~KNOWINGLY~~ TRANSPORTS FOR STORAGE OR DISPOSAL OR WHO ~~KNOWINGLY~~ AUTHORIZES, DIRECTS, OR PERMITS ANY PERSON TO TRANSPORT FOR STORAGE OR DISPOSAL A DESIGNATED HAZARDOUS SUBSTANCE TO ANY PLACE OTHER THAN A FACILITY FOR WHICH A PERMIT HAS BEEN ISSUED BY THE DEPARTMENT PURSUANT TO THIS SECTION; OR

(3) ANY PERSON WHO ~~KNOWINGLY~~ FALSIFIES, OR WHO ~~KNOWINGLY~~ AUTHORIZES, DIRECTS, OR PERMITS ANY PERSON TO FALSIFY ANY INFORMATION REQUIRED TO BE SUBMITTED TO THE DEPARTMENT BY THE PROVISIONS OF THIS SUBTITLE OR ANY RULE, REGULATION, ORDER, OR PERMIT ISSUED PURSUANT THERETO.

SECTION 2. AND BE IT FURTHER ENACTED, That this Act shall take effect July 1, 1980.