

LEGISLATIVE RESEARCH  
COMMISSION

1975  
REPORT

ON

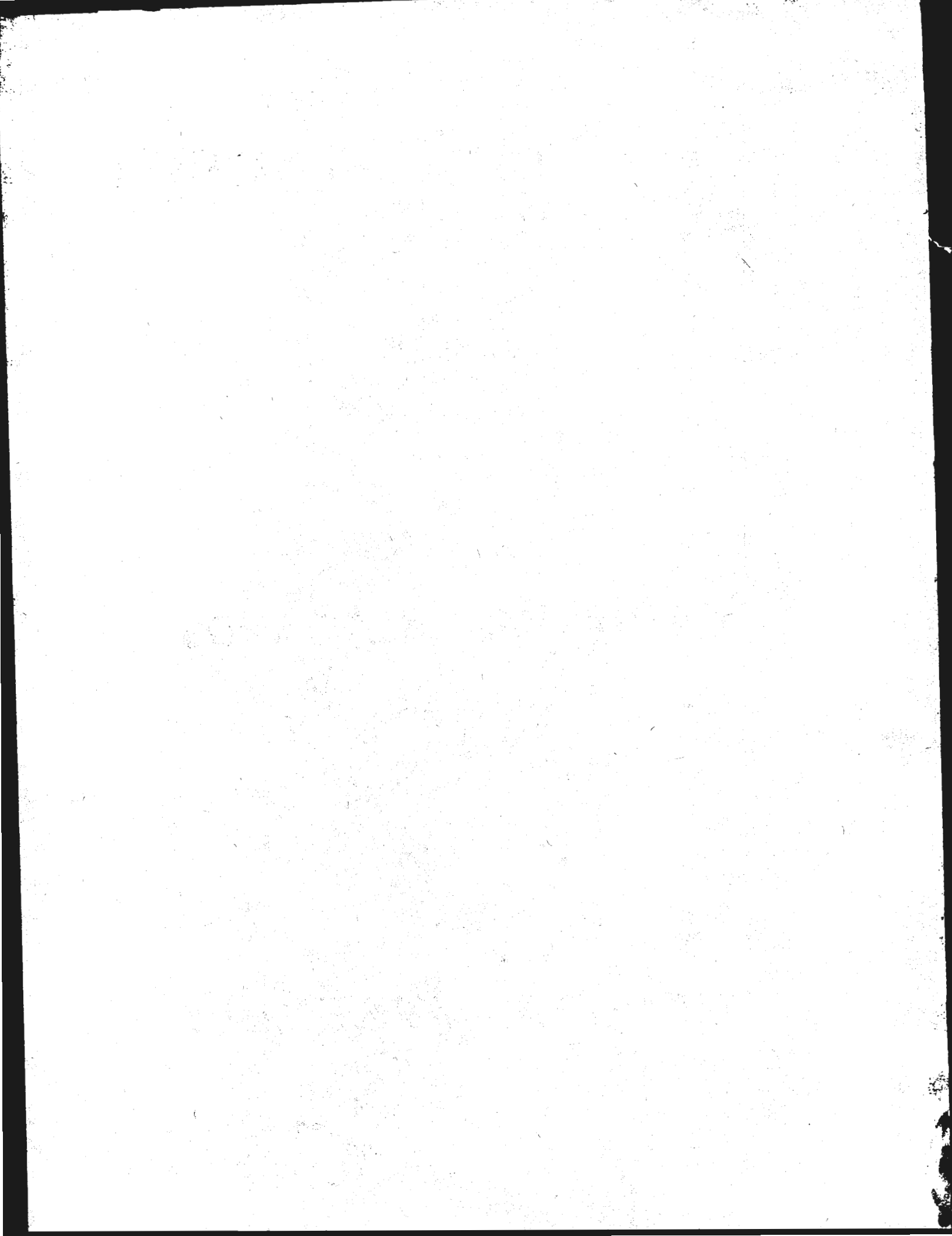
**RADIATION HAZARDS**



GENERAL ASSEMBLY

OF

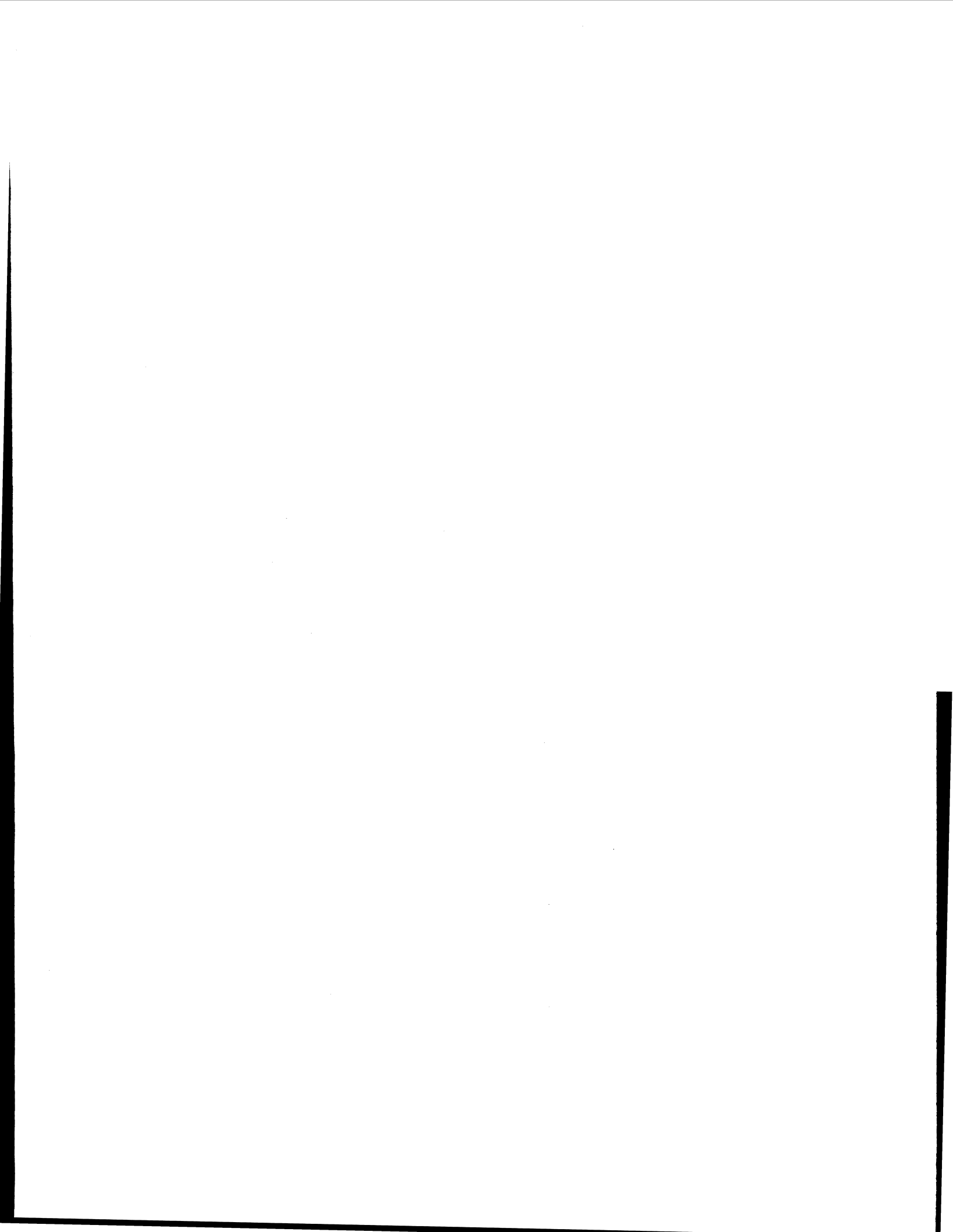
NORTH CAROLINA



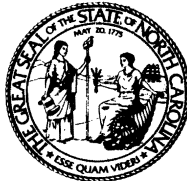
1975 REPORTS

LEGISLATIVE RESEARCH COMMISSION

RADIATION HAZARDS




STATE OF NORTH CAROLINA  
LEGISLATIVE RESEARCH COMMISSION  
STATE LEGISLATIVE BUILDING  
RALEIGH 27611

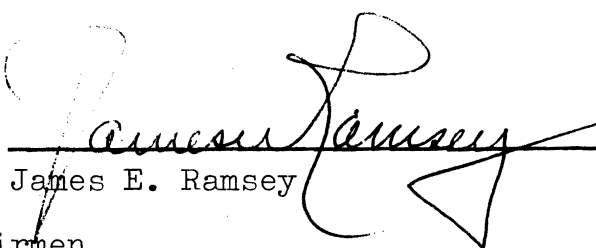


TO THE MEMBERS OF THE GENERAL ASSEMBLY:

The Legislative Research Commission herewith reports to the 1975 General Assembly, the findings and recommendations of its Committee on Radiation Hazards, which study was authorized by House Resolution 2053 (adopted March 13, 1974) of the 1973 General Assembly (Second Session, 1974).

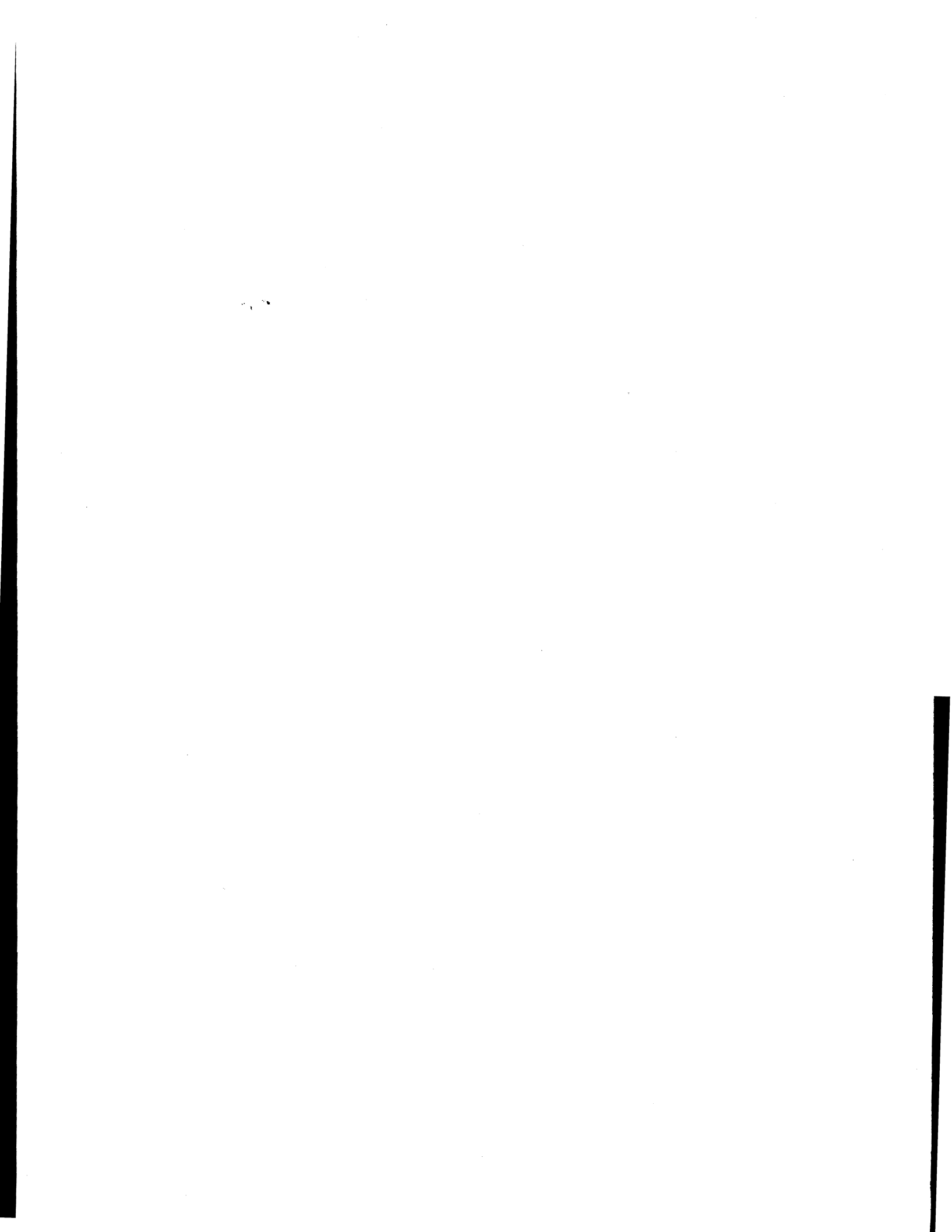
Respectively submitted,

  
\_\_\_\_\_  
Gordon P. Allen

  
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James E. Ramsey

Co-Chairmen

Legislative Research Commission



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## INTRODUCTION

The Legislative Research Commission was created by Article 6B of Chapter 120 of the North Carolina General Statutes and empowered thereby "to make or cause to be made such studies of and investigations into governmental agencies and institutions and matters of public policy as will aid the General Assembly in performing its duties in the most efficient and effective manner." G.S. 120-30.17. The Commission membership consists of the President pro tempore of the Senate and the Speaker of the House (who serve as Co-Chairmen) and five members from each chamber of the General Assembly. G.S. 120-30.10; G.S. 120-30.13. Appendix I contains a complete list of the Legislative Research Commission members.

The General Assembly of North Carolina by House Resolution 2053 (adopted March 13, 1974) directed the Legislative Research Commission to "study radiation hazards, including hazards arising from radioactive materials, x-ray facilities, environmental radiation and emergency incidents; study and evaluate existing State government programs in North Carolina concerning radiation hazards; and consider the need, if any, for further legislation and for additional support of existing or expanded programs concerning radiation hazards." The Committee on Radiation Hazards was created and Legislative Research Commission members were appointed thereto by the Commission Co-Chairmen. (See Appendix II.)

Representative Norwood E. Bryan, Jr. was named Committee Chairman and Senator McNeill Smith was appointed Vice Chairman. The remaining members appointed were Representative John R. Gamble, Jr.,

Representative Thomas J. Harrelson and Senator Marshall Rauch. Staff assistance for the study effort was provided by the Legislative Services Office.

## COMMITTEE PROCEEDINGS

The Committee on Radiation Hazards held its organizational meeting immediately following the Legislative Research Commission meeting on May 17, 1974. The Committee selected July 12, 1974, as its first meeting date and began to formulate a plan for its evaluation of radiation hazards, the state's radiation protection program, and the existing statutory provisions concerning radiation and atomic energy.

Dr. Thomas Elleman, professor of nuclear engineering at North Carolina State University, addressed the Committee on the concepts of radiation, various radiation sources, safe and unsafe levels of radiation, and the different kinds of radiation accidents that might occur within the State and effects therefrom. Mr. James T. Goodwin, Executive Director of the Southern Interstate Nuclear Board (SINB), discussed the SINB's role in assisting the member states with radiation control and protection legislation and cooperating with member states' radiological health programs. Mr. Goodwin reviewed for the Committee legislation passed by North Carolina dealing with radiation. He also explained North Carolina's agreement with the Atomic Energy Commission (AEC) whereby the "agreement state" has assumed various responsibilities regarding the licensure and regulation of certain sources of ionizing radiation that were originally under AEC jurisdiction. Provisions in North Carolina General Statute Chapter 104C and the Atomic Energy Act of 1954 enable the Governor and the AEC to enter into the agreement. Mr. Goodwin completed his presentation with a discussion of the aspects of the administration of a state radiation protection program, including problems in transporting radioactive materials, environmental radiation surveillance and monitoring,

emergency response planning, and licensure, registration and regulation of sources of radiation.

Mr. Dayne H. Brown, Head of the Radiation Protection Branch, Division of Facility Services, Department of Human Resources, made the next presentation. Mr. Brown commented on the present rules and regulations and explained some of the shortcomings that his agency is experiencing. Other guests and contributors present were Mr. Ken Nemeth, Director of Intergovernmental Programs at SINB, and Mr. Peter Chenery, Director of the North Carolina Committee of Science and Technology of the Department of Natural and Economic Resources. (See Appendix III for a list of persons and other guests appearing before the Committee on Radiation Hazards.)

The next meeting was held on August 23, 1974. Prior to this date, recommendations had been made to the Committee by the SINB and the Radiation Protection Branch. The SINB submitted legislation that closely resembles proposed G.S. 104C in Appendix IV. In fact, proposed G.S. 104C is a modification of the SINB proposed legislation which reflects state government reorganization concepts and the present and anticipated needs of the state radiation protection program. The Radiation Protection Branch submitted suggestions for program changes along with a report entitled "Independent Review of North Carolina's Radiation Protection Program," by Mr. James W. Hitch, an independent consultant, who was employed by the Division of Facility Services of the Department of Human Resources.

Mr. Jesse L. Riley, President of the Carolina Environmental Study Group, a voluntary citizens' organization, appeared before the Committee to address the subject of nuclear reactor safety and the hazards of radiation emissions.

The Committee considered all of the suggestions and recommendations

put before it and decided to draw up bills for a new radiation protection statute and appropriations to the Department of Human Resources, which would provide for a stronger radiological health program by way of enabling legislation and increased staffing and funding. (See Appendices IV and V.)

At the next meeting on October 11, 1974, the Committee reviewed proposed G.S. Chapter 104C and discussed its effect on the existing program. Appropriations were also discussed, with emphasis on laboratory facilities and equipment and the location of the laboratory itself.

On November 22, 1974, the Committee met for a final review of its findings and recommendations, which appear in this report to the 1975 General Assembly.

The Legislative Research Commission has not addressed itself to the subject matters of nuclear power plant siting or safety, nor has the Commission taken any position on the relative merits of nuclear power generation as opposed to other sources of energy.

## FINDINGS

The Legislative Research Commission, after studying North Carolina's radiation protection program and enabling legislation and evaluating the present and future needs of the people of North Carolina for protection from foreseeable radiation hazards, makes the following findings:

1. If plans announced by utilities are carried out, there will be an unprecedented increase in the number of nuclear facilities in the State of North Carolina within the next ten years. (See Appendix VI) A concomitant increase in the transportation of radioactive materials should logically follow, and is expected in turn to augment drastically the possibilities of radioactive spills from transportation accidents. The Radiation Protection Branch is currently establishing a plan for state-wide response to radiation accidents in coordination with the Division of Civil Preparedness of the Department of Military and Veterans Affairs. This response plan is not only designed for transportation spills, but necessarily includes emergencies such as emissions of radioactive effluents from nuclear power reactors or fuel fabrication plants. The utmost cooperation between state agencies and between states is needed to insure quick and effective response to radiation emergencies.

Implicit in the proliferation of nuclear facilities within the State is the need for increased allocation of resources for an environmental monitoring and surveillance program which will operate around these facilities. The present staff force and analytical equipment will not be able to meet this demand for environmental surveillance, which demand will be imposed upon the State in the near future. The Atomic Energy Commission exerts sole jurisdiction

over all activities within the confines of its licensed nuclear facilities. The AEC is therefore concerned about and active in the reduction of possible radiation hazards. But present G.S. 104C-4 charges the Department of Human Resources with the duties of protecting the public from radiation hazards. Thus, despite the AEC's claim to sole jurisdiction for all AEC-licensed facilities, the State Department of Human Resources is responsible to a great degree for the surveillance of nuclear facility environments.

2. There is no statutory remedy for reimbursing the State for expenses incurred in responding to a radiation emergency or for the undertaking of perpetual custody and maintenance of radioactive materials. Section 2210 of the United States Code (more commonly known as the Price-Anderson Act) provides for payment of "public liability claims" which arise out of nuclear incidents involving Atomic Energy Commission licensees, and is not thought to provide for payments to state agencies who participate in emergency response to such incidents. If an accident occurs during the actual transportation of radioactive material, the carrier and not the Atomic Energy Commission (as licensor) is responsible for the clean up. The burden of decontamination and associated duties will invariably rest upon the agencies of the state in which a transportation accident occurs if and when the carrier does not have the necessary resources for responding to a radioactive spill.

Should a licensee of the State become insolvent and declare bankruptcy and thereafter abandon its facility, any radioactive materials not claimed and remaining on-site will pose a threat to the public health unless they are either contained and maintained, decontaminated, or properly disposed of. The State is ultimately left

with the responsibility of such perpetual maintenance. (See Appendices VII and VIII for letters citing examples of problems in this area.)

3. The existing x-ray registration and inspection program is not and will not be sufficient to meet the needs of the public health regarding radiation exposure from x-ray devices. It is estimated that presently ninety-five percent (95%) of all population exposure to emissions from man-made radiation sources results from diagnostic x-ray. The frequency of x-ray inspection is already lower than it should be. There are new federal performance standards for all x-ray devices manufactured after August 1, 1974. These stricter standards are expected to increase the inspection time for these new machines and therefore increase the workload of the Radiation Protection Branch.

There is no licensing or certification of owners, operators, or servicers of x-ray devices; there is no state program for the training of operators of x-ray devices nor for those persons who service or install them. There is only registration of x-ray machines with the Department of Human Resources after the owners receive them. G.S. 131-126.3 exempts hospital x-ray facilities from the provisions of G.S. 104C-4 and rules and regulations promulgated by the Commission for Health Services; despite this the Radiation Protection Branch has been inspecting hospital x-ray devices as part of the licensing procedure of the Medical Care Commission. The number of x-ray machines in North Carolina is increasing at an approximate annual rate of ten percent (10%). The existing level of staffing of inspectors and clerical support will not be able to continue at even the present unacceptable inspection rate.

4. Present G.S. 104C-4 does not provide for licensure of all



sources of radiation that may endanger the public health. The Commission for Health Services is authorized to require registration of all persons who possess or use radioactive materials and radiation machines; but the licensing of by-product, source, and special nuclear materials, or devices using such materials is required pursuant to the agreement between the Governor and the Atomic Energy Commission. The AEC retains jurisdiction over quantities of radioactive material sufficient to form a critical mass. This is the amount of material necessary to make a nuclear reactor. Excluded from the licensing procedure are all naturally occurring radioactive materials (for example, radium), matter made radioactive by high energy particle accelerators, and sources of non-ionizing radiation (for example microwave ovens, lasers and masers). (See Appendix IX, G.S. 104C-4)

5. Present G.S. 104C-4 does not provide for state licencing or inspection of shipments of radioactive materials nor is it clear that the statute authorizes a state inspector to take any action to enforce safety standards, either federal or state, for the transportation of such materials. The Commission for Health Services is authorized to adopt rules and regulations relating to the transportation of radioactive materials; however, the only right to inspect exists in the eighth paragraph of G.S. 104C-4 whereby authorized representatives of the Department of Human Resources may enter any premises, "where any activities or conditions therein or thereon" are subject to the rules and regulations of the Commission, for the purpose of determining compliance with applicable laws and regulations. It is not clear whether this provision would authorize the inspection of radioactive material while in transit. Present G.S. 104C-4 does not authorize the Commission for Health Services to license the intrastate trans-

portation of radioactive materials. (See Appendix IX.)

6. Present G.S. 104C-4 does not authorize the Commission to promulgate and the Department to administer a fee system to offset registration and licensure costs. (See Appendix IX.) A fee system, it is argued, will reduce the number of unnecessary licensing or registration actions. On the other hand, a license and registration fee system may give rise to increased demands by licensees and registrants for services from the Radiation Protection Branch; this has been the experience of states that have implemented a fee system.

7. The Department of Human Resources presently needs an improved data management program to collect and disseminate information related to the Department's duties and responsibilities in the area of radiation hazard protection. Compilation and maintenance of records of departmental actions pertaining to registration and licensure as well as other relevant statistical information necessary to ensure protection of the population from radiation hazards is desirable. An improved data management program would better ensure that the Radiation Protection Branch is well informed as to the nature and location of radioactive materials within the State.

8. The Division of Health Services laboratory, which is used by the Radiation Protection Branch for radiological analysis and associated purposes, is severely lacking in the equipment, expertise and personnel necessary for an efficient and successful radiation protection program. The equipment and staff are presently inadequate for the Radiation Protection Branch's laboratory analysis. Unless funding is provided for these items the existing laboratory conditions will severely limit, if not altogether eliminate the effectiveness of the radiation protection program in the future.

9. The Governor has no statutory authority to enter into agreements on behalf of the State with other states and the federal government for mutual assistance or cooperation in the detection and control of radiation. Several states have made arrangements with the AEC to monitor radiation levels within the confines of AEC-licensed facilities. Agreements between neighboring states for mutual radiological assistance have been made, and North Carolina has been a party to such an agreement with South Carolina, Georgia, Tennessee and Virginia. Statutory authorization for both types of agreements is desirable.

10. The North Carolina Workmen's Compensation Act, Chapter 97 of the General Statutes, refers only to ionizing radiation. The Act does not cover non-ionizing radiation emitted from sources such as laser, maser and microwave devices. Inasmuch as these devices are finding increased industrial application within the state, there will exist an increased probability of occupational injuries from exposure to non-ionizing radiation. (See Appendix X.)

## RECOMMENDATIONS

After a careful study of all the information compiled and in accordance with the findings made by the Committee on Radiation Hazards, the Legislative Research Commission, pursuant to House Resolution 2053, submits the following recommendations to the 1975 General Assembly:

1. The General Assembly should rewrite North Carolina General Statute Chapter 104C to reflect the recommendations that follow in numbers two (2) through eleven (11).
2. The General Assembly should create a new Radiation Protection Commission which will assume the rule-making and regulatory functions of the Commission for Health Services pertaining to radiation protection. A combination of seven voting public Commission members possessing the desired expertness and ten non-voting ex officio members representing state agencies involved in radiation protection is highly desirable in view of the need for an effective radiation protection program within North Carolina now and in the future. (See Appendix IV, G.S. 104C-6)
3. The General Assembly should provide by statute for licensing or registration and inspection of certain sources of non-ionizing radiation. The Department of Human Resources should be authorized to implement an electronic product safety program for regulation and inspection of certain sources of non-ionizing radiation. This would include microwave ovens, lasers, masers and other sources. (See Appendix IV, G.S. 104C-5(g).)
4. The General Assembly should by statute authorize the Radiation Protection Commission to require by regulation the licensing of those radiation sources where registration does not provide for adequate regulation. The Legislative Research Commission feels that in some

instances potential radiation hazards may necessitate more stringent control which can be provided by licensure. Specifically, licensure would provide for amendment, suspension or revocation of licenses by the Department of Human Resources, as necessary to ensure proper and safe utilization of radiation sources. (See Appendix IV, G.S. 104C-5(b).)

5. The General Assembly should authorize by statute programs for (1) environmental monitoring and surveillance around nuclear facilities and (2) emergency response to and decontamination of radiation emissions or transportation spills. It is necessary that these programs be implemented as soon as possible. In order to determine the impact of nuclear facilities on the present states of environment and public health, environmental monitoring should be instituted prior to facility operation. An effective emergency response plan is imperative due to the ever-increasing amount of radioactive materials that will be transported through, and the number of planned nuclear facilities in North Carolina. (See Appendix IV, G.S. 104C-7(e) and (f).)

6. The General Assembly should enact legislation enabling the Radiation Protection Commission to promulgate rules and regulations for the licensure of persons who install, operate or service x-ray machines. Licensure of these persons is recommended because of the finding that approximately ninety-five percent (95%) of all population exposure to sources of man-made radiation comes from diagnostic x-ray.

7. The General Assembly should authorize by statute the Department of Human Resources to provide for an improved management information system. There will be a need for a more reliable system for the gathering and analysis of data which is relevant to the licensing and registration of persons who possess or otherwise dispose of radiation sources. (See Appendix IV, G.S. 104C-7(d).)

8. The General Assembly ought to give to the Governor authorization to enter into agreements, after approval by the Radiation Protection Commission, with the federal government and other states for cooperative and mutual radiological assistance. Authorization for the agreement with neighboring states for mutual assistance in the event of a radiation emergency would be desirable in view of the planned concentration of nuclear facilities in the State. Authorization for an agreement with federal agencies whereby the State could conduct radiation monitoring within the confines of federal licensed facilities is recommended. (See Appendix IV, G.S. 104C-9(b).)

9. The General Assembly should authorize by statute the Department of Human Resources to charge and collect fees to offset the costs of licensure, registration, training and other services provided by the Department under the North Carolina Radiation Protection Act. Such fees would be established by the Radiation Protection Commission and would be applied directly to the Department's efforts in these operations. It is not recommended that a fee schedule be incorporated into the statutes; a more flexible method is recommended by giving the Radiation Protection Commission the discretion to establish by regulation a fee system and set a fee schedule which may be amended from time to time. (See Appendix IV, G.S. 104C-17.)

10. The General Assembly ought to give statutory authorization to the Radiation Protection Commission to adopt (preferably by reference) and to the Department of Human Resources to enforce, federal rules and regulations relating to the transportation of radioactive materials. There will be a definite need for an effective program for the inspection of radioactive shipments and state

enforcement of federal radiation safety standards in light of the consequences of a transportation spill involving radioactive materials. (See Appendix IV, G. S. 104C-13.)

11. The General Assembly should enact legislation authorizing the Radiation Protection Commission to provide for bonding, insurance, or other security as a prerequisite to the possession of radioactive materials. Such indemnification would run in favor of the State to reimburse various state and local agencies for their expenditures in either (1) emergency response to radiation incidents or (2) perpetual maintenance or other disposition of radioactive materials that are abandoned or were once in the possession of a person that becomes insolvent or bankrupt. (See Appendix IV, G.S. 104C-16.)

12. The General Assembly should repeal the second sentence of G.S. 131-126.3 as it appears in Volume 3B of the General Statutes of North Carolina. This provision exempts x-ray devices in medical facilities licensed by the Department of Human Resources from the provisions of Chapter 104C of the General Statutes. (See Appendices IV and X.)

13. The General Assembly should amend G.S. 97-2, G.S. 97-13(b), and G.S. 97-53(15) of the Workmen's Compensation Act by deleting the the word "ionizing" wherever it appears in those sections. Present law covers only ionizing radiation. Personal injury from exposure to non-ionizing radiation should now be under the purview of the Workmen's Compensation Act inasmuch as sources of non-ionizing radiation, such as laser, maser and microwave devices are being employed more and more in industry. (See Appendices IV and X.)

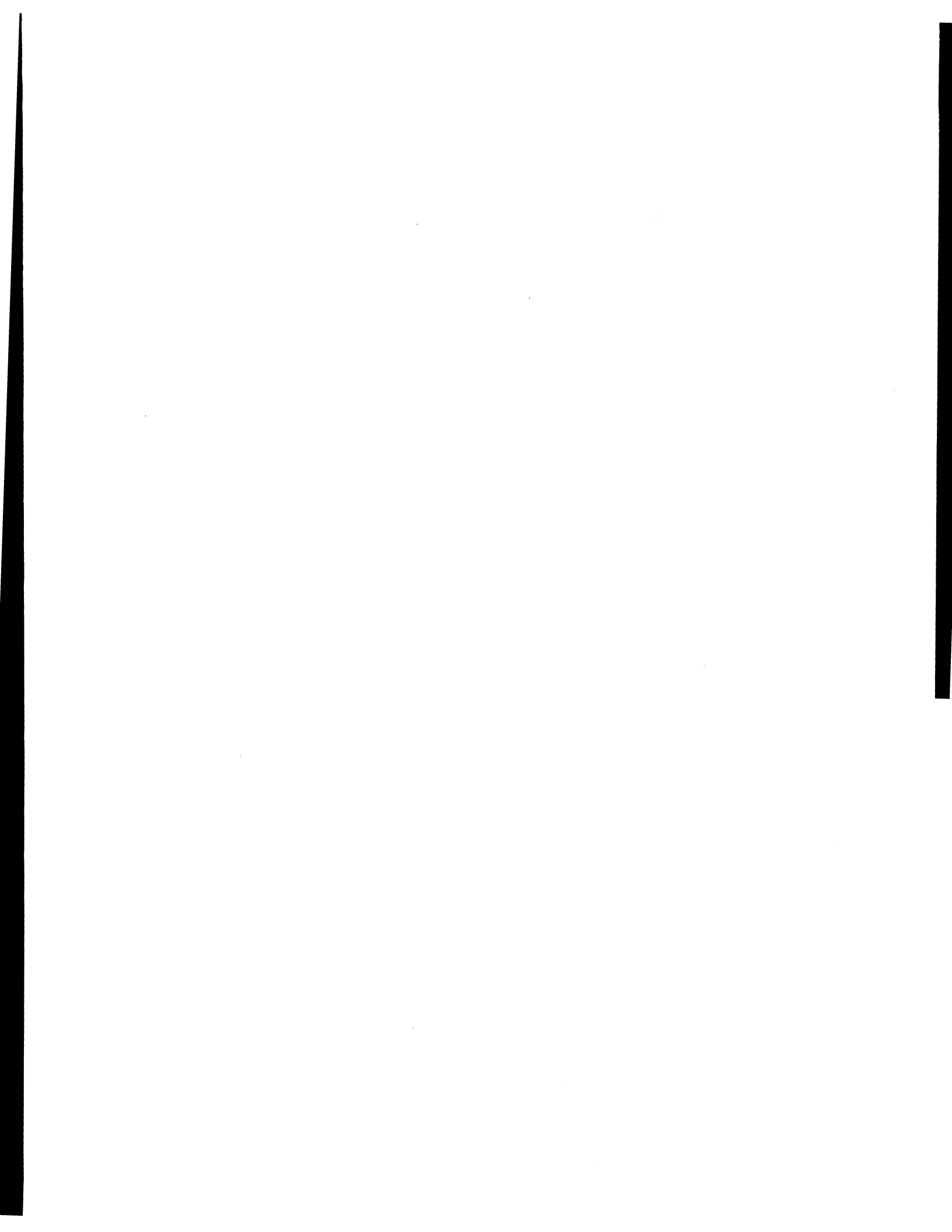
14. The General Assembly should appropriate to the Department of Human Resources for the radiation protection program a total of three hundred seventeen thousand, three hundred and fifty dollars (\$317,350) for the fiscal year beginning July 1, 1975, and ending June 30, 1976; and one hundred eighty-two thousand, four hundred dollars (\$182,400) for the fiscal year beginning July 1, 1976, and ending June 30, 1977. One hundred and sixty thousand dollars (\$160,000) of the 1975-76 fiscal year amount would be spent on much-needed laboratory and field equipment for the environmental radiation surveillance program. This is a nonrecurring cost, a fact which is reflected in the substantial decrease in the requested funds for fiscal year 1976-77. The monitoring effort must commence soon in order to obtain data during the brief remainder of the State's pre-nuclear era and compare such data when nuclear facilities are fully operating. (See Appendix V.)

15. The General Assembly should investigate the feasibility of creating a central radiological laboratory, which could be jointly employed by the Department of Human Resources and the constituent institutions of the University of North Carolina; and the General Assembly should determine whether such laboratory would adequately meet the requirements of both entities. A consolidation of laboratory efforts might reduce spending or avoid duplication. The appropriations committee considering the proposed funding of the radiation protection program should, as a part of its deliberations, determine the advantages and disadvantages of a laboratory merger.

16. The proposed Radiation Protection Act, Chapter 104C of the General Statutes of North Carolina, should contain an automatic expiration date of June 30, 1981. This will promote legislative



review of the radiation protection program during the General Assembly session immediately preceding the expiration date. The time period subsequent to June 30, 1981, will witness the greatest proliferation of nuclear facilities in the history of North Carolina if current projections are effected. At that time the 1981 General Assembly should evaluate the first six years of the program under new legislation and enact any necessary changes into law. (See Appendix IV.)



A P P E N D I C E S

LEGISLATIVE RESEARCH COMMISSION MEMBERS

1974

Senator Gordon P. Allen, Co-Chairman  
Roxboro, North Carolina

Speaker James E. Ramsey, Co-Chairman  
Roxboro, North Carolina

Senator Willard Blanchard  
Salemberg, North Carolina

Senator Harold W. Hardison  
Deep Run, North Carolina

Senator Marshall Rauch  
Gastonia, North Carolina

Senator McNeill Smith  
Greensboro, North Carolina

Senator Thomas E. Strickland  
Goldsboro, North Carolina

Representative Norwood E. Bryan, Jr.  
Fayetteville, North Carolina

Representative Nancy Chase  
Eureka, North Carolina

Representative E. Lawrence Davis  
Winston-Salem, North Carolina

Representative John R. Gamble, Jr.  
Lincolnton, North Carolina

Representative Thomas J. Harrelson  
Southport, North Carolina

GENERAL ASSEMBLY OF NORTH CAROLINA

1973 SESSION

HOUSE RESOLUTION 2053

Adopted 3/13/74

ADOPTED  
SIMPLE  
RESOLUTION



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Sponsors. Representative Bryan.

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Referred to: Calendar.

March 8, 1974

A HOUSE RESOLUTION DIRECTING THE LEGISLATIVE RESEARCH COMMISSION TO STUDY RADIATION HAZARDS AND TO REPORT ITS FINDINGS AND RECOMMENDATIONS TO THE 1975 GENERAL ASSEMBLY.

Be it resolved by the House of Representatives:

Section 1. The Legislative Research Commission is hereby directed to:

(a) study radiation hazards, including hazards arising from radioactive materials, X-ray facilities, environmental radiation and emergency incidents;

(b) study and evaluate existing State government programs in North Carolina concerning radiation hazards; and

(c) consider the need, if any, for further legislation and for additional support of existing or expanded programs concerning radiation hazards.

Sec. 2. In conducting its studies pursuant to this resolution, the Legislative Research Commission shall examine and evaluate previous relevant experience in North Carolina, legislation and proposals in other jurisdictions and the experience of other jurisdictions in applying such legislation. In connection with its studies, the Commission, where desirable and feasible in its judgment, may include legislators who are not

1 members of the Commission and non-legislator members on any study  
2 subcommittee assigned these studies.

3           Sec. 3.    The Commission shall report its findings and  
4 recommendations to the 1975 General Assembly.

5           Sec. 4.    This resolution shall become effective upon its  
6 adoption.

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APPENDIX III

Witnesses Appearing Before the  
Legislative Research Commission

Mr. Dayne H. Brown, Head  
Radiation Protection Branch  
Department of Human Resources  
Raleigh, N. C.

Mr. Peter J. Chenery, Director  
N. C. Board of Science and Technology  
Research Triangle Park, N. C.

Dr. Thomas Elleman, Head  
Department of Nuclear Engineering  
N. C. State University  
Raleigh, N. C.

Mr. James T. Goodwin  
Executive Director  
Southern Interstate Nuclear Board  
Atlanta, Georgia

Mr. Ken Nemeth, Director  
Intergovernmental Programs  
Southern Interstate Nuclear Board  
Atlanta, Georgia

Mr. Jesse L. Riley, President  
Carolina Environmental Study Group  
Charlotte, N. C.

A BILL TO BE ENTITLED

AN ACT TO REWRITE CHAPTER 104C OF THE GENERAL STATUTES AND TO AMEND G.S. 131-126.3, G.S. 97-2(1), G.S. 97-13 (b), and G.S. 97-53(15).

The General Assembly of North Carolina enacts:

Section 1. Chapter 104C as it appears in the 1973 Supplement to Volume 2D of the General Statutes of North Carolina is hereby rewritten to read as follows:

104C-1. TITLE.--This Chapter shall be known and may be cited as the "North Carolina Radiation Protection Act."

104C-2. DECLARATION OF POLICY.--It is the policy of the State of North Carolina in furtherance of its responsibility to protect the public health and safety:

(a) To institute and maintain a program to permit development and utilization of sources of radiation for purposes consistent with the health and safety of the public; and

(b) To prevent any associated harmful effects of radiation upon the public through the institution and maintenance of a regulatory program for all sources of radiation, providing for: (1) a single, effective system of regulation within the State; (2) a system consonant insofar as possible with those of other states; and (3) compatibility with the standards and regulatory programs of the federal government for by-product, source and special nuclear materials.

104C-3. DEFINITIONS.--Unless a different meaning is required by the context, the following terms as used in this Chapter shall have the meanings hereinafter respectively ascribed to them:



(a) "Agreement Materials" means those materials licensed by the State under agreement with the United States Atomic Energy Commission and which include by-product, source or special nuclear materials in a quantity not sufficient to form a critical mass, as defined by the Atomic Energy Act of 1954 as amended.

(b) "Agreement State" means any state which has consummated an agreement with the United States Atomic Energy Commission under the authority of Section 274 of the Atomic Energy Act of 1954 as amended, as authorized by compatible state legislation providing for acceptance by that state of licensing authority for agreement materials and the discontinuance of such licensing activities by the United States Atomic Energy Commission.

(c) "Atomic Energy" means all forms of energy released in the course of nuclear fission or nuclear fusion or other atomic transformations.

(d) "By-product 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.

(e) "Commission" means the Radiation Protection Commission.

(f) "Department" means the State Department of Human Resources.

(g) "Emergency" means any condition existing outside the bounds of nuclear operating sites owned or licensed by a federal agency, and further any condition existing within or outside of the jurisdictional confines of a facility licensed by the Department and arising from the presence of by-product material, source material, special nuclear materials, or other radioactive materials, which is endangering or could reasonably be expected to endanger the health and safety of the public, or to contaminate the environment.

(h) "General License" means a license effective pursuant to regulations promulgated under the provisions of this Chapter without the filing of an application to transfer, acquire, own, possess, or use quantities of, or devices or equipment utilizing by-product, source, special nuclear materials, or other radioactive materials occurring naturally or produced artificially.

(i) "Ionizing Radiation" means gamma rays and x-rays, alpha and beta particles, high speed electrons, protons, neutrons, and other nuclear particles; but not sound or radio waves, or visible, infrared, or ultraviolet light.

(j) "Non-ionizing Radiation" means radiation in any portion of the electromagnetic spectrum not defined as ionizing radiation, including, but not limited to such sources as laser, maser or microwave devices.

(k) "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, other than the United States Atomic Energy Commission, or any successor thereto, and other than federal government agencies licensed by the United States Atomic Energy Commission, or any successor thereto.

(l) "Radiation" means gamma rays and x-rays, alpha and beta particles, high speed electrons, protons, neutrons, and other nuclear particles, and electromagnetic radiation consisting of associated and interacting electric and magnetic waves including those with frequencies between  $3 \times 10^8$  cycles per second and  $3 \times 10^{24}$  cycles per second and wavelengths between  $1 \times 10^{-14}$

centimeters and 100 centimeters.

(m) "Radiation Machine" means any device designed to produce or which produces radiation or nuclear particles when the associated control devices of the machine are operated.

(n) "Radioactive Material" means any solid, liquid, or gas which emits ionizing radiation spontaneously.

(o) "Source Material" means (1) uranium, thorium, or any other material which the Department declares to be source material after the United States Atomic Energy Commission, or any successor thereto has determined the material to be such; or (2) ores containing one or more of the foregoing materials, in such concentration as the Department declares to be source material after the United States Atomic Energy Commission, or any successor thereto, has determined the material in such concentration to be source material.

(p) "Special Nuclear Material" means (1) plutonium, uranium 233, uranium 235, uranium enriched in the isotope 233 or in the isotope 235, and any other material which the Department declares to be special nuclear material after the United States Atomic Energy Commission, or any successor thereto, has determined the material to be such, but does not include source material; or (2) any material artificially enriched by any of the foregoing, but does not include source material.

(q) "Specific License" means a license, issued after application, to use, manufacture, produce, transfer, receive, acquire, own or possess quantities of, or devices or equipment utilizing by-product, source, special nuclear materials, or other radioactive materials occurring naturally or produced artificially.

104C-4. DESIGNATION OF STATE RADIATION PROTECTION AGENCY.--The Department is hereby designated the State agency to administer a

state-wide radiation protection program consistent with the provisions of this Chapter.

104C-5. RADIATION PROTECTION COMMISSION--creation and powers.--

There is hereby created the North Carolina Radiation Protection Commission of the Department of Human Resources with the power to promulgate rules and regulations to be followed in the administration of a radiation protection program. All rules and regulations for radiation protection that were adopted by the Commission for Health Services and are not inconsistent with the provisions of this Chapter shall remain in full force and effect unless and until repealed or superseded by action of the Radiation Protection Commission. The Radiation Protection Commission is authorized:

(a) To advise the Department in the development of comprehensive policies and programs for the evaluation, determination, and reduction of hazards associated with the use of radiation;

(b) To adopt, promulgate, amend and repeal such rules, regulations and standards relating to the manufacture, production, transportation, use, handling, servicing, installation, storage, sale, lease, or other disposition of radioactive material and radiation machines as may be necessary to carry out the provisions of this Chapter. To this end, the Commission is authorized to require licensing or registration of all persons who manufacture, produce, transport, use, handle, service, install, store, sell, lease, or otherwise dispose of radioactive material and radiation machines, as the Commission deems necessary to provide an adequate protection and supervisory program: provided, that prior to adoption of any regulation or standard, or amendment or repeal thereof, the Commission shall afford interested parties the opportunity, at a public hearing, as provided in G.S.

104C-11, to submit data or views orally or in writing. The recommendations of nationally recognized bodies in the field of radiation protection shall be taken into consideration in such standards relative to permissible dosage of radiation;

(c) To require all sources of ionizing radiation to be shielded, transported, handled, used, stored, or disposed of in such a manner to provide compliance with the provisions of this Chapter and rules, regulations and standards adopted hereunder;

(d) To require, on prescribed forms furnished by the Department, registration, periodic re-registration, licensing, or periodic re-licensing of persons to use, manufacture, produce, transport, transfer, install, service, receive, acquire, own, or possess radiation machines and other sources of radiation;

(e) To exempt certain sources of radiation or kinds of uses or users from the licensing or registration requirements set forth in this Chapter when the Commission determines that the exemption of such sources of radiation or kinds of uses or users will not constitute a significant risk to the health and safety of the public;

(f) To promulgate rules and regulations pursuant to this Chapter which may provide for recognition of other state and federal licenses as the Commission shall deem desirable, subject to such registration requirements as it may prescribe; and exercise all incidental powers necessary to carry out the provisions of this Chapter;

(g) To provide by rule or regulation for an electronic product safety program to protect the public health and safety, which program may authorize regulation and inspection of sources of non-ionizing radiation throughout the State.

104C-6. RADIATION PROTECTION COMMISSION--members; selections; removal; compensation; quorum; services.--The Commission shall consist of seven voting public members and ten non-voting ex officio members. The seven voting public members of the Commission shall be appointed by the Governor as follows:

- (1) one member who shall be actively involved in the field of environmental protection;
- (2) one member who shall be an employee of one of the licensed public utilities involved in the generation of power by atomic energy;
- (3) one member who shall have experience in the field of atomic energy other than power generation;
- (4) one member who shall be a scientist or engineer from the faculty of one of the institutions of higher learning in the State;
- (5) one member who shall have recognized knowledge in the field of radiation and its biological effects from the North Carolina Medical Society;
- (6) one member who shall have recognized knowledge in the field of radiation and its biological effects from the North Carolina Dental Society;
- (7) one member who shall have recognized knowledge in the field of radiation and its biological effects from the State at large.

Public members so appointed shall serve terms of office of four years. Two of the initial public members shall be appointed for two years, two members for three years, and three members for four years. Any appointment to fill a vacancy on the Commission created by the resignation, dismissal, death or disability of a public member shall be for the balance of the unexpired term. At the expiration of each public member's term, the Governor shall re-appoint or replace the member with a member of like qualifications.

The ten ex officio members shall be appointed by the Governor shall be members or employees of the following State agencies or their successors, and shall serve at the Governor's pleasure:

- (1) the Utilities Commission;
- (2) the Commission for Health Services;
- (3) the Environmental Management Commission;
- (4) the Board of Transportation;
- (5) the Division of Civil Preparedness of the Department of Military and Veterans Affairs;
- (6) the radiation protection program within the Department of Human Resources;
- (7) the Department of Labor;
- (8) the Industrial Commission;
- (9) the Department of Insurance;
- (10) the Medical Care Commission.

The Governor shall have the power to remove any member from the Commission for misfeasance, malfeasance, or nonfeasance in accordance with G.S. 143B-13.

The members of the Commission shall receive per diem and necessary travel and subsistence expenses in accordance with the provisions of G.S. 138-5.

A majority of the public members of the Commission shall constitute a quorum for the transaction of business.

All clerical and other services required by the Commission shall be supplied by the Secretary of the Department of Human Resources.

104C-7. DEPARTMENT OF HUMAN RESOURCES --powers and functions.--

The Department of Human Resources is authorized:

- (a) To advise, consult and cooperate with other public agencies and with affected groups and industries;

(b) To encourage, participate in, or conduct studies, investigations, public hearings, training, research, and demonstrations relating to the control of sources of radiation, the measurement of radiation, the effect upon public health and safety of exposure to radiation and related problems;

(c) To require the submission of plans, specifications, and reports for new construction and material alterations on (1) the design and protective shielding of installations for radioactive material and radiation machines and (2) systems for the disposal of radioactive waste materials, for the determination of any radiation hazard and may render opinions, approve or disapprove such plans and specifications;

(d) To collect and disseminate information relating to the sources of radiation, including but not limited to: (1) maintenance of a record of all license applications, issuances, denials, amendments, transfers, renewals, modifications, suspensions, and revocations; and (2) maintenance of a record of registrants and licensees possessing sources of radiation requiring registration or licensure under the provisions of this Chapter, and regulations hereunder, and any administrative or judicial action pertaining thereto; and to develop and implement a responsible data management program for the purpose of collecting and analyzing statistical information necessary to protect the public health and safety.

(e) To respond to any emergency which involves possible or actual release of radioactive material; and to perform or supervise decontamination and otherwise protect the public health and safety in any manner deemed necessary. This section does not in any way alter or change the provisions of Chapter 166 of the North Carolina



General Statutes concerning response during an emergency by the Department of Military and Veterans Affairs or its successor.

(f) To develop and maintain a state-wide environmental radiation program for monitoring the radioactivity levels in air, water, soil, vegetation, animal life, milk, and food as necessary to ensure protection of the public and the environment from radiation hazards.

104C-8. LICENSING OF BY-PRODUCT, SOURCE, AND SPECIAL NUCLEAR MATERIALS AND OTHER SOURCES OF IONIZING RADIATION.--(a) The Governor, on behalf of this State, is authorized to enter into agreements with the federal government providing for discontinuance of certain of the responsibilities of the federal government with respect to sources of ionizing radiation and the assumption thereof by this State.

(b) Upon the signing of an agreement with the Atomic Energy Commission or its successor as provided in subsection (a) above, the Commission shall provide by rule or regulation for general or specific licensing of persons to use, manufacture, produce, transport, transfer, receive, acquire, own, or possess by-product, source, or special nuclear materials or devices, installations, or equipment utilizing such materials. Such rule or regulation shall provide for amendment, suspension, renewal or revocation of licenses. Each application for a specific license shall be in writing on forms prescribed by the Commission and furnished by the Department and shall state, and be accompanied by, such information or documents, including, but not limited to plans, specifications and reports for new construction or material alterations as the Commission may determine to be reasonable and necessary to decide the qualifications of the applicant to protect the public health and safety. The Commission may require all

applications or statements to be made under oath or affirmation. Each license shall be in such form and contain such terms and conditions as the Commission may deem necessary. No license issued under the authority of this Chapter and no right to possess or utilize sources of radiation granted by any license shall be assigned or in any manner disposed of; and the terms and conditions of all licenses shall be subject to amendment, revision, or modification by rules, regulations, or orders issued in accordance with the provisions of this Chapter.

(c) Any person who, on the effective date of an agreement under subsection (a) above, possesses a license issued by the federal government shall be deemed to possess the same pursuant to a license issued under this Chapter, which shall expire either 90 days after receipt from the Department of a notice of expiration of such license, or on the date of expiration specified in the federal license, whichever is earlier.

#### 104C-9. INSPECTIONS, AGREEMENTS, AND EDUCATIONAL PROGRAMS.--

(a) Authorized representatives of the Department shall have the authority to enter upon any public or private property, other than a private dwelling, at all reasonable times for the purpose of determining compliance with the provisions of this Chapter and rules, regulations and standards adopted hereunder.

(b) After approval by the Commission, the Governor is authorized to enter into agreements with the federal government, other states, or interstate agencies, whereby this State will perform on a cooperative basis with the federal government, other states, or interstate agencies, inspections, emergency response to radiation accidents, and other functions related to the control of radiation.

(c) The Department is authorized to institute educational programs for the purpose of training or educating persons who may possess, use, handle, transport, or service radioactive materials or radiation machines.

104C-10. RECORDS.--(a) The Commission is authorized to require each person who possesses or uses a source of radiation: (1) to maintain appropriate records relating to its receipt, storage, use, transfer, or disposal and maintain such other records as the Commission may require, subject to such exemptions as may be provided by the rules and regulations promulgated by the Commission; and (2) to maintain appropriate records showing the radiation exposure of all individuals for whom personnel monitoring may be required by the Commission, subject to such exemptions as may be provided by the rules and regulations promulgated by the Commission. Copies of all records required to be kept by this subsection shall be submitted to the Department or its duly authorized agents upon request.

(b) The Commission is authorized to require that any person possessing or using a source of radiation furnish to each employee for whom personnel monitoring is required a copy of such employee's personal exposure record upon the request of such employee, at any time such employee has received radiation exposure in excess of limits established in the rules and regulations promulgated by the Commission, and upon termination of employment.

104C-11. ADMINISTRATIVE PROCEDURES AND JUDICIAL REVIEW.--(a) The Department may refuse to grant a license as provided in G.S. 104C-5 or G.S. 104C-8 to any applicant who does not possess the requirements or qualifications which the Commission may prescribe in rules and

regulations. The Department may suspend, revoke, or amend any license in the event that the person to whom such license was granted violates any of the rules and regulations of the Commission, or ceases, or fails to have the reasonable facilities prescribed by the Commission: Provided, that before any order is entered denying an application for a license or suspending, revoking, or amending a license previously granted, the applicant or person to whom such license was granted shall be given notice and granted a hearing as provided in Chapter 150 of the North Carolina General Statutes.

(b) Whenever the Department in its opinion determines that an emergency exists requiring immediate action to protect the public health and safety the Department may, without notice or hearing, issue an order reciting the existence of such emergency and requiring that such action be taken as it necessary to meet the emergency. Notwithstanding any provision of this Chapter, such order shall be effective immediately. Any person to whom such order is directed shall comply therewith immediately, and on application to the Department shall be afforded a hearing within 10 days. On the basis of such hearing, the emergency order shall be continued, modified, or revoked within 30 days after such hearing, as the Department may deem appropriate under the evidence.

(c) Any applicant or person to whom a license was granted who shall be aggrieved by any order of the Department or its duly authorized agent denying such application or suspending, revoking, or amending such license may appeal directly to the superior court as provided in Chapter 150 of the North Carolina General Statutes.

104C-12. IMPOUNDING OF MATERIALS.--(a) Authorized representatives of the Department shall have the authority in the event of an emergency to impound or order the impounding of sources of radiation in the possession of any person who is not equipped to observe or fails to

observe the provisions of this Chapter or any rules or regulations promulgated by the Commission.

(b) The Department may release such sources of radiation to the owner thereof upon terms and conditions in accordance with the provisions of this Chapter and rules and regulations adopted hereunder or may bring an action in the appropriate superior court for an order condemning such sources of radiation and providing for the destruction or other disposition so as to protect the public health and safety.

104C-13. TRANSPORTATION OF RADIOACTIVE MATERIALS.--(a) The Radiation Protection Commission is authorized to adopt, promulgate, amend, and repeal rules and regulations governing the transportation of radioactive materials in North Carolina, which, in the judgment of the Commission, shall promote the public health, safety, or welfare and protect the environment.

(1) Such rules and regulations may include, but shall not be limited to, provisions for the use of signs designating radioactive material cargo; for the packing, marking, loading, and handling of radioactive materials, and the precautions necessary to determine whether the material when offered is in proper condition for transport, and may include designation of routes in this State which are to be used for the transportation of radioactive materials.

(2) Such rules and regulations shall not include the carrier vehicle or its equipment, the licensing of packages, nor shall they apply to the handling or transportation of radioactive material within the confines of a facility licensed by or owned by a federal agency.

(3) The Commission is authorized to adopt by reference, in whole or in part, such federal rules and regulations governing

the transportation of radioactive material which are established by the United States Atomic Energy Commission, the United States Federal Aviation Agency, the United States Department of Transportation, the United States Coast Guard, or the United States Post Office (or any federal agency which is a successor to any of the foregoing agencies), as such federal rules may be amended from time to time.

(b) The Department is authorized to enter into agreements with the respective federal agencies designed to avoid duplication of effort and/or conflict in enforcement and inspection activities so that:

(1) Rules and regulations adopted by the Commission pursuant to this section of this Chapter may be enforced, within their respective jurisdictions, by any authorized representatives of the Department of Human Resources and the Department of Transportation and Highway Safety, according to mutual understandings between such departments of their respective responsibilities and authorities.

(2) The Department, through any authorized representative, is authorized to inspect any records of persons engaged in the transportation of radioactive materials during the hours of business operation when such records reasonably relate to the method or contents of packing, marking, loading, handling, or shipping of radioactive materials within the State.

(3) The Department, through any authorized representative, may enter upon and inspect the premises or vehicles of any person engaged in the transportation of radioactive materials during hours of business operation, with or without a warrant, for the purpose of determining compliance with the provisions of this Chapter and the rules and regulations promulgated by the

Commission.

(c) Upon a determination by the Department that any provision of this section, or the rules and regulations promulgated by the Commission, are being violated or that any practice in the transportation of radioactive materials constitutes a clear and imminent danger to the public health, property, or safety, it may issue an order requiring correction as provided in G.S. 104C-11(b).

104C-14. RADIATION PROTECTION FUND.--There is hereby established under the control and direction of the Department a Radiation Protection Fund which shall be a nonlapsing, revolving fund consisting of any moneys appropriated for such purpose by the General Assembly or that shall be available to it from any other source. The moneys shall be used to defray the expenses of any project or activity for:

(a) emergency response to and decontamination of radiation accidents as provided in G.S. 104C-7(e), or

(b) perpetual maintenance and custody of radioactive materials as the Department may undertake.

In addition to any moneys that shall be appropriated or otherwise made available to it, the fund may be maintained by fees, charges, penalties or other moneys paid to or recovered by or on behalf of the Department under the provisions of this Chapter. Any moneys paid to or recovered by or on behalf of the Department as fees, charges, penalties or other payments authorized by this Chapter shall be paid to the Radiation Protection Fund in an amount equal to the sum expended for the projects or activities in subsections (a) and (b) above.

104C-15. PAYMENTS TO STATE AND LOCAL AGENCIES.--Upon completion of any project or activity stated in G.S. 104C-14(a), and from time to time during any project or activity stated in G.S. 104C-14(b), each State and local agency that has participated by furnishing personnel,

equipment or material shall deliver to the Department a record of the expenses incurred by the agency. The amount of incurred expenses shall be disbursed by the Secretary of Human Resources to each such agency from the Radiation Protection Fund. Upon completion of any project or activity stated in G.S. 104C-14(a), and from time to time during any project or activity stated in G.S. 104C-14(b), the Secretary of Human Resources shall prepare a statement of all expenses and costs of the project or activity expended by the State and shall make demand for payment upon the person having control over the radioactive materials or the release thereof which necessitated said project or activity. Any person having control over the radioactive materials or the release thereof and any other person causing or contributing to an incident necessitating any project or activity stated in G.S. 104C-14 shall be directly liable to the State for the necessary expenses incurred thereby and the State shall have a cause of action to recover from any or all such persons. If the person having control over the radioactive materials or the release thereof shall fail or refuse to pay the sum expended by the State, the Secretary of Human Resources shall refer the matter to the Attorney General of North Carolina, who shall institute an action in the name of the State in the Superior Court of Wake County, or in his discretion, in the superior court of the county in which the project or activity was undertaken by the State, to recover such cost and expenses.

In any action instituted by the Attorney General under this section, a verified and itemized statement of the expenses incurred by the State in any project or activity stated in G.S. 104C-14 shall be filed with the complaint and shall constitute prima facie the amount due the State; and any judgment for the State thereon shall be for such amount in the absence of allegation and proof on the part of the defendant or defendants that the statement of expenses incurred



by and the amount due the State is not correct because of an error in:

- (1) Calculating the amount due, or
- (2) Not properly crediting the account with any cash payment or payments or other satisfaction which may have been made thereon.

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104C-16. SECURITY FOR EMERGENCY RESPONSE AND PERPETUAL MAINTENANCE COSTS.--(a) No person shall use, manufacture, produce, transport, transfer, receive, acquire, own or possess radioactive material until that person shall have procured and filed with the Department such bond, insurance or other security as the Commission may by regulation require. Such bond, insurance or other security shall:

- (1) Run in favor of the Radiation Protection Fund in the amount of the estimated total cost as established by the Commission that may be incurred by the State in any project or activity stated in G.S. 104C-14, and

- (2) Have as indemnitor on such bond or insurance an insurance company licensed to do business in the State of North Carolina.

(b) The Commission may from time to time:

- (1) Cause an audit to be made of any person that insures itself by means of other security as provided for in subsection (a) above;

- (2) Amend or modify the estimated total cost for security established pursuant to this section; and

- (3) Provide by regulation for the discontinuance of indemnification by one insurer and the assumption thereof by another insurer, as the Commission deems necessary to carry out the provisions of this Chapter and rules and regulations adopted and promulgated hereunder.

104C-17. FEES.--In order to provide means of carrying out and enforcing the provisions of G.S. 104C-5, G.S. 104C-7, G.S. 104C-8 and G.S. 104C-9, the Department is hereby authorized to charge and collect fees as established by the rules and regulations promulgated by the Commission.

104C-18. PROHIBITED USES.--It shall be unlawful for any person to use, manufacture, produce, transport, transfer, receive, acquire, own or possess any source of radiation unless licensed, registered or exempted by the Department in accordance with the provisions of this Chapter and the rules and regulations adopted and promulgated hereunder.

104C-19. CONFLICTING LAWS.--Ordinances, resolutions or regulations, now or hereafter in effect, of the governing body of a municipality or county or board of health relating to by-product, source and special nuclear materials shall not be superseded by this Chapter: Provided, that such ordinances or regulations are and continue to be consistent and compatible with the provisions of this Chapter, as amended, and rules and regulations promulgated by the Commission.

104C-20. TORT CLAIMS AGAINST PERSONS RENDERING EMERGENCY ASSISTANCE.-- Any and all tort claims against any person which arise while that person is rendering assistance during an emergency (1) at the request of any authorized representative of the State of North Carolina or (2) pursuant to a mutual radiological assistance agreement as provided for in G.S. 104C-9(b), shall constitute claims against this State; and the disposition thereof shall be governed by the provisions of Article 31 of Chapter 143 of the General Statutes. In any civil action brought against said person, the provisions of Article 31A of Chapter 143 of the General Statutes shall apply as if such person were an employee of this State.

104C-21. PENALTIES.--Any person who violates the provisions of G.S. 104C-13 or G.S. 104C-18, or who hinders, obstructs, or otherwise interferes with any authorized representative of the Department in the discharge of his official duties in making inspections as provided in G.S. 104C-9, or in impounding materials as provided in G.S. 104C-12, shall be guilty of a misdemeanor and, upon conviction thereof, shall be punished as provided by law.

Section 2. G.S. 104C-1 through G.S. 104C-21 shall become effective July 1, 1975, and shall expire June 30, 1981.

Section 3. G.S. 131-126.3, as it appears in the 1974 Replacement of Volume 3B of the General Statutes of North Carolina, is amended by deleting the second sentence thereof.

Section 4. G.S. 97-2(1) and G.S. 97-13(b), as they appear in the 1972 Replacement of Volume 2D of the General Statutes of North Carolina, are amended by deleting the word "ionizing" wherever it appears.

Section 5. G.S. 97-53(15), as it appears in the 1973 Supplement to Volume 2D of the General Statutes of North Carolina, is amended by deleting the word "ionizing" therefrom.

Section 6. Sections three (3) through five (5) of this bill shall become effective upon ratification.

AN ACT APPROPRIATING FUNDS TO THE STATE DEPARTMENT OF HUMAN RESOURCES FOR THE UPGRADING AND CONTINUATION OF A RADIATION PROTECTION PROGRAM IN NORTH CAROLINA.

Whereas, there is an ever-increasing use of radioactive materials and radiation-producing equipment in commerce and industry and in the diagnosis and treatment of human disease; and

Whereas, the possession, use and transfer of radioactive materials and radiation-producing equipment are inadequately regulated at this time; and

Whereas, the fact that the handling, possession and transfer of such materials and equipment may damage the environment and endanger the public health and welfare; Now, therefore,

The General Assembly of North Carolina enacts:

Section 1. There is hereby appropriated from the General Fund of the State, to the North Carolina Department of Human Resources, in addition to all other appropriations, a sum of three hundred seventeen thousand one hundred eighty-five dollars (\$317,185.00) for the fiscal year beginning July 1, 1975, and ending June 30, 1976; and a sum of one hundred eighty-one thousand seven hundred thirty-seven dollars (\$181,737.00) for the fiscal year beginning July 1, 1976, and ending June 30, 1977, for the purpose of conducting a radiation protection program according to the following schedule:

## APPENDIX V

## North Carolina Radiation Protection Program

	1975-76	1976-77
<u>A. X-ray Registration and Inspection</u>		
Salaries and Benefits	\$ 44,836	\$ 44,836
Operating expenses	3,000	3,000
Travel	6,000	6,000
Equipment	7,500	2,000
Subtotal	\$ 61,336	\$ 55,836
<u>B. Radioactive Material Licensing and Registration</u>		
Salaries and benefits	\$ 13,596	\$ 13,596
Operating expenses	1,000	1,000
Travel	2,000	2,000
Equipment	2,700	500
Subtotal	\$ 19,296	\$ 17,096
<u>C. Nuclear Facilities--Technical Review and Environmental Surveillance</u>		
Salaries and benefits	\$ 44,472 <sup>*</sup>	\$ 67,724 <sup>*</sup>
Operating expenses	6,000	6,000
Travel	3,500	6,000
Equipment	160,000 <sup>**</sup>	8,500
Subtotal	\$213,972	\$ 88,224
<u>D. Emergency Response to Radiation Accidents</u>		
Salaries and benefits	\$ 15,581	\$ 15,581
Operating expenses	1,500	1,500
Travel	1,500	1,500
Equipment	4,000	2,000
Subtotal	\$ 22,581	\$ 20,581
Grand Total	\$ 317,185	\$ 181,737

\* Includes positions for laboratory

\*\* Approximately \$140,000 - 150,000 for laboratory equipment

## APPENDIX V

A. <u>X-ray Registration and Inspection</u>	1975-76	1976-77
Salaries and Benefits (4 Positions)	\$44,836	\$44,836
3 Radiation Equipment Specialists @ Grade 67 - \$12,411		
1 Secretary - Typist II @ Grade 56 - \$7,603		
Operating Expenses	3,000	3,000
Travel	6,000	6,000
Equipment <sup>1</sup>	<u>7,500</u>	<u>2,000</u>
Subtotal	\$61,336	\$55,836
B. <u>Radioactive Materials Licensing and Inspection</u>		
Salaries and Benefits (1 Position)	\$13,596	\$13,596
1 Radioactive Materials Licensing Specialist @ Grade 69 - \$13,596		
Operating Expenses	1,000	1,000
Travel	2,000	2,000
Equipment <sup>2</sup>	<u>2,700</u>	<u>500</u>
Subtotal	\$19,296	\$17,096
C. <u>Nuclear Facilities -- Technical Review and Environmental Surveillance</u>		
Salaries and Benefits (5 Positions)	\$44,472	\$67,724
1 Environmental Engineer II @ Grade 75 - \$17,817		
2 Environmental Technicians * @ Grade 67 - \$12,411 (One in FY 75-76 and one in FY 76-77)		
1 Radiochemist ** @ Grade 70 - \$14,244		
1 Radiochemical Analyst ** @ Grade 64 - \$10,841 (During FY 76-77)		
Operating Expenses	6,000	6,000
Travel	3,500	6,000
Equipment <sup>3</sup>	<u>160,000***</u>	<u>8,500</u>
Subtotal	\$213,972	\$88,224



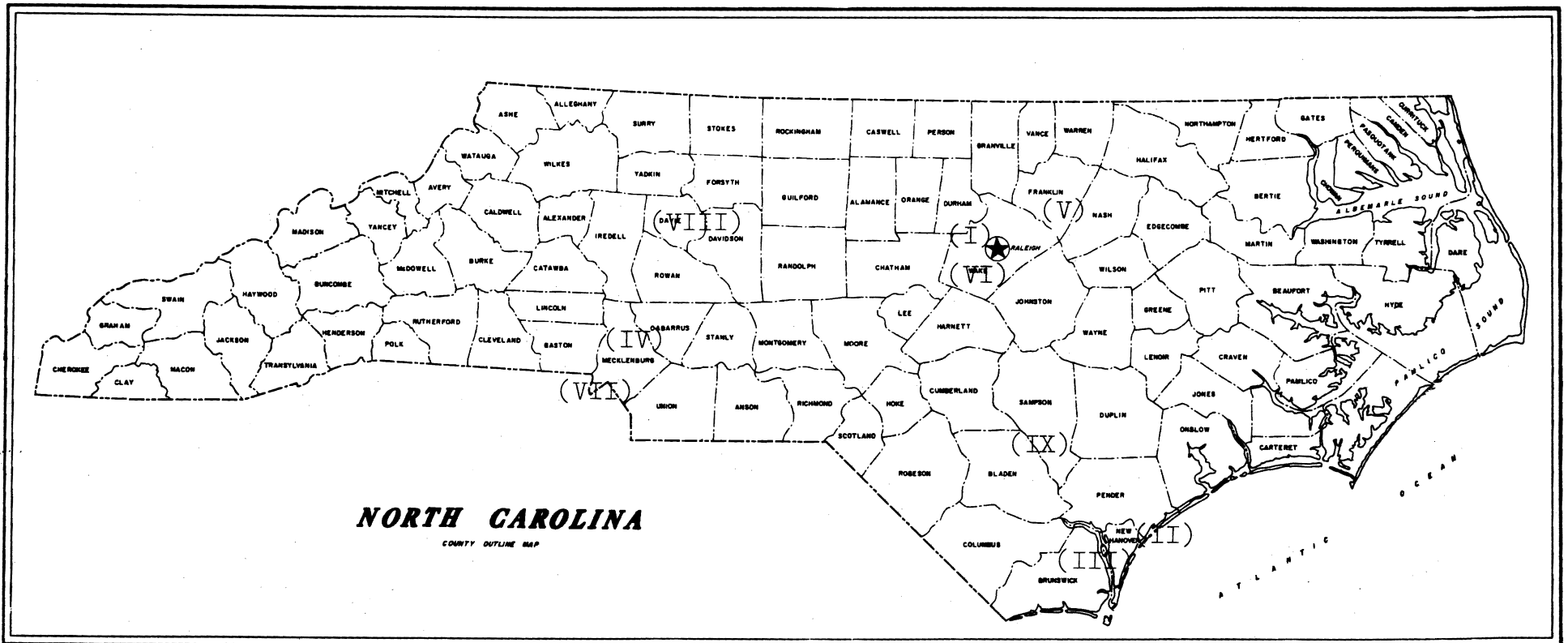
Note:	<u>3</u>	<u>Equipment Description</u>	Unit Price	Total
		"FY 75-76"		
	2	Low background Alpha/Beta Counters	\$22,500	\$45,000
	1	Liquid Scintillation Spectrometer with automatic sample change	15,000	15,000
	1	High Resolution Gamma Ray analysis system with lithium-drifted germanium detector, and automatic qualitative and quantitative isotope identification	80,000	80,000
		Shields, voltage regulators and misc. lab equipment	5,000	5,000
	1	Thermoluminescent Dosimeter system with detectors, reader/printer, annealing ovens & storage shield	7,500	7,500
	1	Calculator, programmable	1,000	1,000
	4	Air Sampler Stations (fixed)	1,050	4,200
		Misc.		700
		Office furniture & typewriter		<u>1,600</u>
		Total		\$160,000
		"FY 76-77"		
	4	Air Sampler Stations (fixed)	\$1,050	\$4,200
	1	Laboratory Alpha Detector system		3,500
		Office Furniture		<u>800</u>
		Total		\$8,500

Note:	<u>4</u>	<u>Equipment Description</u>	Unit Price	Total
		"FY 75-76"		
	2	Emergency Kits	\$ 600	\$1,200
	4	Transceivers	250	1,000
		Office furniture		500
	1	Tape Recorder	150	150
		Misc. Emergency Equipment (e.g. gas masks, storage containers, survey meters)		1,150
		Total		\$4,000



"FY 76-77"		
1 Portable 115VAC Generator	\$ 600	\$ 600
4 Portable Air Samplers	300	1,200
Misc. Office and field Equipment		<u>200</u>
	Total	\$2,000

APPENDIX VI: PRESENT AND PLANNED  
NUCLEAR FACILITIES, 1974 - 1987



- |   |   |
|---|---|
| (I) N.C.S.U. Pulstar Reactor (1 reactor)                  | (VI) C.P. & L. Harris Reactors (4)      |
| (II) G.E. Fuel Fabrication Plant, Wilmington              | (VII) Duke Power Catawba Reactors (2)   |
| (III) C.P. & L. Brunswick Reactors (2)                    | (VIII) Duke Power Perkins Reactors (3)  |
| (IV) Duke Power McGuire Reactors (2)                      | (IX) C.P. & L. South River Reactors (3) |
| (V) General Atomic Fuel Fabrication Plant,<br>Youngsville |   |

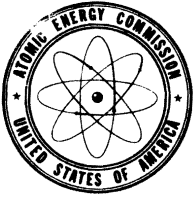
FACILITY:	PULSTAR	"NUCLEAR FACILITY KEY DATES"							
		G.E. WILMINGTON	BRUNSWICK 1 & 2	MCGUIRE 1 & 2	GEN. ATOMIC YOUNGSVILLE	HARRIS 1-4	CATAWBA 1 & 2	PERKINS 1-3	S. RIV 1-3
POWER RATING: (each unit)	1 MW Steady 2200 MW pulsed	Fuel Fab.	849 MW(e)	1180 MW(e)	HTGR Fuel Fabrication	900MW(e)	1180MWe	1280MWe	1150MWe
TYPE:	POOL	N.A.	BWR	PWR	N.A.	PWR	PWR	PWR	PWR
SCHEDULED DATE OF OPERATION	OPERATING	OPERATING	Jan 75 Dec 75	Jan 78 Jan 79	Mar 78	Mar 81 Mar 82 Mar 83 Mar 84	Jan 81 Jan 82	Jan 83 Jan 85 Jan 87	Unknow
PRE-OP ERS:*	Completed	Completed	Current	Jan76/77	Mar76/77	Mar79/80	Jan79/80	Jan81/82	?
OPERATIONAL ERS:	Current	Current	Current	Jan 78	Mar 78	Mar 81	Jan 81	Jan 83	?

\*Pre-operational surveillance should begin at least two years prior to scheduled operation. However, with no increase in personnel, a two year pre-op is not possible. Thus "75/76" indicates pre-op should start not later than 75 and must start NLT 76.

The above operation dates are subject to change, but are valid as of 9/12/74.

In addition to the above actions, the following additional actions should be completed as indicated.

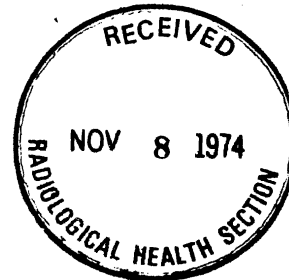
1. Review facility systems and effluent monitors at least 2 years prior to start-up.
2. Review facility environmental surveillance program at least two years prior to start-up.
3. Review facility emergency plan in its final form at least 6 months prior to start-up.
4. Attend Construction Permit and Operating License hearings as they occur.



UNITED STATES  
 ATOMIC ENERGY COMMISSION  
 WASHINGTON, D.C. 20545

NOV 7 1974

Mr. Dayne H. Brown, Head  
 Radiation Protection Branch  
 Division of Facility Services  
 Department of Human Resources  
 Box 12200  
 Raleigh, North Carolina 27605



Dear Dayne:

This is in response to your October 15, 1974 letter on the proposed new North Carolina Radiation Protection Act. The new Act, if adopted, will have no effect on the AEC-North Carolina Agreement. The Agreement will continue in effect with all existing terms and conditions. Our specific comments on the Act are attached.

The following material responds to questions 1-3 of your letter:

1. "Would the State of North Carolina be able to obtain reimbursement for expenses incurred in response to major accidents at nuclear generating plants under the Price-Anderson Act?"

The Price-Anderson Act requires nuclear power plant licensees to maintain financial protection and government indemnity to satisfy possible public liability claims resulting from a nuclear incident. Damage or injury to offsite State property or employees is covered to the same extent as damage or injury to the general public and would be covered by the Price-Anderson Act. However, while the Act does not specifically bar State claims for reimbursement of expenses incurred during response to an incident (such as health, police, and fire department expenses), we do not believe that such expenses would be covered by the Price-Anderson Act.

2. "Would the imposition of a bonding requirement on U. S. Atomic Energy Commission licensed nuclear electric generating plants be in conflict with the jurisdiction and/or preemptive aspects of the U. S. Atomic Energy Commission?"

Since the AEC regulates the financial qualification requirements which its licensees must meet and sets the type and amount of financial protection that its nuclear power plant licensees must maintain under the Price-Anderson Act, we do not believe that imposition of such a bonding requirement by the State is necessary. While we do not believe that a problem

would exist if such a bonding requirement were designed to protect the environment of the State from potential degradation of a nonradiological nature (e.g., chemical effluents released from a nuclear power plant), we believe that State imposition of a bonding requirement on AEC licensed facilities for the purpose of regulating radiological health and safety would present a jurisdictional problem. An Agreement State may, of course, impose bonding requirements upon its own licensees.

3. "Upon decommissioning of an operating nuclear generating plant, does the jurisdiction fall to the State or does it remain with the Atomic Energy Commission?"

A licensee desiring to have a nuclear power plant (licensed pursuant to 10 CFR Part 50 by the AEC) decommissioned must apply to the AEC for an order to decommission the plant. After decommissioning and regardless of whether any special nuclear material remains onsite, the licensee will ordinarily hold a Part 50 "possession only" license entitling him to possess (but not operate) the facility and the nuclear material onsite. As long as a Part 50 license for the facility remains in effect, the AEC retains exclusive regulatory jurisdiction.

To terminate this license, the licensee must obtain an order from the Commission. In a non-Agreement State, an order terminating the Part 50 license would be contingent upon the licensee's obtaining Part 30, 40 and 70 licenses from the AEC, as appropriate, for the nuclear material remaining onsite. Since the AEC has relinquished regulatory jurisdiction over source, byproduct, and special nuclear material in quantities not sufficient to form a critical mass, in an Agreement State the order would be contingent upon the issuance of the appropriate materials license by the State to the licensee.

A Task Force of the Conference of Radiation Control Program Directors is studying this question and the potential impact on Agreement States of such decommissioning action. The AEC is participating in the study, and their report, which should

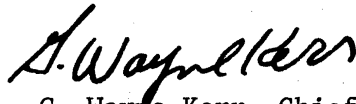
Mr. Dayne H. Brown

- 3 -

address this question in greater detail, will be available  
in January 1975.

If we may be of further assistance, please let me know.

Sincerely,



G. Wayne Kerr, Chief  
Agreements and Exports Branch  
Directorate of Licensing

Enclosures:

1. Comments
2. Model Act

## North Carolina Board of Science and Technology

May 31, 1974

MEMORANDUM

TO: Representative Norwood Bryan Jr.

FROM: Mr. Peter J. Chenery

SUBJECT: Tennessee Radiation Incident

The Southern Interstate Nuclear Board, at its annual meeting in Charleston, S. C. May 15, 1974, heard a report of a radiation incident which may cost the state of Tennessee in excess of \$2,000,000. This case may be useful in considering new legislation to regulate the use of radioactive materials in North Carolina.

The American Nuclear Corporation in January 1962 received a license from the Atomic Energy Commission to fabricate radioactive sources at a plant near Oak Ridge. The plant operated under AEC regulation until the assumption by Tennessee of licensing and regulatory authority under a federal-state agreement in 1965. At that time the AEC licenses were transferred to state control. Subsequent inspections by the Tennessee Division of Occupational and Radiological Health revealed various instances of failure by the company to comply with regulations, and in February, 1969, leakage of radioactive materials from the plant was detected in water samples from a nearby river. The leakage was traced to the company's fabrication operation and forced its termination. The company has been in financial trouble since that time and operations ceased in 1970. Since then, the site has been abandoned and vandalized. Large quantities of radioactive material (cobalt-60 and cesium-137) are still present in the abandoned facilities. These materials present a severe potential health hazard in the event of their release. Entry to the storage area offers potential fatal radiation exposure.

The state obtained court orders to seize the property and has repaired fences and sealed the building against entry. Under contract with the state, Oak Ridge National Laboratory has studied the contamination which exists in and around the plant and has provided estimates for the cost of cleaning it up. Removal of contamination and improving building security is estimated to cost \$132,000; complete removal of all radioactivity including the source materials stored within the building is estimated to cost between \$1,000,000 and \$2,000,000.

At the direction of SINB, Mr. James Goodwin, SINB Executive Director, and I, together with representatives of the Tennessee Department of Public Health, met with John A. Erlewine, AEC General Manager and a number of members of his staff on May 23, 1974. Mr. Erlweine stated that the Commission would discuss the matter on May 24 and would provide any possible aid through the Oak Ridge National Laboratory.

MEMORANDUM  
Norwood Bryan Jr.

May 31, 1974

The significance of this incident for states such as North Carolina and Tennessee which have assumed licensing and regulatory responsibility under agreement with the AEC, is the size of the potential liability to the state in the event of bankruptcy of a company conducting nuclear operations. Consideration should be given to incorporating in any new legislation requirements for bonding or insurance to cover this liability.

*P. 3. Cheney*

PJC/lth

cc: Mr. James E. Harrington  
Mr. Ronald K. Ingle  
Mr. Dayne H. Brown



§ 104C-4

GENERAL STATUTES OF NORTH CAROLINA

§ 104C-4

**Chapter 104C.****Atomic Energy, Radioactivity and Ionizing Radiation.**

Sec.

104C-4. Authority and duty of Commission for Health Services; rules and regulations; licenses; impounding source of radiation; registration,

educational and protection programs; right of entry; inspection and advisory service.

**§ 104C-4. Authority and duty of Commission for Health Services; rules and regulations; licenses; impounding source of radiation; registration, educational and protection programs; right of entry; inspection and advisory service.** — The Commission for Health Services is specifically authorized to adopt reasonable rules and regulations relating to the use, storage, transportation and disposal of radiation, radiation machines, and radioactive materials so as to provide protection against hazard from radioactivity and ionizing radiation, and so as to insure safety to all persons at, or in the vicinity of, the place of use, storage, transportation or disposal thereof. To this end, the Commission for Health Services is authorized to require registration of all persons, firms, corporations, associations or institutions who possess or use such machines or materials, such registration program to be of such scope and in such form as the Commission deems necessary to provide an adequate protection and supervision program.

As used in this Chapter, the word "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, other than the United States Atomic Energy Commission, or any successor thereto, and other than federal government agencies licensed by the United States Atomic Energy Commission, or any successor thereto.

The Commission for Health Services shall provide by rule or regulation for general or specific licensing of by-product, source, special nuclear materials, or devices or equipment utilizing such materials. Such rule or regulation shall provide for amendment, suspension or revocation of licenses.

Said Commission is authorized to adopt reasonable rules and regulations necessary to carry out an effective licensing program designed to protect the public health or safety in this field. Provision shall be made for applications for licenses, conditions for issuance of licenses, and suspension and revocation of licenses. Said Commission 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 said Commission 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. Rules and regulations promulgated pursuant to this Chapter may provide for recognition of other state or federal licenses as the said Commission may deem desirable, subject to such registration requirements as the said Commission may prescribe.

The Commission shall have authority to impose a right to inspect premises as a condition of issuance of a license. Neither local boards of health nor counties nor cities shall adopt regulations inconsistent with those adopted by the Commission for Health Services pursuant to this Chapter.

Authorized representatives of the Department of Human Resources shall have the authority 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 Chapter or any rules or regulations issued thereunder.

§ 104C-5

1973 SUPPLEMENT

§ 104C-5

Insofar as practicable, all the provisions of Chapter 150 of the General Statutes shall be applicable with respect to licenses and the licensing procedure herein provided for.

Authorized representatives of the Department of Human Resources shall have authority to enter any premises, other than a private dwelling, where any activities or conditions therein or thereon are the subject of regulations adopted pursuant to this section, for the purpose of determining whether applicable laws and regulations are being properly observed.

The Department is authorized but not required to provide an inspection service and an advisory service, to make surveys, to sponsor educational programs on approved radiation protection practices, and to do any and all other acts deemed desirable in providing an effective protection program. In the performance of these duties, to the end that an environment favorable to the development of the peaceful uses of nuclear energy will be maintained, consistent with public health and safety, the Commission for Health Services shall not impose standards any more restrictive than the radiation standards established by the Atomic Energy Act of 1954 and amendments, or successor acts, and regulations issued thereunder; in those situations where no such standards are imposed under said Atomic Energy Act, said Commission shall be authorized to impose reasonable standards.

No rules or regulations shall be adopted by the Commission for Health Services pursuant to this section except with the approval of the Governor.

Recognizing the rapid pace of discovery in the atomic field, the Commission for Health Services or Department shall keep itself informed regarding the regulatory activities of other states and of the government of the United States and shall endeavor to maintain maximum coordination pending the establishment from time to time of clear lines of regulatory authority between the State and the federal governments. All regulations adopted shall be subject to the provisions of G.S. 130-9(a) and the provisions of Article 18 of Chapter 143 of the General Statutes. Any violation of any rule or regulation adopted pursuant to this section is hereby declared to be a misdemeanor.

Whenever the Commission for Health Services or Department has reasonable cause to believe that any person, firm, corporation, association or institution is violating or threatening to violate any regulation adopted pursuant to this section, the Commission may enter an order requiring such violator to desist or refrain from such violation; and an action may be brought in the name of the Commission on the relation of the State of North Carolina to enjoin such violator from engaging in or continuing such violation or from doing any act or acts in furtherance thereof. In any such action an order or judgment may be entered awarding such preliminary or final injunction as may be deemed proper. (1959, c. 481, s. 4; 1963, c. 1211, s. 1; 1973, c. 476, s. 128.)

**§ 104C-5. Governor may enter into agreements with federal government; effect on federal licenses.—**(a) 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 ionizing radiation and the assumption thereof by this State.

(b) Any person who, on the effective date of an agreement under subsection (a) above, possesses a license issued by the federal government shall be deemed to possess the same pursuant to a license issued under this Chapter, which shall expire 90 days after receipt from the State Board of Health, of a notice of expiration of such license, or on the date of expiration specified in the federal license, whichever is earlier. (1963, c. 1211, s. 2.)

**§ 131-126.3. Licensure.** — After July 1, 1947, no person or governmental unit, acting severally or jointly with any other person or governmental unit shall establish, conduct or maintain a hospital in this State without a license. None of the provisions of Chapter 104C of the General Statutes shall apply to X-ray facilities in or as a part of any hospital or medical facility which is, or will upon its completion become, subject to the provisions of law relating to the licensing thereof by the Department of Human Resources pursuant to this Article. (1947, c. 933, s. 6; 1963, c. 66; 1973, c. 476, s. 152.)

**§ 97-2. Definitions.**—When used in this Article, unless the context otherwise requires—

- (1) **Employment.**—The term “employment” includes employment by the State and all political subdivisions thereof, and all public and quasi-public corporations therein and all private employments in which five or more employees are regularly employed in the same business or establishment or in which one or more employees are employed in activities which involve the use or presence of ionizing radiation, except agriculture and domestic services, and an individual sawmill and logging operator with less than 10 employees, who saws and logs less than 60 days in any six consecutive months and whose principal business is unrelated to sawmilling or logging.

**§ 97-13. Exceptions from provisions of Article.**—

(b) **Casual Employment, Domestic Servants, Farm Laborers, Federal Government, Employer of Less than Five Employees.**—This Article shall not apply to casual employees, farm laborers, federal government employees in North Carolina, and domestic servants, nor to employees of such persons, nor to any person, firm or private corporation that has regularly in service less than five employees in the same business within this State, except that any employer without regard to number of employees, including an employer of domestic servants, farm laborers, or one who previously had exempted himself, who has purchased workmen's compensation insurance to cover his compensation liability shall be conclusively presumed during life of the policy to have accepted the provisions of this Article from the effective date of said policy and his employees shall be so bound unless waived as provided in this Article; provided however, that this Article shall apply to all employers of one or more employees who are employed in activities which involve the use or presence of ionizing radiation.

**§ 97-53. Occupational diseases enumerated; when due to exposure to chemicals.** — The following diseases and conditions only shall be deemed to be occupational diseases within the meaning of this Article:

- (15) Radium poisoning or disability or death due to radioactive properties of substances or to roentgen rays, X rays or exposure to any other source of ionizing radiation; provided, however, that the disease under this subdivision shall be deemed to have occurred on the date that disability or death shall occur by reason of such disease.

