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UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA ST., N.W., SUITE 3100
ATLANTA, GEORGIA 30303

September 13, 1982

Eugene W. Fowinkle, M.D.
Commissioner
Department of Public Health
344 Cordell Hull Building
Nashville, TN 37219

Dear Commissioner Fowinkle:

In accordance with the policy of the U. S. Nuclear Regulatory Commission (NRC), I have enclosed a copy of our report of the NRC's 1982 review of the Tennessee radiation control program for agreement materials. The report contains the findings of the NRC staff and your comments on these findings.

For your information, the criteria used by the NRC staff as the basis for our review is contained in the "Guidelines for NRC, Review of Agreement State Radiation Control Programs" published in the Federal Register on December 4, 1981.

If you have any questions concerning the report, please do not hesitate to contact me.

Sincerely,

Richard L. Woodruff
State Agreements Representative

Enclosures:
As Stated

cc w/encl:
Mr. D. A. Nussbaumer
Mr. Michael H. Mobley

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REPORT AND EVALUATION OF THE TENNESSEE RADIATION CONTROL PROGRAM FOR THE PERIOD OCTOBER 4, 1980 TO MARCH 26, 1982

19th Regulatory Program Review

STAFF REPORT AND EVALUATION OF THE TENNESSEE
RADIATION CONTROL PROGRAM FOR THE PERIOD
OCTOBER 4, 1980 TO MARCH 26, 1982

The nineteenth regulatory program review meeting with Tennessee representatives was held during the period March 17-19 and March 22-26, 1982. The March 17-19, 1982 period was an assist inspection of the Tennessee facility at Jonesboro, Tennessee. Richard L. Woodruff and John B. Kahle from the Region II office, and Egar (Jim) Ashley, OSP, assisted Charles P. West during this inspection. The formal review was conducted during the period of March 22-26, 1982 in Nashville, Tennessee. The state was represented by W. A. Bill Graham, Director, Division of Radiological Health; Charles P. West, Assistant Director and Johnny C. Graves, Supervisor, Radioactive Material Section. A review of selected license and compliance files was conducted by Richard L. Woodruff and Robert A. Brown from the Region II office on March 22-23, 1982. Richard L. Woodruff conducted accompiments of one state inspector on March 24, 1982. A summary meeting regarding the results of the regulatory program review and inspection accompaniments was held with Eugene W. Fowinkle, M.D., Commissioner, Department of Public Health, Wayne Scharber, Director, Bureau of Environmental Management and Quality Assurance, and Jean Innman, Public Information.

Conclusions

The Tennessee program for control of agreement materials is, adequate to protect the public health and safety and compatible with the regulatory programs of the NRC and the Agreement States.

Comments and recommendations were offered as follows:

1. The physicists who perform most of the inspections have not received specific training in the NRC radiation safety core courses in medical practices, inspection procedures, and teletherapy calibration.

   This comment relates to a Category II Indicator, "Training". The staff has attended the safety courses as space became available.

2. License applicants, including renewals, should be furnished copies of applicable guides and regulatory positions. The staff stated that formal guides were in preparation, and that specific information was sent to the applicant upon request. It was recommended that licensing guides be completed and made available on a routine basis to license applicants, especially for medical and industrial radiography applicants.

   This comment relates to a Category II Indicator, "Licensing Procedures".

3. Files should be maintained in an orderly fashion to allow fast, accurate retrieval of information and documentation of discussions and visits, and administrative procedures should be used to assure uniform documentation and maintenance of files and records. It was noted that (a) some official file

copies of licenses were unsigned and the concurrences were unclear as to intent, (b) some license applications for amendments were signed by consultants or a technologist, and (c) the license, application, backup materials, and the latest inspection report with enforcement correspondence were all filed together in the license folder. Backup materials should be filed with the corresponding license or license amendment, and separated from inspection reports and enforcement correspondence.

This comment relates to a Category II Indicator, "Licensing Procedures".

4. Based upon compliance file reviews, staff discussions, and accompaniments, formal inspection guides are not provided to the inspectors to assure that uniform and complete inspection practices are followed. It was also noted that during exit interviews, items of noncompliance are discussed without identification of the corresponding rule or license condition that was violated.

   Inspection guides should be developed for each major category of license to provide guidance to the inspector both during preparation for, and during the inspection. The inspection guides or the field notes should identify the applicable code section or license condition(s) that were violated.

   This comment relates to a Category II Indicator, "Inspection Procedures".

5. In general the staff should be commended on the quality of their inspection reports; however, in some cases additional information was needed to (a) document the scope of the licensee's program, (b) document internal audits performed by radiography licensees, (c) document QA tests performed on dose calibrators, and (d) document the use of protective equipment such as syringe shields. Inspection report formats are the same for all categories of licenses except, a special format is utilized for radiography inspections. It was recommended that an inspection report format specific for medical programs be developed.

   This comment related to a Category II Indicator, "Inspection Reports".

6. It was noted during the review that teletherapy spot check measurments are not performed by the inspectors. The staff stated that none of the current staff had been to the teletherapy calibration course.

   This comment relates to a Category II Indicator, "Independent Measurements".

These conclusions are based on the review of the technical and administrative aspects of the State's regulatory program for controlling agreement material. Included in this review were examinations of selected license and inspection files, the program indicators specified in the NRC "Guide for Evaluation of Agreement State Radiation Control programs," the accompaniment of a State inspector, the review of all licenses issued by Tennessee since October 4, 1980, and our continuing exchange of information program.

Summary Discussion With Commissioner Eugene W. Fowinkle, M.D.

A summary meeting to present the results of the regulatory program review meeting was held with Dr. Fowinkle, Mr. Wayne Scharber, and Ms. Jean Innman. Mr. W. A. Bill Graham and Mr. Charles P. West represented the Division of Radiological Health. Mr. Donald A. Nussbaumer, Assistant Director for State Agreements Program, Mr. John A. Olshinski, Director of Engineering and Technical Programs, Region II, Dr. Joan Aaron, Office of Policy Evaluation, and Ms. Roxanne Goldsmith, Office of the Commission also attended the summary meeting.

The following comments and recommendations were made to Commissioner Fowinkle and his staff:

1. The state's "Rules and Regulations for Radioactive Materials" were last revised in 1978. Updating of Regulations is a Category II Indicator. Our Guide for acceptable practice calls for those State regulations necessary to maintain compatibility be made effective as soon as practicable but no later than three years after adoption by NRC. At the time of this review, the revised regulations were being finalized but an effective date had not been established. It was noted that the provisions of those NRC regulations that have been made a matter of Compatibility were being implemented through the licensing process. We recommend that revision of the regulations be completed.

2. The Tennessee program for regulation of agreement materials presently has a staffing level of 0.9 person years per 100 licenses. The number of personnel is a Category II Indicator. The present staffing level is slightly below the NRC recommended range of 1.0 - 1.5 person years per 100 licenses. This staffing which is borderline for current workload is likely to be insufficient when the furture projected workload is considered. for example, the number of licenses have increased during the past year by 10% and the number of licenses scheduled for renewal will also increase during 1983. Tennessee staff estimated that over 200 hours of onsite inspection time were devoted to the TNS facility and that over nine person months were devoted to emergency planning. In addition, the State has three compliance regions of which only two regions are staffed with physicists. We recommended that the staffing level be increased.

3. With regard to the technical assistance provided by NRC during the unannounced inspection at the TNS facility. NRC staff did not observe any operation that it believed represented an imminent danger to the public health and safety. However, the conditions observed and evaluated do raise questions about the effectiveness of the licensee's health physics program. Apparent violations of Tennessee radiation protection regulations were identified and comments were provided to the State inspector by the NRC staff for his exit meeting with the licensee. We recommend that the State require the licensee to take actions to (1) correct the apparent items of noncompliance; (2) upgrade the health physics program, and (3) provide in

writing a schedule for installation of engineering controls to reduce a airborne radioactivity concentrations in plant areas and in effluents to the environment.

4. The reviewer stated to the Commissioner that we were pleased to learn that his staff has significantly reduced the number of overdue inspections since our last review, and that written procedures for escalated enforcement actions have been prepared and are in the process of being approved. We understand that a bill has been introduced into the Tennessee Legislature to provide for the establishment of civil penalties. We fully support this legislation as we consider civil penalty authority to be an important element of your enforcement capabilities.

In response to the NRC representative's comments, Commissioner Fowinkle replied that his staff would review the comments in our letter and respond to them. Dr. Fowinkle requested the NRC letter be sent within three weeks and further stated that he had proposed to add two additional persons to the Radiological Health Section staff pending legislative approval of the X-ray fee legislation and that the Governor had proposed "Civil Penalty" legislation. The reviewers responded that the NRC letter would be sent within two weeks.

Program Changes Related To Previous NRC Comments and Recommendations

A. Comment Letter to Dr. Fowinkle November 7, 1980

1. Comment

The turnover in technical staff in the radiation control program appears to be excessive and may be detrimental to the overall program. We noted that five persons on the technical staff left the program in the past year. These persons were partially involved in the regulation of agreement materials.

Recommendation

We recommend that the State attempt to reduce the loss of trained technical staff, wherever possible.

State Response

It is agreed that turnover in the radiological technical staff has been unusually excessive during the past year. Most of the five staff members lost during this period went to more attractive positions in the Nuclear Industry. Four of the five vacancies have been filled, but with untrained people. The State of Tennessee is not presently in a position to compete effectively with the high salaries offered by Industry.

Present Status

All fourteen staff positions have been filled. Staff turnover during this review consisted of three X-ray positions and one laboratory position and did not directly affect the agreement materials program.

2. Comment

The state is required to amend their regulations to provide the authority to inspect licensees for packaging and transportation activities relative to the Department of Transporation requirements as described in our letters to all Agreement States dated October 31, 1979, and on January 18, 1980. This subject was discussed at length during the meeting.

Recommendation

We recommend that the State adopt amended regulations to provide the authority to inspect licensees for packaging and transportation activities relative to the Department of Transportation requirements for radioactive materials and to plan for staff resources needed for these inspection activities.

State Response

Regulations are in the process of being drafted to provide the necessary authority for the Division of Radiological Health to inspect licensees for packaging and transportation relative to the U. S. Department of Transportation requirements. However, these inspections, when authorized, can only be made during routine visits at licensee facilities. The possibility of additional resources for this purpose is negligible at this time.

Present Status

Packaging and transportation requirements relative to the U.S. Department of Transportation regulations have been incorporated into the licenses as a licence condition.

B. Comments Letter To Mr. Graham, November 7, 1980

1. Recommendation

We recommend the written escalated enforcement procedures be developed and that all technical staff be indoctrinated in their use.

State Response

Work is progressing on written escalated enforcement procedures. When these are finished a copy will be forwarded to NRC.

Present Status

Written escalated enforcement procedures have been developed; however, they have not been officially adopted at the Bureau level.

2. Comment and Recommendation

We again recommend that, when licenses are renewed in their entirety, the licensee submit a new application with updated material that refers to his current program for radioactive materials. We recognize your objections concerning this subject, but we believe that regulatory efficiency could be improved by this practice.

State Response

In the future, when licenses are renewed in their entirety, our licensing staff has been directed to request from the licensee an entirely new application with updated materials supportative of that application. Previously referenced materials will be accepted to the extent that the licensee specifically refers to these and certifies that they are current.

Present Status

The practice of requesting updated materials supportable of that application has been implemented.

3. Comment and Recommendation

We recommend that scheduled staff meetings and field office visits be conducted which include instructions in compliance procedures and policies to assure uniformity among the staff's activities. Examples would be the enforcement of the State's regulations equivalent to 10 CFR Part 19 and inspection reporting.

State Response

Uniformity in compliance activities and in Division policy will continue to be stressed at Division staff meetings and during supervisory oversight.

Present Status

Field office visits have been conducted at Knoxville and Chattanooga and the physicists from these offices come to Nashville for quarterly meetings.

4. Comment and Recommendation

We recommend that an effort be made to reduce the number of overdue inspections, particularly those for Priority I licenses. We note that of the 58 licenses listed as overdue for inspection, 25 are in the Priority I category. During the meeting, you recall, we had agreed that one of our representatives would accompany a State inspector on the next inspection of the TNS, Inc., facility.

State Response

We expect that the number of overdue inspections will shortly be reduced. This will be accomplished in part by two changes which are being made.

(a) The assignment of a staff member to fill the vacancy that exists in the Knoxville area office. This staff member is currently working in the X-ray program.

(b) By readjusting our inspection frequency schedules to more conform with NRC's schedule. This should reduce the number of required inspections per year by approximately 26.

Present Status

The overdue inspections have been reduced to 22, of which only one is a Priority I license and the majority of overdues are Priority IV licenses.

LEGISLATION AND REGULATIONS

Legal Authority (I)

The State statutes that provide legal authority for the radiation control program is known as the Radiological Health Service Act dated 1959, Chapter 66 Article 1, Sections 53-3301 to 53-3313. These statutes provide for federal state agreements concerning the reponsibility for control of sources by ionizing radiation and they designate the State Department of Public Health as the State's radiation control agency. The State Department of Public Health has the power to adopt, promulgate, amend, and enforce reasonable rules and regulations consistent with law and that such rules and regulations shall have the force in effective law and shall supercede all local ordinances and regulations. Regulatory responsibility is located in the Division of Radiological Health under the Environmental Health Administration.

It should be noted that the Act was amended in July 1980. The amendment involved Section 53-3315 and Section 53-3321 as follows:

> Section 53-3315, Inspection for Dangerous Radiation Sources. The Commissioner or his duly authorized representative may, upon their own initiative, or upon the complaint in writing of any citizen, inspect any property within their jurisdiction for the presence of dangerous or improperly safeguarded radiation sources.
>
> Section 53-3321, Penalties for Noncompliance with Emergency Order. Any party failing, neglecting, or refusing to comply with an Emergency Order issued by the Commissioner under Article 53-3316, within the time set by the Order or any subsequent modified Order, shall be be guilty of a misdemeanor, and upon conviction shall be fined not less than $500 nor more than $25,000 and/or imprisonment in the county jail or workhouse for a period not to exceed 11 months and 29 days for each violation, within the discretion of the court each day of continued violation shall constitute a separate punishable offense.

Status of Regulations (I)

The Tennessee regulations for protection against radiation were last revised in 1978; however, provisions to maintain their program compatible with NRC's 10 CFR Part 19 and Part 20 have been accomplished by issuing Orders or license amendments and incorporating regulations as a license condition for the respective licensees.

Updating of Regulations (II)

The State regulations have not been updated since November 18, 1978. At the time of this review, program staff commented that the regulations were in the process of being updated. The reviewer commented to the program staff that the State regulations should be amended as soon as practical, but not longer than a three-year interval for the State RCP to remain compatible.

It was noted that the State cannot amend its regulations administratively. The State has procedures for amending their rules and regulations and this policy was dated July 15, 1981. The procedures provide for comment by the NRC, the holding of public hearings, and public comments are invited. The regulations are sent to the Public Health Council for approval, signed and adopted by the Commissioner, then submitted to the Attorney General's office. The final rule is sent to the Governor's Office for approval and filed with the Secretary of State's office.

On September 8, 1981, a memorandum regarding changes in rule making procedures was issued to all Bureau Directors. This memorandum and the policy and procedures for issuance of rules and regulations have been included as Appendix A.

ORGANIZATION

Location of Radiation Control Program Within the State Organization (II)

The Tennessee Radiation Control Program (RCP) is located in the Department of Health. In September 1981 the Department of Health was reorganized and all of the environmental groups, including Radiological Health, was placed under the Environmental Management and Quality Assurance Administration. This Administration includes Air Pollution Control, Construction Grants, Emergency Medical Services, Health Related Boards, Laboratory Services, Solid Waste Management, Water Quality Control, and Radiological Health. There are two other administrations that are equivalent to the Environmental Administration. One is the Health Services Administration and the other is the Medicaid Administration. All three administrations report directly to the Deputy Commissioner and Commissioner. The RCP still enjoys the same comparable organizational status as they did during the previous review in the health department. An organizational chart has been included as Appendix B.

Internal Organization of Radiation Control Program (II)

An organizational chart for the internal organization of the RCP is also included in Appendix B. Bill Graham is still Director of the Radiological Health Division. Charles West is the Assistant Director, and there are three sections and three regional offices under the Asssitant Director. The sections are Environmental Monitoring and Surveillance, supervised by Eddie Nanney; Radiation Machines Ionizing and Nonionizing, supervised by Mike Mobley; and the Radioactive Materials Section, supervised by Johnny Graves. The three regional offices are still located in Memphis, Chattanooga, and Knoxville, Tennessee. The Memphis office is vacant and Barbara Allen is the Physicist in the Chattanooga office. Steve Brooks is the Physicist located in the Knoxville office. Charles Arnott is the Physicist located in the Materials Section in Nashville. In addition, the Division has an Administrative Services Section consisting of a Health Administrator, two secretaries, and a data control clerk.

Johnny Graves and Charles Arnott perform all inspections for the Nashville and Memphis area offices and review all licenses for the State. The Physicists located in the Chattanooga and Knoxville offices report directly to the Assistant Director and provide inspections of materials licenses, x-ray equipment, investigate incidents, and on occasion will provide environmental support to the Nashville office.

The absence of backup personnel in the regional offices was discussed with program staff and it was recommended to the State that the Memphis office be filled. There appears to be clear lines of communication and administrative control between the regions and the central office sufficient to provide uniform inspection policy procedures and supervision.

Legal Assistance (II)

There has been essentially no change in the legal assistance available to the program staff since the previous review. Legal staff is assigned directly to the Health Commissioner's office from the Office of General Counsel. This legal staff is available to the Division of Radiological Health and provides assistance as needed. The program director stated that the legal staff was knowledgeable regarding the RCP program statutes and regulations.

Technical Advisory Committees and Consultants (II)

The State does not have an established medical advisory committee and there has been essentially no changes since the previous review. The program director stated that other State government agencies were available upon request to the Division if needed and that the RCP would not hesitate to contact the NRC and the NRC consultants or the Oak Ridge facility if assistance was needed.

It should be noted that the Department of Public Health has a Liaison committee that was established by the Commissioner consisting of a Radiologist and a Physicist. The function of this committee is to review regulations and to take up other health matters as needed and as determined by the Health Commissioner. This committee is strictly of an advisory nature and does not have official authority over the Commissioner or Health Department agencies.

MANAGMENT AND ADMINISTRATION

Quality of Emergency Planning (I)

The essential elements of the State's Emergency Response Plan entitled "Emergency Response Procedure for Radiation Incident at a Fixed Nuclear Facility" has not changed since the previous review. The plan has been incorporated into the State's Standard Operating Procedures Manual and all staff members are required to be familiar with the contents. The purpose of the plan was to provide a mechanism for effective response to radiological emergencies in Tennessee including emergencies at nuclear power plants. The plan identifies responsibilities, agency, state and local authority, and telephone numbers for emergency

notification procedures. The plan provides for a staff member to always carry a pager which can be activated by the State's Civil Defense Duty Operator. The staff member also has an emergency equipped State car for use in responding to the incident during "on" or "off duty" hours. The Duty Officer can respond to the incident or notify other staff members as needed. Over the years, the State Civil Defense Department has been trained to notify the Division of Radiological Health whenever a radiological emergency occurs in a local government jurisdiction. The Assistant Director stated that the communication arrangement with the local Civil Defense and local governments appears to be workable and that the State program had not experienced any difficulties with this arrangement since the last review.

Budget (II)

The primary source of the State's funds for the radiation control program come mainly from general tax revenues and a contract with the NRC for environmental monitoring around fixed nuclear facilities. The State operates on a fiscal year running from July 1 through June 30. The source of funds for the current fiscal year are $448,000 from the State General Fund and $28,000 from the NRC contract, which makes a total of $476,000. The NRC contract value is an estimate because the funding for the calendar year 1982 has not been received to date. Of a total budget the agreement materials program is budgeted at approximately $140,800 dollars. This is an estimate; a breakdown of the various amounts for licensing inspection and administration is not maintained. An increase of about 5% was granted by the legislature for this fiscal year, primary for salaries and equipment. The $476,000 budget calculates to be a 6.5% increase over the total budget of the previous fiscal year.

The program director stated that he believed the program had sufficient operating funds to support program needs such as staff necessary travel, and money to conduct an effective compliance program. This would include routine inspections, followups, pre-licensing visits and responses to incidents and emergencies. Some equipment replacement costs have been built into the budget. The Director also stated that a legislative bill for the establishment of fees had been introduced to the legislature and if passed the monies derived from the fees from x-ray registrations would free monies now currently in the budget and could be expended on the agreement materials program and increases in personnel.

Laboratory Support (II)

The laboratory support services have not significantly changed since the previous review except that in September 1981 the laboratory services were moved from the Radiological Health Division into a separate division of laboratory services. This is a sister division within the Environmental Administration. The program staff stated that the new division provides services for all of the Health Department; however, the radiological services had not changed and analyses would continue to be provided for the radiation control program. The Environmental supervisor stated that the laboratory services were readily available and the laboratory still maintained the capability to analyze bioassay samples, environmental samples, and other samples collected by the inspectors during routine inspections or during investigations.

The following laboratory equipment is available to the Division:

(1) A pulse height analyzer ND4420 with Thalium activated sodium-iodide, GeLi, and surface barrier detectors. These provide quantitative and qualitative gamma and alpha spectroscopy.

(2) A Beckman Wide Beta II System for gross alpha and gross beta analysis

(3) A Nuclear Measurements Corporation internal proportional counter

(4) A Packard Liquid Scintillation Spectrometer For Tritium Determinations

(5) A Victoreen TLD Reader

(6) A Lucas Cell system for collecting RN-222

The above equipment and associated laboratory procedures were evaluated by the Independent Measurements Section from the Region II office in July 1981. This evaluation is done in compliance with the TLD contract on an annual basis.

Administrative Procedures (II)

The RCP has written procedures for the review of licenses and general administrative tasks of the program including inspection procedures. The inspection procedures were last revised effective April 13, 1981. In general, comments about the license reviews and inspections will be discussed in this report under the respective sections.

During the previous review, the reviewer made comments to the State RCP that written procedures for escalated enforcement procedures were needed. These procedures have been prepared; however, they have not received approval at the Bureau level. A copy of these tentative escalated enforcement procedures has been included as Appendix C.

The program director stated during the review that the State did have the authority to impound materials. This is covered under Section 53-3316 of the Radiation Control Act "Order for Removal or Remedy". If the inspection reveals the presence of such dangerous and improperly safeguarded radiation sources, the Commissioner shall issue an emergency order demanding the same be removed and properly disposed of or the situation otherwise remedied and such orders shall immediately be complied with. The program director further stated that the Governor's office submitted a bill to provide for the issuance of Civil Penalties during the current legislative session.

Management (II)

The licensing and compliance supervisor maintains records of licenses, renewal due dates, inspections and inspection due dates on a color coded card system and data is compiled from these cards for periodic reports to management and the NRC. The licensing supervisor stated that licensing data and also inspection data was

in the process of being computerized and that statistical information would be available in any form and at any time needed. He estimated the computerization project would be completed within two or three months.

It was noted that all license reviews and inspection reports were reviewed by the supervisor and the Assistant Director. This is accomplished by an initialing system on the file documents. The Assistant Director stated that this system was meant to tabulate who reviews the documents and was not necessarily a concurrence type procedure. All complex license reviews and inspection reports receive a second party review. Case in point would be the TNS facility.

Office Facilities, Equipment and Support Services (II)

The program apparently has adequate administrative support consisting of a health administrator, two secretaries, and one data control clerk. It was also noted that the program has access to automatic data processing equipment. Administrative services appeared to be adequate for this program.

Public Information (II)

The Assistant Director stated that all license and inspection files are available for inspection by the public; however, proprietary information can be withheld. It was also noted that the Health Department does have a formal public info ma-tion type position and that all press releases are approved by the Commissioner's office.

PERSONNEL

Qualifications of Technical Staff (II)

All of the technical personnel have a minimum of a Bachelor's Degree in the physical of biological sciences. As persons become more experienced they are allowed to advance to higher positions. The higher positions require experience and/or supervision type duties. Job descriptions have been included as Appendix D.

Number of Personnel Staffing Level (II)

The following table lists the individual, his title, estimated person-years devoted to the agreement materials program, and the area where the individual works, such as management, laboratory, supervision, or technical areas.

Individual	Title	Estimated Person-Years	Area
B. Graham	Director	0.33	Management
C. West	Assistant Director	0.33	Management
M. Short	Heath Administrator	0.40	Administration
J. Graves	Radioactive Materials Supervisor	1.00	Supervision - Licensing and Inspection
B. Allen	Radiological Physicist	0.33	Inspection
C. Weaver	Laboratory Supervisor	0.04	Laboratory
D. Condra	Radiological Health Chemist	0.25	Laboratory & Supervision
A. Bass	Chemist	0.15	Laboratory
E. Nanney	Environmental Monitoring Supervisor	0.33	Environmental Monitoring
C. Harris	Clerk II	0.40	Clerical
Typist	Secretary I	0.50	Clerical
S. Hock	Radiological Physicist	0.17	Inspections
C. Arnott	Radiological Physicist	1.00	Licensing and Inspections
S. Brooks	Radiological Physicist	0.66	Inspections
Total Estimated Person Years		5.89	
	Management Admininstration	1.06	
	Supervisory and Technical	3.93	
	Clerical	0.90	

Of the above persons, S. Hock has left the State and is working at TNS and S. Brooks is in full-time inspector in the Knoxville Regional office. The total number of person years expended during the review period was 5.89 for the Radioactive Materials Program. With 657 active licensees in the State this corresponds to about 0.90 person years for 100 licensees, which is slightly below the NRC guideline value of 1.0-1.5 person years per 100 licensees. It was recommended to the staff that the staffing level be increased. This is based upon the fact that the State is experiencing an increase in licensing activities

of about 10 percent per year and a number of licenses are due for renewal beginning in 1983. These licenses were originally established for a ten-year period. The staff stated that over 200 man days were utilized for onsite inspections at the TNS facility last year and that it takes about double that amount of time for the administrative work in the office, to write the report and review reports of the TNS facility. In addition, nine person months were expended last year in Emergency Planning. This does not include the time spent by other personnel during reactor emergency planning exercises.

Two replacement personnel were hired during the last year, D. Griva and B. Williams. Resumes for these individuals were reviewed.

Duties Staff Supervision (II)

At the present time Barbara Allen is only the physicist in the Chattanooga office and Steve Brooks is the only physicist in the Knoxville office. The Memphis area office is not staffed. The area offices do not have direct supervision. These individuals must perform work in x-ray and investigation of incidents in addition to the inspection activities of the materials program. The materials inspection report, along with letters of noncompliance are sent to the Nashville office for review. The materials inspector in the Nashville office has supervision from the materials licensing section chief. All work by inspectors and junior personnel is reviewed by supervisory personnel. Junior personnel begin initially by reviewing license applications and conducting inspections of small programs under close supervision. As they become trained and receive experience, they are allowed to progress to more complex licenses and inspection programs.

Training (II)

There have been no essential changes in the training program since the previous review. The program has an informal on-the-job training program for new personnel. New personnel are accompanied by senior staff members on inspections initially, and as experience is gained, a new employee may then be assigned to inspections of gauge licenses and other types of small licenses, and as experience and knowledge is gained the inspector is allowed to progress to more complicated licensing and inspection activities. The program supervisor determines when the new employee may start making independent inspections.

During the period of the review, State personnel have attended a number of NRC sponsored courses and other courses as shown below.

Name	Course	Dates
R. Halsey	Radiological Assessment, FEMA	2/8/82 - 2/12/82
C. Arnott	Radiological Assessment, FEMA	2/8/82 - 2/12/82
E. Gilley	10-Week Health Physics Course	1/25/82 - 4/2/82
M. Mobley	Health Physics Society Summer School	6/15/81 - 6/19/81

Name (Continued)	Course	Dates
M. Mobley	Radiological Assessment, FEMA	2/2/81 - 2/6/81
J. Graves	Radiological Assessment, FEMA	2/2/81 - 2/6/81
C. West	Radiological Assessment, FEMA	2/2/81 - 2/6/81
E. Nanney	Improving Government Productivity, State	11/12/81
J. Graves	Improving Government Productivity, State	11/12/81
J. Graves	Managing for Productivity, State	8/25/81 - 8/27/81
C. West	Managing for Productivity, State	8/25/81 - 8/27/81
B. Graham	Stress Management Conference, State	10/19/81 - 10/21/81
J. Graves	Stress Management Conference, State	10/19/81 - 10/21/81
C. Arnott	Radiation Emergency Response, FEMA	10/15/80 - 10/24/80
S. Brooks	Safety Aspects of Industrial Radiography	4/6/81 - 4/10/81
B. Graham	Radiological Assessment Course	5/17/81 - 5/22/81

In summary of the above training, approximately 113 person-days were utilized in training since the last review, which corresponds to less than 5% of the total staff time available. In reviewing the training received by all the staff over the years, it was determined that none of the current staff have ever participated in the teletherapy calibration course, the inspection procedures course, or the well logging course, and only two persons, M. Mobley and J. Graves have attended the Medical Uses Course. Of the current inspectors it is recommended that Charles Arnott receive the Teletherapy Course and the Inspection Procedures course. Steve Brooks and Barbara Allen both should receive the Teletherapy course, the Medical Uses course, and the Inspection Procedures course. Brooks and Allen have not received the orientation course in Licensing; however, they are not directly involved in the licensing review since they work out of the regional offices.

Staff Continuity (II)

Staff turnover has been a problem in previous reviews; however, the Agreement Materials program staffing has apparently stabilized since the last review. The staff stated that this was more by accident than by design. It is recognized that the State will continue to be a training ground for health physicists for private industry and other agencies. Junior staff members are allowed to come to

work for the Division of Radiological Health without experience, directly out of college, and they do have opportunities to progress under the State Merit System through a range of salary increases and promotions as experience and training is obtained. The salary ranges for the various positions have been included herein as Appendix E. In addition, junior and senior staff members can receive additional training at graduate school and short courses sponsored by the State while working full time. M. Mobley is currently working on a second masters degree while supervising the x-ray section full time.

LICENSING

Technical Quality of Licensing Action (I)

In general, the State should be commended on the technical quality of the licensing actions performed since the last review. 25 licenses were selected for review and a summary of these license reviews is included as Appendix F. The licenses were all technically well-drafted, included appropriate license conditions, and did not purport to regulate person portrayal in activities in areas reserved to the Commission. The licensing actions taken appeared to be adequately supported by information in the files received prior to the issuance of the license and because of the small staff the licensing actions were coordinated with the compliance actions.

The State was asked to provide a list of major licenses in the State that could have a potential for signficant environmental impact or major processors and distributors, broad licenses, and service and distribution licenses. The following list of licenses was provided to the reviewer.

Licensee	Type	License #
TNS Inc. Jonesboro, TN	Processing of Depleted Uranium	S-9009-F4
Nuclear Fuel Services, Inc. Erwin, TN	Uranium User	S-8601-B4
Davison Specialty Chemical Company (W. R. Grace Co.) Chattanooga, TN	Thorium & Uranium User	S-3306-L3
Vanderbilt University Nashville, TN	Broad	R-1921-L3
University of Tennessee Knoxville, TN	Broad	R-4705-L4

Licensee (Continued)	Type	License #
University of Tennessee Center for Health Sciences Memphis, TN	Broad	R-7919-L4
The Nucleus, Inc. Oak Ridge, TN	Distribution of Exempt Quantities	R-0112-L3
Industrial Services & Supply Company Memphis, TN	Distribution to GL Licensees	GL-9651-K5

Adequacy of Product Evaluation (I)

Staff members stated that the State had not performed an evaluation of manufacturers or distributors data on sealed sources and devices since the last review.

Licensing Procedures (II)

The State utilizes licensing forms similar to those used by the NRC and has compiled a master list of license conditions for use. These license conditions are in an automatic data processing system and can be brought up at any time. This type procedure allows for good quality control in their licensing process. The license conditions are also equivalent to those utilized by the NRC.

License applications for new applicants and renewals are not routinely furnished complete copies of licensing guides. The basic application is sent to the applicant and many times after telephone discussions, additional specific information is sent to the licensee at his request. The staff stated that formal guides were in preparation. The reviewer recommended that licensing guides equivalent to those used by the NRC, for example, 10.8, be completed and made available on a routine basis to the license applicants, especially for medical and industrial radiography applicants.

The reviewer was told that the normal time for processing a license application is three to four weeks. Licenses currently being issued are issued for a period of five years. All licenses are issued out of the Nashville office and copies furnished to other regions as they apply to that region. All licenses are reviewed by the Licensing and Inspection Supervisor and the Assistant Director. Whichever person performs the review, also signs the license. It was noted that on many occasions, the file copy of the license had not been signed. The Director stated that all official copies of licenses on file should be signed and that this had been done in the past.

There have been no changes in the filing system since the previous review. Licenses are still filed in alphabetical order according to region. It was noted during the review that most of the documents, the license application, backup materials, and the latest inspection report with enforcement correspondence are all filed on one side of the license folder. The opposite side is used for

superceded materials. This arrangement makes it extremely difficult for the inspector and the license reviewer to review all of the information and difficult to find information if needed in an hurry - such as during a telephone discussion with a licensee. It was suggested that the file folders be arranged to permit the separation of file materials and accurate retrieval of information. For example, the backup materials should be filed with the corresponding license or the corresponding license amendment, enforcement letters should be filed with the inspection reports, and the materials tabbed for readily accessible access in the file folders. It was also commented to the staff that some official file copies of licenses were unsigned and the concurrences were unclear as to the intent in that the concurrences appeared to be more of a review checkoff system, rather than actual concurrence. Some license applications for amendments were signed by consultants of the licensee or a technologist. In summary it appears that the licensing problems, are of an administrative nature rather than technical evaluation.

COMPLIANCE

Status of Inspection Program (I)

As in previous reviews, the status of the inspections in the Division of Radiological Health is controlled by quarterly reports routed through management. These reports are compiled by hand through the use of a card file system and backup notebook entries. However, the staff stated that within the next month or two, inspection data would be added onto a computer system and computer printouts could be obtained when needed and in accordance with the information needed. The number of inspections performed since October 1, 1980, is provided in the following table.

Category	Number of Inspections
I	15
II	49
III	8
IV	95
V	I5
Reciprocity	1

The above inspections listed above represent a significant increase over the previous review period. The number of overdue inspections as of February 19, 1982, lists only 16 licenses overdue for inspection in the Memphis region, three licenses overdue in the Nashville region, three licenses overdue to the Knoxville region, and no licenses overdue in the Chattanooga region.

Most of the licenses overdue are Priority IV licenses in the Memphis region. This is due, in part, to the travel time it takes to get to the Memphis region from the Nashville office. Most of the licenses were overdue by one to three months; and only four of the licenses were overdue by more than five months. The

three Category IV overdues in the Nashville area were all located at one hospital and were inspected during the accompaniment of a State inspector. The Knoxville region has one Priority I license overdue by two months, and one Category IV license overdue by 20 months. A third Category I license in the Knoxville area, is that of David Witherspoon, in which legal action is being contemplated.

Inspection Frequency (I)

The State has established an inspection priority system that is equivalent and/or provides for more frequent inspections in some cases than that system used by the NRC. The inspection priority system is as follows:

Priority No.	Inspection Priority
I	Every Six Months - This includes uranium and thorium processors, waste disposal, and other processors or handlers.
II	Inspected Every Year - Includes broad licenses, radiography, nuclear medicine vans, nuclear pharmacies, and well loggers.
III	Inspected Every Two Years - Includes manufacturing processes using radioactive materials, and industrial processes using uncontained materials.
IV	Inspected Every Three Years - Includes nuclear medicine, teletherapy, radium and cesium therapy, educational, group medical, and leak test licenses.
V	Inspect Five Percent Per Year - Includes gauges, and in vitro users.

Inspectors Performance and Capabilities (I)

The reviewer performed a field evaluation of one State inspector. Charles Arnott was accompanied during an inspection of Madison Hospital, Madison, TN, license number R-1923-L4. This facility consisted of a group institutional medical license, a teletherapy license, and a brachytherapy license. The inspector appeared to be competent to evaluate the health and safety problems and to determine compliance with State regulations. The inspector should be complimented for the conduct of the inspection and his professional manner. The State inspector demonstrated an understanding of the regulations, inspection procedures, guides, and policies.

Response to Actual Incidents and Alleged Incidents (I)

The State policy is to make inquiries promptly to evaluate and determine the need for onsite investigations and to respond promptly to all reports of radiation incidents. Only one investigation has been conducted since the submission of the last semi-annual data report. For the calendar year 1981 a total of 21 incidents were investigated. A summation of these incidents is included in Appendix G. All of the incidents have been closed out and none met the abnormal occurrence criteria.

Enforcement Procedures (I)

There have not been any major changes in the enforcement procedure policies since the previous review. Procedures call for the issuance of enforcement letters, if warranted, subsequent to agreement materials inspections. These letters are normally issued 15 to 20 days following the inspection and the licensees are required to respond within a period of 15 days. Both the inspector and his supervisor review the responses to enforcement letters. The State acknowledges all replies to their enforcement letters.

As previously noted, the State has developed written procedures for escalated enforcement action. However, these procedures are in the process of being approved at the Bureau level of management. A copy of the ecalated enforcement procedures has been included as Appendix C.

As noted in the previous report and in testimony provided by the program's Director, the State's radiation control regulations do not provide for impounding of radioactive material; however, this authority is effectively provided for in Sections 53-3316 of the Tennessee Radiological Health Service Act. The program Director stated that he felt this section of the Act was sufficient, based upon his conversations with the Attorney General's Office.

Inspection Procedures (II)

The State utilizes NRC inspection guides which have been modified for the Division's purposes to assure consistency and to provide technical guidance to its staff. The inspection guides have been supplemented by policy memoranda and agency directives and have been provided to the regional offices for their use. It is the State's policy to conduct all unannounced inspections. Entrance and exit interviews are conducted by the State inspectors and in the Nashville office the state inspector will debrief his supervisor upon return to the office. The regional office inspectors do not routinely debrief supervision in Nashville, except for a cause.

Inspection Procedures (II)

In general the staff should be commended for their inspection reports. Twenty-seven file reviews were conducted and the results documented in Appendix H. The inspection reports utilized by the State are of two kinds. One is a specific report for industrial radiographers and the other is a general type of report that the inspector modifies for the type of license which he is inspecting.

These reports are basically the type of reports furnished by NRC as an example in the early 1970s. It was commented to the staff that the report field notes and inspection guides could be combined into one form and that some example forms would be sent to them under separate cover. The inspection reports, notice to the licensee, and licensee reponses appeared to be orderly and timely with respect to required actions. Inspection reports in most cases were found to contain an indication of whether or not previous items of noncompliance had been corrected.

It was noted during the accompaniments, file reviews, and staff discussions that formal inspection guides are not provided to the inspectors; however, the inspector makes up his own inspection guide before the inspection. It was also noted that during exit interviews the inspector did not always notify the licensee of the precise rule or license condition that was violated. It was recommended that inspection guides be developed for each major category of license to provide guidance to the inspector both during the preparation for and during the inspection. The inspection guides or the field notes should identify the applicable code section or license condition that was in violation.

A review of the compliance files shows that in some cases additional information was needed to: a) document the scope of the licensee's program; b) document internal audits performed by the radiography licensees; c) document QA tests performed on dose calibrators; and d) document the use of protective equipment, such as syringe shields. It was recommended that the inspection reports provide sufficient details that document the scope of inspection, the scope of the licensee's programs, QA tests used, the protective equipment utilized by the licensee, and it was also commented that it may be helpful to the State to develop an inspection report specifically for medical programs.

Independent Measurements (II)

It is the State's policy to conduct independent measurements as a regular part of Materials inspections. This would include direct radiation readings and wipe test samples for contamination. In discussions with the State staff and during the accompaniment it was noted that appropriate instrumentation was utilized during inspections, smears were taken and radiation surveys performed. In general, it appears that the number and type of radiation surveys taken during the inspections are adequate; however, it was noted previously that teletherapy output measurements or spot check measurements are not performed. The staff stated that no one on the current staff had been to the NRC teletherapy calibration course. The reviewer recommended that the State develop the capability of conducting calibration spot check measurements during inspections and that NRC personnel could be made available on a case-by-case basis to assist the State during any teletherapy spot check type inspections. It was also suggested to the staff that the inspector utilize the independent measurements such as surveys, smear sampling, and other techniques as a mini-training course during the inspection. This will help train the licensee personnel in the correct procedures and techniques in performing his basic radiation surveys.

The staff stated that there had been no change in the laboratory and portable survey equipment since the previous review. The State appears to have a sufficient number of cutie-pies, GM counters, alpha probes, gamma probes, dosimeters, air samplers, and other survey equipment to perform the necessary routine surveys and investigations of incidents. A listing of this equipment is on file under the previous review.

GM, gamma scintillation, and ion chamber portable survey instruments are calibrated once per year using a Cobalt-60 and Cesium-137 sources. The State has two Cobalt-60 sources - having an output of 39 mRhm and 2.4 mRhm and have the use of a projector type calibration device containing a cesium-137 source with an output of approximately 18 rhm. The sources are calibrated by the manufacturer and cross checked by means of a Victoreen R chamber calibrated by Victoreen. The State is able to calibrate their instruments from a range of .05 mR per hour to 70 R per hour. Calibration graphs of the instrument responses are prepared and attached to each instrument. It was commented to the staff that the instruments used during routine surveys should not exceed the calibration limits imposed on the licensees; for instance, the quarterly calibration requirements for industrial radiographers. The staff responded that not all of the instruments used by the state were calibrated at the same time and that although the State instruments were not routinely calibrated on a six-month frequency, they would not use a meter to survey a radiographic device that had not been calibrated within the previous three months.

OTHER AREAS AFFECTING THE ADEQUACY OF THE STATE'S RADIATION CONTROL PROGRAM

Surveillance of X-Ray Machines and Accelerators

As of the date of this report, the State had approximately 8500 x-ray tubes and 30 accelerators registered. Of these, 1262 tubes had been inspected. This includes 705 dental tubes, 500 medical tubes, and 26 industrial x-ray machines. The accelerators included 8 industrial, 3 educational and 18 medical therapy type accelerators.

Environmental Surveillance

The environmental sampling program is primarily a program centered around taking samples at fixed nuclear facilities such as Oak Ridge, Erwin, Tennessee and reactor sites operated by TVA. The results for routine monitoring locations are published in an annual report. In addition, the State holds an NRC contract for monitoring at Sequoyah Nuclear Plant, Watts Bar Nuclear Plant, and Nuclear Fuel Services. A contract appraisal was performed by the Region II staff on August 12, 1981. This contract appraisal discussed organization, staff, management support, training, communications, facilities and equipment, quailty assurance program, performance, and a review of the environmental annual report.

In summary, the contract appraisal stated that the Tennessee Environmental Monitoring Program appeared adequate with the exception of the capability to perform uranium and thorium analyses. The need to update the quality assurance program was discussed and the contract officer agreed to address the concerns and work towards upgrading this area. It was recommended that the contract be continued.

The Environmental Monitoring Section of the Division, headed by E. Nanney, is still responsible for review of all monitoring data preparation and reports and the collection of contract type samples. The Environmental program has the capability of sampling and analyses of all types of media such as air, water, milk, soil, and vegetation. The State also participates in an EPA safe drinking water program.

Other Areas

At the request of the program director, an assist inspection was conducted with the State personnel at the TNS facility located in Jonesboro, TN on February 17-19, 1982. The reviewer was accompanied by John Kahle from the Region II staff and Jim Ashley from the Office of State Programs. A summary report of this assist inspection is provided as Appendix I.

List of Appendices

A. Policy and Procedures for Adoption of Rules and Regulations

B. Organization Charts

C. Escalated Enforcement Procedures

D. Job Descriptions

E. Salary Schedules

F. Selected License Review

G. Summary of Incidents

H. Review of Selected Compliance Files

I. Assist Inspection

APPENDIX A

POLICY AND PROCEDURES FOR ADOPTION OF RULES AND REGULATIONS

BUREAU OF ENVIRONMENTAL HEALTH ADMINISTRATION

POLICY AND PROCEDURES

I. TITLE: Policy and Procedures for Issuance of Rules and Regulations

II. PURPOSE: The purpose of this policy is to define the specific responsibilities of organizational elements and establish a uniform system for the issuance of rules and regulations in the Bureau of Environmental Health Administration.

III. APPLICABILITY AND RESPONSIBILITIES

This policy and its procedures are applicable to all Divisions and/or Programs in the Bureau of Environmental Health Administration. It is the responsibility of each Division/Program Director to implement these policies and procedures in all elements of the Division/Program.

IV. SPECIFIC PROCEDURES AND RESPONSIBILITIES

A. Division/Program Functions and Responsibilities

Each Division/Program will adhere to the following procedures in the issuance of all proposed rules and regulations:

1. The Division/Program Office will draft the proposed rule(s) and/or regulation(s) with informal consultation and advice from the Office of General Counsel (OGC) as necessary.

2. The Division/Program Office will then draft the notice for publication in the Tennessee Administrative Register (TAR) and file the notice with the Secretary of State's Office; an information copy of this notice will be provided to the OGC and the Bureau Office.

3. The Division/Program Office will then forward a copy of the proposed rule(s) and/or regulation(s) to the Bureau Office for review and comment.

4. If required by statute, requested by a sufficient number of people, or deemed desirable for policy reasons by the Division/Program and/or the Bureau Office, the Division/Program will schedule a public hearing on the proposed rule(s) and/or regulation(s).

   a. The Bureau Office will be advised of date/time/location of Public Hearing.

   b. If it is advisable or necessary to obtain check-off by a Federal Agency on the proposed rule(s) or regulation(s), the Division/Program will obtain this check-off during the thirty (30) day waiting period for the public hearing.

5. After the thirty (30) day waiting period, the Division/Program will hold the public hearing on the proposed rule(s) or regulation(s).

   a. Except when a statute requires otherwise or the Bureau Office and the Division/Program Office determine these proposed rule(s) or regulation(s) to be a unique situation, the Division/Program Office will

provide a presiding officer and record the proceedings at the public hearing.

b. If required by statute or a unique situation is determined to exist, the Bureau Office and/or the Division/Program Office will work with the OGC to obtain a presiding officer and make arrangements for recording the proceedings.

6. The Division/Program Office will review the comments resulting from the public hearing, if a hearing is held, and prepare a summary of the comments and the proposed responses to the comments for submittal to the appropriate Board, Public Health Council, or the Commissioner.

a. Based on comments received at the Public Hearing, and if necessary, the Division/Program Office will make any appropriate changes to the proposed rule(s) and/or regulation(s). These changes should be made using informal consultation and advice of the OGC.

7. After all changes are made and if Board or Public Health Council approval or promulgation is required, the Division/Program Office will submit the proposed rules(s) or regulation(s) to the Board or Council, as appropriate, for approval; an information copy, if any changes were required, will be provided the Bureau Office.

8. After Board or Public Health Council approval or promulgation, and when the rule(s) or regulation(s) are in final form, the Division/Program will forward them to the OGC for final review.

B. OFFICE OF GENERAL COUNSEL FUNCTIONS

The OGC in their policy memorandum on the issuance of proposed rule(s) and regulation(s) have indicated that the OGC will perform the following functions upon receipt of the rule(s) or regulation(s) in final proposed form:

1. Review the rule(s) or regulation(s), attach their comments and route the package for the following actions:

   a. Review by other Bureaus in the Department, as necessary.

   b. Preparation of a Fiscal Note.

   c. Signature of the Commissioner of Public Health.

2. Upon return and receipt of the above completed actions, the OGC will review and ensure that the complete package is in proper form and forward the completed package to the Attorney General (AG).

3. The OGC will work with the AG to facilitate review and coordinate any required revisions with the Division/Program Office.

4. When approved by the AG, the OGC will file with the Secretary of State and send a copy of the rule(s) or regulation(s) to the Governor, the Commissioner of Public Health, and the Division/Program Office.

5. The OGC will notify the Division/Program concerning any Government Operations Committee (GOC) requests for information. The OGC will serve as the single contact point for notification purposes when the GOC staff or the Secretary of State's Office has questions regarding the rule(s) or regulation(s).

   a. The Division/Program and/or the Bureau Office will work with the GOC and its staff; the OGC will not participate unless necessary and requested.

C. OTHER CONSIDERATIONS

1. The Division/Program will be responsible for scheduling and presenting all proposed rule(s) or regulation(s) to the appropriate Board and/or Public Health Council to obtain approval and/or promulgation.

2. The Division/Program will advise the Bureau Office of any Government Operations Committee requests for information or scheduled hearings by that Committee on proposed rule(s) or regulation(s). Upon notification, the Bureau Office will determine the necessity for Bureau Office involvement and advise the Division/Program.

D. EMERGENCY RULE(S) OR REGULATION(S)

1. The Division/Program will prepare the final proposed rule(s) or regulation(s) in consultation with the OGC.

2. After review by the Bureau Office and promulgation by the appropriate Board or Public Health Council, the Division/Program will prepare a statement of emergency requirements/justification.

3. The complete package, proposed rule(s) or regulation(s) plus the emergency statement, will then be forwarded to the OGC.

4. The OGC will then expedite the package through the remainder of the process.

V. EFFECTIVE DATE OF POLICY

This policy is effective immediately.

M T Bruner

Michael T. Bruner, Dr. P.H.
Assistant Commissioner for Environmental Health

Date: 7/15/1981

TENNESSEE DEPARTMENT OF PUBLIC HEALTH

OFFICE CORRESPONDENCE

DATE: September 8, 1981

TO: Bureau Directors

FROM: William M. Barrick WMB

SUBJECT: Changes in Rulemaking Procedures

Legislation was enacted this year effecting some changes in rulemaking procedures.

Public Chapter 42, effective March 20, 1981, repeals the Administrative Procedures Act provision on the joint Senate and House Government Operations Committees and provides that either the Senate or House Government Operations Committee may suspend or disapprove a rule. The Senate and House Government Operations Committees meet jointly.

Public Chapter 47, effective July 1, 1981, provides that an agency filing a rule or proposed rule must file a rule impact statement with the rule when it is filed in the Secretary of State's Office. A rule impact statement must be filed within ten days of filing an emergency rule. The information to be provided on this form is contained in Section 2.

A new form of rulemaking, Public Necessity Rules, is described in Section 3. These rules may be used in the following circumstances:

(1) To delay the effective date of another rule not yet effective; or

(2) If it is required by the Constitution or a court order; or

(3) If it is required by a federal agency and adoption of the rules through regular rulemaking procedures might jeopardize federal funds; or

(4) If there is a danger to the public health, safety, or welfare which requires adoption upon fewer days notice than regular rulemaking procedures.

Rules adopted in this fashion may be filed without prior notice and without rulemaking hearing upon approval by the Attorney General and will be effective for no longer than 120 days. A rule impact statement must be filed with these rules. Public Necessity Rules are not effective upon filing but are effective upon approval by the Senate and House Government Operations Committees.

Public Chapter 49, effective March 20, 1981, provides that an agency may, prior to the expiration of the 45 day period for rulemaking and prior to any action by the Government Operations Committee, stay the running of the 45 day period for a length of time not to exceed 60 days. The stay shall

become effective when the agency files written notice with the Secretary of State and shall specify the length of the effectiveness of the stay. The stay may be withdrawn by the agency prior to its expiration provided prior approval is obtained from the Government Operations Committees. Withdrawal or expiration of the stay shall re-activate the running of the balance of the 45 day period.

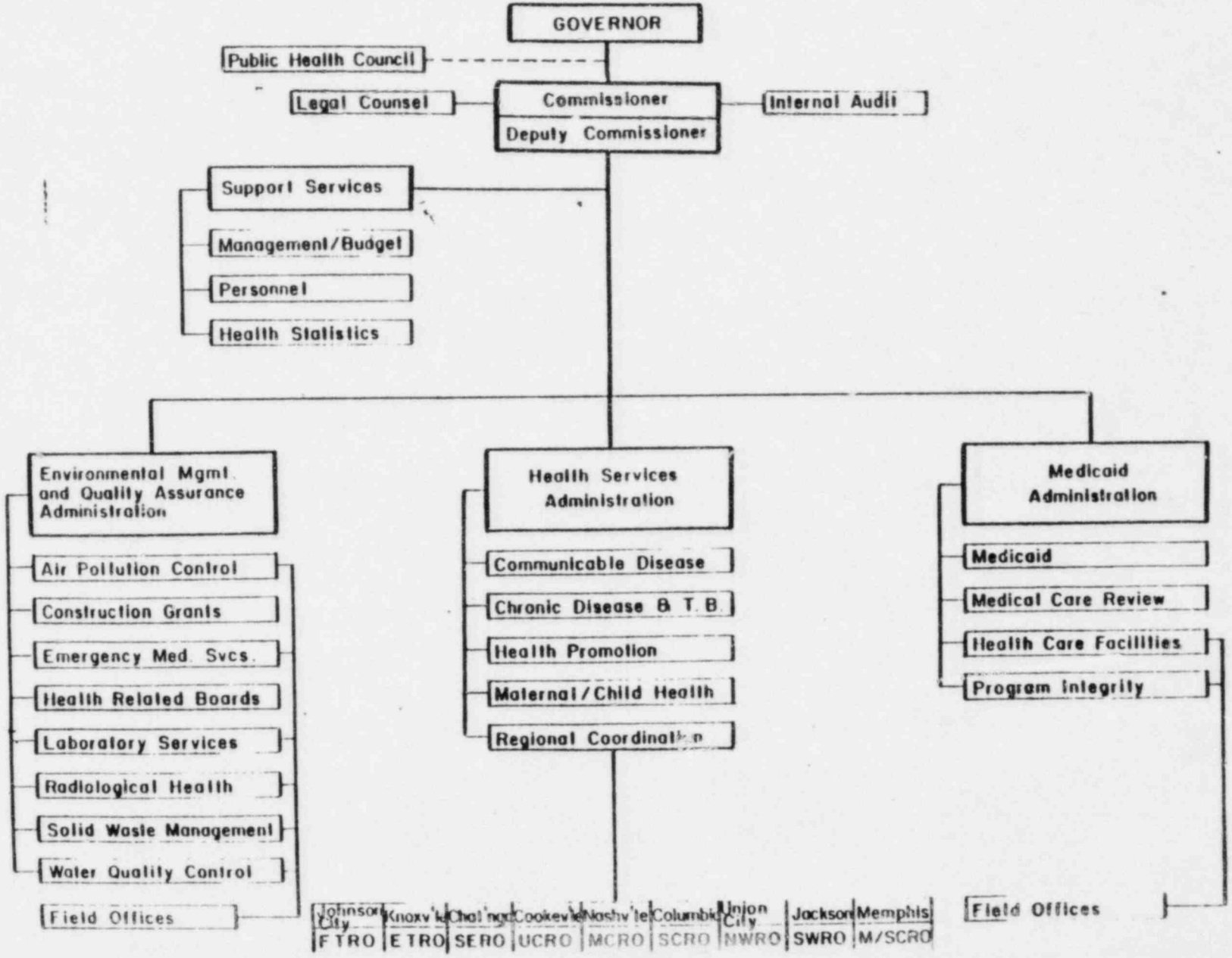
If you have any questions concerning these changes in rulemaking procedures, please give me a call.

WMB/MK/tdb

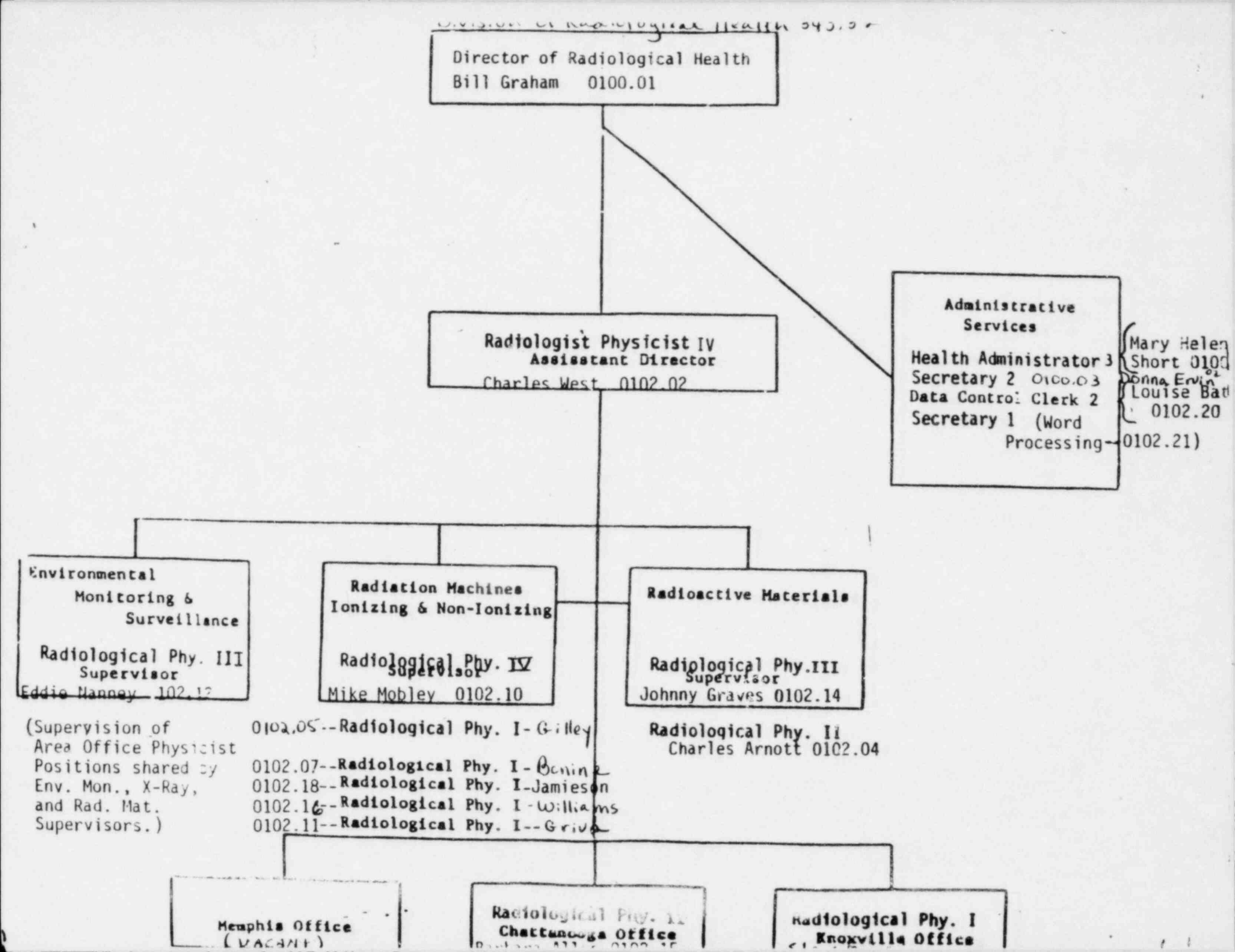
APPENDIX B

ORGANIZATION CHARTS

TENNESSEE DEPARTMENT OF PUBLIC HEALTH



SEPTEMBER, 1981


Director of Radiological Health
Bill Graham 0100.01
Radiologist Physicist IV
Assistant Director
Charles West 0102.02
Administrative Services
Health Administrator 3
Secretary 2 0100.03
Data Control Clerk 2
Secretary 1 (Word Processing-0102.21)
Mary Helen Short 0100
Donna Ervin
Louise Bat
0102.20
Environmental Monitoring & Surveillance
Radiological Phy. III
Supervisor
Eddie Nanney 102.12
Radiation Machines Ionizing & Non-Ionizing
Radiological Phy. IV
Supervisor
Mike Mobley 0102.10
Radioactive Materials
Radiological Phy. III
Supervisor
Johnny Graves 0102.14
(Supervision of Area Office Physicist Positions shared by Env. Mon., X-Ray, and Rad. Mat. Supervisors.)
0102.05--Radiological Phy. I-Gilley
0102.07--Radiological Phy. I-Bonine
0102.18--Radiological Phy. I-Jamieson
0102.16--Radiological Phy. I-Williams
0102.11--Radiological Phy. I--Grive
Radiological Phy. II
Charles Arnott 0102.04
Memphis Office
(VACANT)
Chattanooga Office
Knoxville Office

APPENDIX C

ESCALATED ENFORCEMENT PROCEDURES

(TENTATIVE)

BUREAU ENFORCEMENT REVIEW PROCEDURES, AUTHORITIES AND PRIORITIES

A. Bureau Focal Point for Enforcement: The Assistant Commissioner for Environmental Health shall designate by written memorandum one or more individuals to act as the focal point for enforcement activities in the Bureau Office.

B. Functions of Bureau Focal Point

1. Review and provide final approval for the following proposed and/or requested enforcement actions by Division/Program Offices and Directors:

   a. Administrative Hearings/Show Cause Meetings that could result in the issuance of an Administrative Order or Compliance Directive by a Division/Program Director and/or a Technical Secretary to an Environmental Board.

   b. All Administrative Orders/Compliance Directives proposed for issuance by a Division/Program Director and/or a Technical Secretary to an Environmental Board.

   c. All proposed and/or requested legal/mandated enforcement actions from Division/Program Directors to the OGC including the following:

      (1) Commissioner's Orders
      (2) Notices of Violation by the Division of Radiological Health
      (3) Civil Penalties and/or Fines
      (4) Damage Assessments
      (5) Any Court Action or Board Action for enforcement against a Violator.

   d. Any request by a Division/Program Director to deviate from the administrative enforcement steps outlined in this policy document. This would include requests to omit a Consent Negotiation/Compliance Review Meeting and/or Administrative Hearing/Show Cause Meeting and escalate to a higher step of enforcement or to postpone such steps in the enforcement actions against a Violator.

2. The review by the Bureau Focal Point will make the following determinations:

   a. Appropriateness of the enforcement action and/or deviation from normal enforcement steps and necessity for changes in the proposed actions.

   b. Ensure that all appropriate previous administrative enforcement actions have been completed.

   c. If the request is for OGC action, ensure that all documentation and formats as required by Appendix F are in appropriate order.

   d. If, after consultation with the Assistant Commissioner and/or the Bureau Director, it is determined that the proposed action is not appropriate, requires changes or should be postponed, the Bureau Focal Point will take the following actions:

(1) Within forty-eight (48) hours (except for weekends) notify the Division/Program Director by telephone call of the determination.

(2) Follow-up as soon as possible but within seventy-two (72) hours with a written memorandum re-verifying the determination and delineating the proposed actions or alternatives.

3. In the case of legal/mandated actions requested from the OGC, determine and indicate to the OGC the appropriate priority for handling the requested action based on inputs and recommendations of the Division/Program Director requesting such action.

4. Forward request for legal/mandated action plus supporting documentation to OGC with one of the following priority designations:

a. Rush - Drop all other environmental matters; handle in order received.

b. High - As soon as possible given other high priority cases; handle in order received.

c. Medium - Handle in order of receipt but without substantial delay after all "Rush" and "High" priority items have been completed.

d. Low - As time permits and in order of receipt after all higher priority items have been completed.

C. PROCEDURES FOR PRIORITY DETERMINATION

1. Each Division/Program Director, upon forwarding a case requesting legal/mandated enforcement action by the OGC, will include a recommendation of one of the priority categories outlined in paragraph B.4. above.

2. The Bureau Focal Point for Enforcement will consider this recommendation and based upon other cases in process, the circumstances of this case and its importance in relation to the other cases, designate the appropriate priority for OGC's handling of the request.

NORMAL ENFORCEMENT PROCEDURES
DIVISION OF RADIOLOGICAL HEALTH

This Appendix provides specific guidance and procedures to be followed for those violations categorized for handling under Normal Enforcement Procedures.

Section B1 provides specific guidelines for the pursuit of Administrative Enforcement steps.

Section B2 provides written instructions and time limits for each enforcement step as well as the entity in the Division of Radiological Health, Environmental Management and Quality Assurance Administration responsible for accomplishing each enforcement step.

Section B3 provides flow diagram of the enforcement steps to assist in understanding the process and for ease of reference.

Section B1:

1. Administrative enforcement steps are initiated with the issuance of a Notice of Non-Compliance against a Violator by Division staff including Field Office personnel. All administrative enforcement activities up to, but not including, an Administrative Hearing will be conducted by Division staff in accordance with approved Division criteria and procedures in this document. Further, these administrative enforcement activities up to an Administrative Hearing may be implemented without contact or involvement of the Administration Focal Point for Enforcement unless the Division Director determines the necessity for such involvement.

2. Informational copies of Notices of Non-Compliance and their associated follow-up activities will be interchanged between Central Office and Field Offices in accordance with Division Policy and Criteria documents.

3. Only the Division Director may request a deviation from the normal administrative steps outlined in this policy document. Deviations may be requested for the omission and/or postponement of a Compliance Review Meeting, Administrative Hearing or requests for legal/mandated actions against a Violator, if good, justifiable reasons exist. Such requests shall be submitted in writing to the Administration Focal Point for Enforcement sufficiently in advance of the scheduled enforcement step to enable a timely decision and minimize any possible delays in enforcement actions. The Administration Focal Point for Enforcement will provide a written approval and/or disapproval on the request to the Division Central Office.

4. The Assistant Director will review all proposed Compliance Review Meetings prior to the delivery or mailing of a notice of these meetings. This review will determine the appropriateness of the enforcement

action and any other pertinent facts of the situation. If a Section Supervisor is proposing the meeting, the Assistant Director, within seventy-two (72) working hours will notify his decision whether to proceed, postpone or cancel the meeting. If the direction is to postpone or cancel the meeting, the Assistant Director will follow-up this notification with a written memorandum re-verifying the determination and delineating the proposed actions or alternatives to be pursued by the Section.

5. In the time goal column days are working days and are counted as follows: Day 1 is the Friday of the week the initiating event occurred, e.g., on Tuesday, April 8 inspector inspects John Doe's facility, his first working day of 15 day period would be April 11, by May 2 he should have the inspection letter out. This method of counting is chosen to allow for easier administration of the Inspection Tracking System.

6. All violations of "State Regulations for Protection Against Radiation" are to be cited under this procedure. For those inspections which concern only violations of administrative standards, e.g., posting of Notice to Employees, having copy of license, registration, or "State Regulations for Protection Against Radiation", etc., the Division Director will in consultation with the Administration Focal Point for Enforcement make a determination as to pursuit of legal action.

MHM/vsp/dgw-3

NORMAL ENFORCEMENT PROCEDURE

DIVISION OF RADIOLOGICAL HEALTH

SECTION B2

Involved Persons		Action/Activity	TIME LIMIT GOALS
Inspector/ Investigator/etc.	1.	Violation discovered or validated through license or registrant reporting, inspection, or investigation.	
Inspector, ITA	2.	Notify Inspection Tracking Administrator (ITA) of inspection. ITA logs inspection.	Within [illegible] of inspection
Inspector	3.	Evaluate necessary data and send Violator a Notice of Non-Compliance* by certifed mail or if necessary hand deliver. If no violations found send no violation letter (RHX-12). Letters routed thru (Supervisor and) ITA. Letter requests response within 15 days.	Within 15 days of inspection
Inspector	4.	If no response go to #5. If response is adequate send thank you letter (RHX-4). If inadequate send letter (RHX-5 or equivalent) requesting clarification or more information. If necessary perform on-site follow-up.	Within 15 days of Notice of Non-Compliance Letter
ITA, Inspector	5.	If no response is received after any of the above steps the ITA will notify the inspector that phone follow-up is due. The inspector will telephone the Violator and request a written response within 5 days.	20 days after mailout of inspection letter or request for more info.
	6.	If response received at this point Inspector will perform action as outlined in Step 4 above.	
ITA, Inspector, Section Supervisor, Asst. Dir.	7.	If no response received after Step 5, the ITA will notify the inspector that the letter from the Assistant Director (RHS-1) is due to be sent. This letter will be sent certified mail and will contain a reference to the original letter, a copy of which is to be enclosed, and will request a proposal from the violator for the corrective action to be taken and a time frame for its implementation. A response is requested within 15 working days.	25 days after mailout of inspection letter or request for more info.

*Notice of Non-Compliance being our standard non-compliance letter with Notice of Non-Compliance in all caps across top of 1st page.

Inspector	8.	If a response to the Assistant Director's letter is received the inspector will evaluate it and if acceptable a Letter of Agreement (RHX-6), signed by the Director or his designee is prepared and forwarded by Certified mail to the Violator. If it is unacceptable or other circumstances indicate a necessity for a Compliance Review Meeting, the inspector will prepare a letter (RHX-32) to the Violator to be signed by the Division Director. This letter will request the Violator and/or his representative(s) to appear at a Compliance Review Meeting, establish date/time/location of meeting, specific area(s) for discussion, and designate the individual (Director, Asst. Director Section Supervisor or other Designee) to preside at the meeting.	Within 15 days of receipt of Violator's response letter.
Section Supervisor, Asst. Director, Director	9.	Holds Compliance Review Meeting, negotiate with Violator and issues Letter of Agreement (RHX/6) signed by the Violator and the designated presiding individual. A copy forwarded thru ITA to inspector.	Within 30 days of date letter in #8 sent out.
ITA, Inspector	10.	Inspector will schedule follow-up upon notice from ITA. Written report to be sent to program supervisor.	Within 20 days of Compliance date.
ITA, Inspector, Section Supervisor, Administration Focal Point for Enforcement Director of Environment Asst. Commissioner	11.	If no response is received to Step 7 upon notification from the ITA or if Letter of Agreement not signed, the inspector will forward copies of inspection data to the Section Supervisor who will prepare a Notice of Administrative Hearing (RHX-17). The Notice will indicate history of violation and efforts to seek compliance. establish date/time/location of the meeting, and request the presence of the Violator and/or his representative at the meeting to be presided over by the Director.	45 days after mailout of inspection letter or request for more info.
		a. Prior to forwarding the Notice, the Director or his Designee will schedule a meeting with the Administration Focal Point for Enforcement to explain circumstances of the violation and reasons for proposed hearing/meeting.	Within 15 days of initiation of step.
		b. Administration Focal Point for Enforcement will review the case and its circumstances, determine appropriateness of Hearing, and determine necessity to advise Director of Environment and/or Assistant Commissioner for the Environment on the case.	Within 48 hours of briefing by Division Office.

	c.	Administration Focal Point for Enforcement will advise the Division Director to proceed with or postpone the Hearing/Meeting by telephone	Within same 48 hours above.
	d.	If Hearing is to be postponed, the Administration Focal Point for Enforcement will within seventy-two (72) hours follow-up his telephone call with a written memorandum verifying the reasons for postponement and future actions to be pursued by the Division Director to enable the Hearing to be held.	Within 72 hours of telephone call above.
Central Office	12.	Mails Notice of Administrative Hearing (after completion of actions requested by Administration Focal Point for Enforcement, if necessary) to Violator by certified mail. Advises that Hearing will be held twenty one (21) days after date of this Notice; info copy to inspector.	Within 15 days of failure to respond or to correct violation.
Central Office	13.	Hold Administrative Hearing.	Within 21 days of date of letter to Violator.
	a.	Allows Violator to plead case and show cause why he should or could not correct violation within previously stated time periods or as a result of previous actions in the enforcement steps.	
	b.	Evaluates violator proposal for corrective action and established date for correction of violation, or no mutual agreement reached.	
	c.	Issues Compliance Directive (RHX-10), signed by the Division Director, and containing the directed steps and time periods for correction of the violation; mails to violator by certified mail with info copy to inspector.	Within 15 days of Administrative Hearing.
ITA, Inspector	14.	Performs follow-up on-site inspection when notified by ITA within seven (7) days of date(s) for increments of progress and/or correction established in Compliance Directive.	Within 7 days of increments of progress and/or correction in order or directive.
	a.	Written report on result and/or findings of inspection for Field Office files; info copy to Central Office.	Within 7 days of Follow-up Activity.

		b. If violation corrected, no further action required.	
ITA, Section Supervisor	15.	If no agreement on correction through Administrative Hearing and the issuance of a Compliance Directive is not complied with by the Violator as shown by the follow-up inspection in step 14, Central Office prepares and mails certified letter to Violator signed by Director. (RHX-18) a. Letter will include following: (1) History of violation and enforcement activities. (2) Results of Administrative Hearing or Follow-up Inspection. (3) Intent to investigate appropriateness of legal/mandated actions against the Violator such as Notice of Violation. b. Info copy of letter to be sent to inspector. c. Info copy of letter to be sent to Administration Office, Attention: Administration Focal Point for Enforcement.	Within [illegible] days of receipt of written report from Field office.
Central Office	16.	Division Director or his designee prepares request for legal action by OGC with supporting documentation as outlined in Appendix F: a. Recommends priority for handling of case if to go to OGC. b. Forwards to Administration Focal Point for Enforcement. c. Info copy of cover memorandum to inspector.	Within 15 days of mailing of certified letter (RHX-18) of Step 15.
Bureau Focal Point	17.	Reviews case for completeness and accuracy of documentation, advises Director of Environment and/or Assistant Commissioner for the Environmental of appropriateness of requested action, any changes or additions necessary to complete request, assigns final priority for handling and forwards to OGC.	Within 7 days of receipt from Division/Program Office.

APPENDIX D

JOB DESCRIPTIONS

RADIOLOGICAL PHYSICIST I

General Character of Duties

DEFINITION: Under immediate supervision of a Radiological Physicist of higher classification, to perform routine technical tasks in the laboratory and field activities of the radiological health program; to perform related work as assigned.

EXAMPLE OF DUTIES: To assist in carrying out field investigations and studies necessary to the radiological health program; to perform routine radiation measurements; to participate in education programs; in some instances, to supervise personnel of lower classification engaged in the program; to keep records and make reports.

Minimum Qualifications

EDUCATION AND EXPERIENCE: Graduation from an accredited 4-year college or university including or supplemented by courses (a minimum of 65 quarter hours) in biological science (Anatomy, Physiology, Zoology, Botany, and Genetics), physical science (Physics, Chemistry, Astronomy, Meterology, Mineralogy, Geology, and Mathematics), or Engineer

The above qualifications express the minimum standards of education and experience of applicant for this class. Other combinations of education and experience, if evaluated as equivalent, may qualify an applicant for consideration.

KNOWLEDGE AND ABILITIES: Knowledge of radiation physics and radiation protection as related to its biological effects of the use, construction and calibration of laborat and field radiation measuring equipment; some knowledge of radiation producing equipm and materials and their uses; and of the aims and services of a health department at State and local levels, as evidenced by a passing grade in a practical written test.

Ability to deal tactfully with the public and co-workers, to exercise good judgment in evaluating situations and making decisions, to express ideas clearly, concisely, convincingly, to address an audience effectively, and to plan and direct the work of others, as evidenced by an interview with the appointing authority.

RELATIVE WEIGHTS OF EXAMINATION PARTS:
Written Test, 10.

Revised for: State of Tennessee, July 30, 1974.

State Of Tennessee
DEPARTMENT OF PERSONNEL
CLASS SPECIFICATION

CLASS TITLE AND ABBREVIATION			CLASS TITLE NUMBER
RADIOLOGICAL PHYSICIST 2 (PHCST RADG 2)			0603 060 0005
EFFECTIVE DATE	JOB CATEGORY	ANALYST	CIVIL SERVICE (MORE THAN ONE BLOCK MAY BE CHECKED)
December 16, 1980	07	343/LDL	COMPETITIVE X NONCOMPETITIVE ____ NON CIVIL SERVICE ____

NOTE: Class Specifications are descriptive only and not restrictive; they shall not be construed as declaring the extent or what the duties and responsibilities of any position shall be, or as limiting or in any way modifying the power of the appointing authority to assign duties or to direct or control all employees under his supervision; the typical tasks shall not be used to evaluate which duties and responsibilities that are of similar kind or quality.

General Character of Duties

DEFINITION: Under general direction of a Radiological Physicist 3, performs difficult technical tasks in the laboratory, and field activities of a radiological health program.

EXAMPLES OF DUTIES: Aids in planning and carrying out a radiological health program; conducts field investigations and studies regarding radiation health hazards; performs and regulates radiation measurements; assists in planning and carrying out educational and training programs; assists in developing and revising regulations pertaining to radiation protection; serves as consultant on matters of radiological health; works with lay and official groups and agencies in promoting an effective program of radiation protection; supervises personnel of lower classification engaged in this program; maintains records and prepares reports.

Minimum Qualifications

EDUCATION AND EXPERIENCE: Graduation from an accredited four-year college or university including or supplemented by courses (a minimum of 65 quarter hours) in biological science (anatomy, phsyiology, zoology, botany, and genetics), physical science (physics, chemistry, astronomy, meteorology, mineralogy, geology, mathematics), or engineering, and experience equivalent to two years of full-time paid employment in radiological health.

RELATIVE WEIGHTS OF EXAMINATION PARTS:
Education and Experience, 100%

Revised for: State of Tennessee

State Of Tennessee
DEPARTMENT OF PERSONNEL
CLASS SPECIFICATION

CLASS TITLE AND ABBREVIATION			CLASS TITLE NUMBER
RADIOLOGICAL PHYSICIST 3 (PHCST RADG 3)			0603 060 0004
EFFECTIVE DATE	JOB CATEGORY	ANALYST	CIVIL SERVICE (MORE THAN ONE BLOCK MAY BE CHECKED)
December 16, 1980	07	343/LDL	COMPETITIVE X NONCOMPETITIVE ____ NON CIVIL SERVICE ____

NOTE: Class Specifications are descriptive only and not restrictive; they shall not be construed as defining the extent or what the duties and responsibilities of any position shall be, or as limiting or in any way modifying the power of the appointing authority to assign duties or to direct or control all employees under his supervision; the typical tasks shall not be held to exclude others not mentioned that are of similar kind or nature.

General Character of Duties

DEFINITION: Under general supervision of a Radiological Physicist 4, assists in planning and directing the activities of a radiological health program.

EXAMPLES OF DUTIES: Assists in planning and directing a radiological health program; executes special field investigations and studies regarding radiation hazards; performs and evaluates radiation measurements; assists in planning and carrying out educational and training programs; assists in developing and revising regulations pertaining to radiation protection; serves as consultant on matters of radiological health; works with lay and official groups and agencies in promoting an effective program of radiation protection; supervises personnel of lower classification engaged in this program; maintains records and prepares reports.

Minimum Qualifications

EDUCATION AND EXPERIENCE: Graduation from an accredited four-year college or university including or supplemented by courses (a minimum of 65 quarter hours) in biological science (anatomy, physiology, zoology, botany, and genetics), physical science (physics, chemistry, astronomy, meterology, mineralogy, geology, mathematics) or engineering, and experience equivalent to four years of full-time paid employment in radiological health, of which two years must have been in a responsible supervisory, consultative or administrative capacity.

RELATIVE WEIGHTS OF EXAMINATION PARTS:
Education and Experience, 100%

Revised for: State of Tennessee

State Of Tennessee
DEPARTMENT OF PERSONNEL
CLASS SPECIFICATION

CLASS TITLE AND ABBREVIATION		CLASS TITLE NUMBER
RADIOLOGICAL PHYSICIST 4	(PHCST RADG 4)	0603 060 0002

EFFECTIVE DATE	JOB CATEGORY	ANALYST	CIVIL SERVICE (MORE THAN ONE BLOCK MAY BE CHECKED)
December 16, 1980	08	343/LDL	COMPETITIVE XX NONCOMPETITIVE ____ NON CIVIL SERVICE ____

NOTE: Class Specifications are descriptive only and not restrictive: they shall not be construed as declaring the extent or what the duties and responsibilities of any position shall be, or as limiting or in any way modifying the power of the appointing authority to assign duties or to direct or control all employees under his supervision; the typical tasks shall not be held to exclude others not mentioned that are of similar kind or quality.

General Character of Duties

DEFINITION: Under general direction of an employee of higher classification, plans and directs the activities of a statewide radiological health program.

EXAMPLES OF DUTIES: Plans the activities of the radiological health program, and supervises the work of personnel assigned to this program; plans and conducts field investigations and studies regarding radiation hazards; performs and evaluates radiation measurements; plans and directs educational programs; directs the development of radiological health research; acts as a consultant on public health matters involving radiological health; works with local, state, and federal groups and agencies in promoting an effective program of radiation protection; assists in coordinating the activities of the radiological health service with those of other services or divisions; maintains records and prepares reports.

Minimum Qualifications

EDUCATION AND EXPERIENCE: Graduation from an accredited four-year college or university including or supplemented by courses (minimum of 65 quarter hours) in biological science (anatomy, physiology, zoology, botany, and genetics), physical science (physics, chemistry, astronomy, meteorology, mineralogy, geology, mathmatics), or engineering, and experience equivalent to six years of full-time paid employment in radiological health, of which two years must have been in a responsible supervisory, consultative or administrative capacity.

RELATIVE WEIGHTS OF EXAMINATION PARTS:
Education and Experience, 100%.

Revised for: State of Tennessee

State Of Tennessee
DEPARTMENT OF PERSONNEL
CLASS SPECIFICATION

CLASS TITLE AND ABBREVIATION			CLASS TITLE NUMBER
DIRECTOR OF RADIOLOGICAL HEALTH (DIR RAD HLTH)			0603 060 0001
EFFECTIVE DATE	JOB CATEGORY	ANALYST	CIVIL SERVICE (MORE THAN ONE BLOCK MAY BE CHECKED)
July 1, 1978	08	343/RR	COMPETITIVE X NONCOMPETITIVE ____ NON CIVIL SERVICE ____

NOTE: Class Specifications are descriptive only and not restrictive; they shall not be construed as declaring the extent or what the duties and responsibilities of any position shall be, or as limiting or in any way modifying the power of the appointing authority to assign duties or to direct or control all employees under his supervision; the typical tasks shall not be held to exclude others not mentioned that are of similar kind or quality.

General Character of Duties

DEFINITION: Under the general direction of the Assistant Director of Environmental Health Services and the Deputy Commissioner for Environmental Health, is responsible for the control of health hazards through inspection, evaluation of hazards and materials, and control of all ionizing radiation within the State through licensing, registration, inspection and monitoring.

EXAMPLES OF DUTIES: Directs radioactive research and monitoring programs, provides programs to inform local and state emergency groups concerning radiation hazards through educational seminars and/or workshops, serves on committees and task forces which studies problems of radiation protection and sets standards for public health and safety, attends meetings and counsels with various groups from Federal, State and local governments to discuss plans for nuclear emergencies, maintains records and prepares reports.

Minimum Qualifications

EDUCATION AND EXPERIENCE: Graduation from an accredited four-year college or university including or supplemented by courses (a minimum of 65 quarter hours) in natural science, physical science, mathematics, or engineering, a Master's Degree in public health, radiological health, or physics, and five years of full-time paid employment in radiological health, of which three years must have been in a responsible supervisory, consultative, or administrative capacity.

RELATIVE WEIGHTS OF EXAMINATION PARTS:
Education and Experience, 100%.

Approved for: State of Tennessee

APPENDIX E

SALARY SCHEDULES

Division of Radiological Health
Classification/Compensation Plan, July 1, 198|

Director of Radiological Health	1944	2037	2133	2132	2338	2448	2562	2685	2812	2945
Radiological Physicist IV	1796	1855	1916	1977	2038	2099	2160	2224	2287	
Radiological Physicist III	1524	1578	1632	1686	1740	1796	1855	1916	1977	
Radiological Physicist II	1278	1327	1375	1421	1470	1524	1578	1632	1686	
Radiological Physicist I	1056	1096	1139	1181	1230	1278	1327	1375	1421	
Health Administrator III	1278	1327	1375	1421	1470	1524	1578	1632	1686	1740
Secretary II	704	742	779	823	858	894	933	974		
Data Control Clerk II	742	779	823	858	894	933	974	1015	1056	1096

APPENDIX F

SELECTED LICENSE REVIEWS

APPENDIX F

REVIEW OF SELECTED LICENSE FILES

Summary and Conclusions

A review was conducted of 24 license files. The files were reviewed in general for significant errors, omissions, deficiencies in the licensing actions, properly completed applications, appropriate signatures, and to determine if the licenses were properly supported by information in the file.

Cover letters are utilized to transmit renewal notices and license documents. In general, the reviewer found that the licenses were properly supported by information in the files, contained appropriate licensing conditions for the type of license being issued, and the reviews covered pertinent points of acceptable radiation programs; however, in some cases, detailed information was lacking. Specifics are listed in the chart at the end of this Appendix. Licensing guides for the more frequently used applications should be developed and made available to applicants on a routine basis. Administrative procedures should be revised to require, (a) official copies of each license to be signed or stamped with a signature, and (b) applications be accepted only from individuals authorized to sign for the institutions. These topics were discussed in the report under licensing procedures. The license files should be arranged so that each license folder has a copy of the current license and amendments and the corresponding back-up materials filed together but separated from the general correspondence section and separated from the inspection reports/compliance section of the folder. Superceded license materials should be clearly identified and separated from current information in the license folder.

License Reviewed

The following licenses were reviewed and for the purposes of this report, a numerical code was assigned to each license as follows:

1. The Nucleus
   P. O. Box R
   Oak Ridge, TN 37830

License Number:	R-0112-L3, Amend. 13
Issued:	August 21, 1981
Expires:	
License Type:	Distribution of exempt quantities of NARM devices

2. W. R. Grace and Company
Davison Chemical Division
400 North Hawthorne Street
Chattanooga, Tennessee

License Number:	5-3306-L8, Amend. 4
Issued:	June 6, 1978
Expires:	December 31
License Type:	Processing Uranium and Thorium

3. Industrial Services and Supply Company
2908 Southway Drive
Memphis, Tennessee 38118

License Number:	GL 9651-K5
Issued:	April 8, 1981
Expires:	October 31, 1985
License Type:	Distribution to generally licensed persons

4. Nuclear Pharmacy Incorporated
2916 Tagewell Pike
Knoxville, Tennessee 37918

License Number:	R-4780-E6
Issued:	June 1, 1981
Expires:	May 31, 1986
License Type:	Nuclear Pharmacy

5. EG&G ORTEC
100 Midland Road
Oak Ridge, Tennessee 37830

License Number:	R-0134-H5
Issued:	August 19, 1980
Expires:	August 31, 1985
License Type:	Medical Scanning Device

6. Goodyear Tire and Rubber Company
Box 570
Union City, Tennessee 38261

License Number:	R-6603-L4
Issued:	December 11, 1980, Amend. #5
Expires:	-
License Type:	Industrial

7. Eastwood Hospital
2990 Getwell Road
Memphis, Tennessee 38118

License Number:	R-7999-L3, Amend. 22
Issue:	October 26, 1981
Expires:	-
License Type:	Medical, Institutional

8. Park View Hospital
230 25th Avenue North
Nashville, Tennessee 37211

License Number:	R-9732-H6
Issued:	August 21, 1981
Expires:	August 31, 1986
License Type:	Medical, Brachytherapy

9. Harriman City Hospital
412 Devonia Street
Harriman, Tennessee 37748

License Number:	I-7304
Issued:	April 21, 1981
Expires:	Valid until terminated
License type:	Invitro Testing

10. James Roy Pirkle, Sr.
2828 N. Colonial Drive
Montgomery, Alabama 36111

License Number:	R-A104-K5
Issued:	November 13, 1980
Expires:	November 30, 1985
License Type:	Medical equipment testing

11. Tipton County Memorial Hospital
Highway 51S, P. O. Box 737
Covington, Tennessee 38019

License Number:	R-8402-16
Issued:	September 25, 1981
Expires:	September 30, 1986
License Type:	Medical Group I, II, III

12. The Dow Company
Dowell Division
1150 North Utica
Tulsa, Oklahoma 74102

License Number:	R-0203-K5
Issued:	November 24, 1980
Expires:	November 30, 1985
License Type:	Industrial

13. LaFollette Community Hospital
P. O. Box 1301
East Central Avenue
LaFollette, Tennessee 37766

License Number:	R-0703-155
Issued:	November 28, 1980
Expires:	November 30, 1985
License Type:	Medical, Groups I, II, III

14. Test, Inc.
4161 Ridgemoor Avenue
Memphis, Tennessee 38118

License Number:	R-9656-H6
Issued:	September 1, 1981
Expires:	August 31, 1986
License Type:	Industrial

15. Robertshaw Controls Company
Lux Time Division
West Main Street
Lebanon, Tennessee 37087

License Number:	R-9502-L5, Amend. 4
Issued:	December 8, 1980
Expires:	December 31, 1985
Type License:	Industrial

16. South Pittsburg Municipal Hospital
210 West 12th Street
South Pittsburg, Tennessee 37380

License Number:	R-5802-I6
Issued:	September 2, 1981
Expires:	September 30, 1986
Type License:	Medical Groups I, II, III

17. X-Ray, Inc.
7500 Perimeter Road South
Seattle, Washington 98108

License Number:	R-W101-L6
Issued:	December 3, 1981
Expires:	December 31, 1986
Type License:	Radiography, Temporary Locations

18. Hardin County General Hospital and Nursing Home
2006 Wayne Road
Savannah, Tennessee 38372

License Number:	R-3603-I6
Issued:	September 9, 1981
Expires:	September 30, 1986
License Type:	Medical, Groups I, II, III

19. Pittsburgh-Des Moines Corporation
3400 Grand Avenue
Neville Island
Pittsburgh, Pennsylvania 15225

License Number:	R-P104-F6
Issued:	June 30, 1981
Expires:	June 30, 1986
License Type:	Radiography - temporary locations

20. Shared Medical Services, Inc.
Route 3, Box 225
Dayton, Tennessee 37321

License Number:	R-7202-H6
Issued:	August 25, 1981
Expires:	August 31, 1986
Type License:	Medical, Groups I, II, III

21. Methodist Hospital
1265 Union Avenue
Memphis, Tennessee 38104

License Number:	R-7909-J3, Amend. 30
Issued:	August 6, 1981
Expires:	October 31, 1983
Type License:	Medical, Groups I, II, III

22. Hubbard Hospital of Meharry Medical College
1005 18th Avenue North
Nashville, Tennessee 37208

License Number:	R-1931-G5, Amend. 14
Issued:	July 17, 1980
Expires:	July 31, 1985
Type License:	Medical, Groups I, II, III, IV, V

23. Jack T. Roberts, M.D., R.C.
1618 Walland Hwy., Suite 2
Maryville, Tennessee 37801

License Number:	I-0511
Issued:	August 30, 1981
Expires:	Valid Unit 1 terminated
Type License:	In Vitro Testing

24. Aware, Inc.
7106 Moores Lanes
Franklin, Tennessee 37064

License Number:	R-9410-F6
Issued:	June 19, 1981
Expires:	June 30, 1986
Type License:	Industrial

Summary Table

The following table lists the specific license review comments developed during the review for each of the above numerically coded license files:

	LICENSE REVIEW COMMENT	LICENSE CODE
a.	Official file copy of license or amendment was unsigned	1,3,4,5,8,9,13,15,24
b.	Application date was incorrectly referenced in the tie-down condition	3
c.	Amendment "in entirity" and backup materials should be separated from other amendments	3
d.	Request for amendment came from consultant with "letterhead" from another licensee	7
e.	License transmittal letter unsigned or predated	9,11
f.	Should update In Vitro standard license conditions 16 and 18	9,23
g.	Additional information needed on training program	14
h.	Additional information needed on calibration methods and QA test methods	16,18,22
i.	No comment on these licenses	2,6,10,12,17,19,20,21

APPENDIX G

SUMMARY OF INCIDENTS

PART F
INCIDENTS AND OVEREXPOSURES

1. The Division met with another State agency to inspect a "spent fuel" shipment. Readings taken with an end window GM probe at approximately 14" and 1 meter from the side of the cask were 14 mR/hr. and 10 mR/hr. respectively. No violations of transportation regulations pertaining to the radioactive nature of the shipment were noted.

2. The Division received a report concerning a shoe monitoring alarm having been activated by an employee at a nuclear power plant. Investigation determined that the contamination was depleted uranium, and that the shoes had been contaminated during the employee's previous employment at a facility which utilizes and machines uranium metal. The employee's home and automobile were surveyed by employees of the Division; small particles of contamination were detected and removed. Both the referenced facilities are federally controlled agencies; to the knowledge of the Division, no further monitoring was performed at the facility from which the contamination was obtained.

3. The Division received a report that a gauge, licensed for use in another state, was possibly in Tennessee. Subsequently, the gauge was located in the other state.

4. Reports were received concerning an automobile accident in which a licensed 2 mCi cobalt 60 source was involved. Surveys determined that the source was not damaged, and there was no leakage.

5. The Division received a report from a federally licensed facility concerning a fire in a ventilation duct in a high enriched uranium process area. No processing was occurring at the time of the fire, which was assumed to have been caused by sparks or smoldering debris following maintenance welding. Preliminary results obtained from area samplers showed no unusual release.

6. The Division investigated a report that containers marked radioactive had been found on the property of a scrap metal dealer. The containers had been purchased from, and subsequently, upon notification by the scrap metal dealer, removed by, a State licensed facility. The licensed facility was found to be in non-compliance with State Regulations for releasing the containers prior to a thorough cleaning and removal of radiation labeling.

7. A moisture density gauge was in a vehicle involved in an accident; investigation showed no damage to the device.

8. The possible over-exposure of an employee of a State licensed facility, by ingestion of uranium was reported. Investigation and review of the data collected did not conclusively rule out the possibility of the exposure; the licensee was advised of the violations of the State Regulations which created conditions conducive to the intake of the contaminant. The licensee has advised the Division of the actions taken to achieve compliance.

9. A call was received, advising the Division of an approximately 200 lb. container on a garbage truck, which was suspected of containing radioactive material. The object was determined to be an air compressor head; it had no markings or labels to indicate the presence of radioactive material.

10. & 11. Reports were received from two hospitals concerning the over-exposure, as shown on film badge reports, of one x-ray technician each. Thorough investigation of each situation (including a cytogenetic analysis of one technician whose film badge reading was approximately 500 R), showed that the reported exposures were probably due to error, or that the badges were damaged, or fogged from heat.

12. The Division was notified of an incident at a nuclear power plant which involved the loss of 0.96 Curie of Na-24 (used to test the water carry-over in the turbine system); the loss was caused by an incorrect valve setting. It was determined that eventually some of the radioactivity would reach the nearby river, but would be so dilute that it would be below detectable limits.

13. A report was received concerning the over exposure of an employee of a state licensed facility, during several consecutive two week (TLD monitoring) periods; the total skin dose for one quarter was 9421 mr. Investigation by the facility failed to show the cause of the exposure. The employee's work station was changed.

PART F

SUMMARIES OF REPORTS OF INCIDENTS AND OVEREXPOSURES

1. A truck, carrying LSA Material, stalled on an interstate within the boundaries of a metropolitan area. The local civil defense authorities contacted this Division to request information concerning whether special precautions were needed during the escorted towing of the truck to a storage area, for subsequent repairs, though apparently the cargo and its packaging were still intact.

2. A call was received, from a Federal Agency, concerning the finding of a block of depleted uranium, by trackworkers of a railway company, in a weeded area beside the tracks adjacent to their passenger terminal. The block weighed more than 100 lbs, and had the following information stamped on it: 3 W34138 -102 Caution Radioactive Depleted Uranium
High Salvage Value
Mfd. by _____ _____ _____
H F 4637
A representative of the manufacturer was contacted by the Federal Agency; from the description of the stamp and the block, the company representative estimated that the block was a counterweight for an airplane, and was at least 12 years old. He stated that the company would accept the block back, if the freight was prepaid by the shipper, or, that the Federal Agency could dispose of it; the latter possibility was chosen. No estimates of exposure to those who had touched the block were made, but they were advised to wash their hands very well.

3. During a routine inspection of the x-ray facility in a hospital licensed by this Division, items of non-compliance with the regulations by a licensed radiopharmaceutical company were noted, and subsequently cited.

4. An incident of film badge overexposure was reported by an orthopedic facility; the reading on the badge for one month was 1900 mrem. It was felt that the badge received a direct exposure during the period, however, the job functions of the employee whose badge was affected were changed to reduce occupational exposure, following the receipt of the report.

5. A consultant supplied a copy of a film badge report, showing overexposures to hospital personnel, and a copy of his response to the hospital, which incorporated his recommendations for reducing the chances of overexposure, direct badge exposure, and accidents to the badges.

6. A report was received, concerning a container of IR 192 which had been dropped from the loading dock of a shipping company. Investigation revealed a cone shaped (apparently lead) device within, and bolted to the bottom of, a wire cage. The top of the cage (which was bolted down) had what appeared to be a security seal on it. The shipping papers indicated the device contained 5,890 Ci of IR 192; the container had a yellow III label with T. I. listed as 3.2. Surveys were taken 1 ft. from all vertical surfaces of the cage, readings from which varied from 6 mr/hr. to 10 mr/hr. A reading taken at contact with the top of the cage was 80 mr/hr. Swipe tests were also made of each surface, which showed apparently no contamination. The shipping company was advised that the shipment could be completed, however, because

of the radiation level at the top of the cage, the device should be placed away from work areas.

7. A report was received, from a hospital, concerning a film badge overexposure of 3.02 rem during a specific quarter. The following actions were taken by the hospital: 1) the individual was provided with a pocket ionization chamber and personnel protection devices to be worn in addition to his lead apron; 2) problems found with the fluoro unit operated by this individual have been corrected; and 3) the survey schedule for this unit has been revised to a quarterly schedule.

8. A report was received, from a University, concerning the overexposure of a student by the primary beam of an analytical x-ray machine. Collar and ring TLD badges worn by the student received the following doses:

Body badge on left collar: 7.9 rem
Ring badge on left hand: 0.13 rem

The exposed individual was examined by several clinicians for manifestations of radiation exposure, however, no clinically detectable effects have been observed.

The analytical unit has had a warning device attached to it, which emits a continual "beep" when the unit is "on", however, the exposure of the individual in question was determined to be due to his failure to follow proper operating procedures.

APPENDIX H

REVIEWS OF SELECTED COMPLIANCE FILES

APPENDIX H

REVIEW OF SELECTED COMPLIANCE FILES

Summary and Conclusion

The state use two types of field inspection forms, one medical and one for radiographic inspections. These forms are more "narrative" types as compared with "check list" types. In general, the files were reviewed to determine if the inspections were complete and substantiated all items of noncompliance and recommendations. The files were reviewed to determine if appropriate enforcement actions were taken, written in appropriate regulatory language, timeliness of letters, if adequate responses were received from the licensee to close out the enforcement actions and if the reports were sufficiently detailed to document if the licensees program was sufficient to comply with the rules and regulations and to protect public health and safety.

In general, the quality of the inspection reports have improved over the years, however, in some cases, additional details and documentation is needed as outlined in the summary table that follows. The reviewer found it difficult to review the folders in some cases because the inspection reports and enforcement actions had not been kept separate from the license back-up materials and general correspondence. In some cases additional information was needed to (a) document the scope of the licensee's program, (b) document internal audits performed by radiography licensees, (c) document QA test performed on dose calibrators, (d) document the use of protective equipment such as syringe shields, and (e) document the various types of surveys required by the licensee.

Fourteen license compliance files were selected for review. For purposes of this report, a numerical code (1 through 14) was assigned to the compliance files in the following table.

Compliance Files Reviewed

1. Company: The Nucleus — License No.: R-0112-L3

   Address: P. O. Box R, Oak Ridge, TN 37830 — Date of Inspection: June 30, 1981

   Type Inspection: Complete — License Type: Industrial, Distribution — Reinspection: Unannounced

   Inspector: Steve Brooks
   Report Reviewed By: Charles West on July 10, 1981
   Type of Report: Form
   Enforcement Letter of Noncompliance dated July 27, 1981
   Signed By: Stephen Brooks
   Date of License Response: August 1, 1981
   Date of State Acknowledgement: September 1, 1981

2. Company: W. R. Grace and Company
License No.: S-33U6-L3

Address: Davison Chemical Division
4000 North Hawthorne St.
Chattanooga, TN 37406

Date of Inspection: Feb. 2,3,8, 10,11, 1982

Type Inspection: Complete
Reinspection: Unannounced

License Type: Industrial, Source Material

Inspector: B. Allen
Report Reviewed By: (Not Reviewed at Time of This Report)
Type of Report: Form
Enforcement Letter: Clear dated February 17, 1982
Signed By: Barbara Allen
Date of License Response: N/A
Date of State Acknowledgement: N/A

3. Company: EG&G Ortec
License No.: R-0134-H5

Address: 100 Midland Road
Oak Ridge, TN 37830

Date of Inspection: August 21, 1981

Type Inspection: Complete
Initial
Unannounced

License Type: Industrial

Inspector: Steve Brooks
Report Reviewed By: C. West
Type of Report: Form
Enforcement Letter: Clear dated September 21, 1981
Signed By: Steve Brooks
Date of License Response: N/A
Date of State Acknowledgement: N/A

4. Company: Goodyear Tire and Rubber Co.
License No.: R-6603-L4

Address: Box 570
Union City, Tennessee

Date of Inspection: 10/28/77

Type Inspection: Complete
Initial
Unannounced

License Type: Industrial

Inspector: James Russell
Report Reviewed By: Charles West
Type of Report: Form
Enforcement Letter: Noncompliance dated November 10, 1977
Signed By: James Russell
Date of License Response: November 21, 1977
Date of State Acknowledgement: November 25, 1977

5. Company: Robershaw Controls
License No.: R-9502-L5

Address: LuxTime Division
West Main Street
Lebanon, TN 37087
Date of Inspection: 9/22/81

License Type: Industrial
Type Inspection: Complete
Reinspection:
Unannounced

Inspector: C. Arnott
Report Reviewed By: Charles West on September 30, 1981
Type of Report: Form
Enforcement Letter: Noncompliance dated September 28, 1981
Signed By: Charles Arnott
Date of License Response: October 13, 1981
Date of State Acknowledgement: October 19, 1981

6. Company: South Pittsburgh Municipal Hosp.
License No.: R-5802-I6

Address: 210 West 12th Street
South Pittsburg, TN 37380
Date of Inspection: 12/17/81

Type Inspection: Complete
License Type: Medical
Initial
Unannounced

Inspector: Barbara Allen
Report Reviewed By: Charles West on December 23, 1981
Type of Report: Form
Enforcement Letter: Clear dated December 21, 1981
Signed By: Barbara Allen
Date of License Response: N/A
Date of State Acknowledgement: N/A

7. Company: X-Ray, Inc.
License No.: R-W101-L6

Address: 7500 Perimeter Road, South
Seattle, Washington 98108
Date of Inspection: 1/20/82

Type Inspection: Complete
License Type: Radiography, Temporary
Locations
Initial
Unannounced

Inspector: C. Arnott
Report Reviewed By: Charles West on February 3, 1982
Type of Report: Form
Enforcement Letter: Noncompliance dated January 27, 1982
Signed By: C. Arnott
Date of License Response: February 12, 1982
Date of State Acknowledgement: Not issued as of 2/22/82

8. Company: Pittsburg-DeMoines Steel
License No.: NRC 37-02607-02

Address: Neville Island
Pittsburg, PA 15225
Date of Inspection: 3/5/81

Type Inspection: Partial
Reciprocity
Unannounced

License Type: Radiography, Temporary Locations
Inspector: C. Arnott
Report Reviewed By: C. West on April 13, 1981
Type of Report: Form
Enforcement Letter: Noncompliance dated April 6, 1981
Signed By: C. Arnott
Date of License Response: April 21, 1981
Date of State Acknowledgement: May 12, 1981

9. Company: Methodist Hospital
License No.: R-7909-J3

Address: 1265 Union Avenue
Memphis, TN 38104
Date of Inspection: 5/21/81

Type Inspection: Complete
Reinspection:
Unannonced

License Type: Medical

Inspector: C. Arnott
Report Reviewed By: C. West on June 5, 1981
Type of Report: Narrative
Enforcement Letter: Noncompliance dated June 3, 1981
Signed By: C. Arnott
Date of License Response: June 19, 1981
Date of State Acknowledgement: July 1, 1981

10. Company: Hubbard Hospital of Meharry College
License No.: R-1931-G5

Address: 1005 18th Ave., No.
Nashville, TN 37208
Date of Inspection: 2/2/82

Type Inspection: Complete
Reinspection:
Unannounced

License Type: Medical

Inspector: C. Arnott
Report Reviewed By: (Not Complete at Time of NRC Review)
Type of Report: Narrative
Enforcement Letter: Noncompliance dated February 9, 1982
Signed By: C. Arnott
Date of License Response: N/A
Date of State Acknowledgement: N/A

11. Company: University of Tennessee Center of the Health Sciences
Address: 800 Madison Avenue
Memphis, TN 38163
License No.: R-7919-L4
Date of Inspection: 12/1&2/81
Type Inspection: Complete
Reinspection:
Unannounced
License Type: Broad Medical

Inspectors: C. Arnott
Report Reviewed By: C. West on December 11, 1981
Type of Report: Narrative
Enforcement Letter: Noncompliance dated December 15, 1981
Signed by: C. Arnott
Date of Licensee Response: January 6, 1982
Date of State Acknowledgement: January 18, 1982

12. Company: EG&G Ortec
License No.: R-0103-L3
Address: 100 Midland Road
Oak Ridge, TN 37830
Date of Inspection: 8/21/81
License Type: Industrial
Type Inspection: Complete
Reinspection:
Unannounced

Inspector: S. Brooks
Report Reviewed By: C. West on September 16, 1981
Type of Report: Narrative
Enforcement Letter: Noncompliance dated September 21, 1981
Signed by: S. Brooks
Date of Licensee Response: October 2, 1981
Date of State Acknowledgement: November 16, 1981

13. Company: Chattanooga Tumor Clinic
License No.: R-3302-L3
Address: 241 Wiehl Street
Chattanooga, TN 37403
Date of Inspection: 12/11/80
Type Inspection: Complete
Reinspection:
Unannounced
License Type: Brachytherapy

Inspectors: Allen and Brooks
Report Reviewed By: C. West on February 13, 1981
Type of Report: Narrative
Enforcement Letter: Noncompliance dated February 11, 1981
Signed by: B. Allen
Date of Licensee Response: February 23, 1981
Date of State Acknowledgement: September 29, 1981

14. Company: World Testing, Inc. License No.: R-9509-C5

Address: 72 East Hill Street
Mt. Juliet, TN 37122

Date of Inspection: 11/3/81

Type Inspection: Complete
Reinspection
Unannounced

License Type: Radiography

Inspector: C. Arnott
Report Reviewed By: C. West on November 20, 1981
Type of Report: Narrative
Enforcement Letter: Noncompliance dated November 9, 1981
Signed By: C. Arnott
Date of License Response: December 1, 1981
Date of State Acknowledgement: December 15, 1981

15. Company: Ross-Weeham Foundries License No.: R-311-L3

Address: 1601 Carter Street
Chattanooga, TN 37401

Date of Inspection: 9/25/81

Type Inspection: Complete
Reinspection
Unannounced

License Type: Radiography

Inspector: B. Allen
Report Reviewed By: C. West on October 2, 1981
Type of Report: Narrative
Enforcement Letter: Noncompliance dated September 29, 1981
Signed By: B. Allen
Date of License Response: October 12, 1981
Date of State Acknowledgement: October 21, 1981

16. Company: Ft. Sanders Presbyterian Hospital License No.: R-4728-L4

Address: 1909 Clinch Ave., SW
Knoxville, TN 37920

Date of Inspection: 7/23 & 24/81

Type Inspection: Complete
Reinspection
Unannounced

License Type: Teletherapy

Inspector: S. Brooks
Report Reviewed By: C. West on August 7, 1981
Type of Report: Narrative
Enforcement Letter: Noncompliance dated August 7, 1981
Signed By: S. Brooks
Date of License Response: September 15, 1981
Date of State Acknowledgement: November 11, 1981

17. Company: Parkview Hospital
Address: Tickle Street
Dyersburg, TN
License Type: Teletherapy
License No.: R-2303-24
Date of Inspection: 4/22/81
Type Inspection: Complete
Reinspection
Unannounced

Inspector: C. Arnott
Report Reviewed By: C. West on May 13, 1981
Type of Report: Narrative
Enforcement Letter: Noncompliance dated May 12, 1981
Signed By: C. Arnott
Date of License Response: May 18, 1981
Date of State Acknowledgement: May 28, 1981

18. Company: Laughlin Memorial Hospital
Address: 215 N. College St.
License Type: Teletherapy
License No.: R-3003-L4
Date of Inspection: 12/29-30/80
Type Inspection: Complete
Reinspection
Unannounced

Inspector: S. Brooks
Report Reviewed By: C. West
Type of Report: Narrative
Enforcement Letter: Noncompliance dated January 22, 1981
Signed By: S. Brooks
Date of License Response: February 23, 1981
Date of State Acknowledgement: May 15, 1981

19. Company: Ft. Sanders Presbyterian Hospital
Address: 1909 W. Clinch Ave.
Knoxville, TN 37916
License Type: Brachy Therapy
License No.: R-4725-B3
Date of Inspection: 7/23-24/81
Type Inspection: Complete
Reinspection
Unannounced

Inspector: S. Brooks
Report Reviewed By: C. West on August 6, 1981
Type of Report: Narrative
Enforcement Letter: Noncompliance dated August 20, 1981
Signed By: S. Brooks
Date of License Response: September 15, 1981
Date of State Acknowledgement: November 9, 1981

20. Company: Ortec, Inc.
License No.: N-0110-K4

Address: 100 Midland Rd.
Oak Ridge, TN 37830

Date of Inspection: 8/21/81

Type Inspection: Complete
Reinspection
Unannounced

License Type: Industrial

Inspector: S. Brooks
Report Reviewed By: C. West on September 15, 1981
Type of Report: Narrative
Enforcement Letter: Clear dated Dated: October 5, 1981
Signed By: S. Brooks
Date of License Response: N/A
Date of State Acknowledgement: N/A

21. Company: Chattanooga Tumor Clinic
License No.: R-3309-L4

Address: 261 Wiehl Street
Chattanooga, TN 37403

Date of Inspection: 9/22/81

Type Inspection: Complete
Reinspection
Unannounced

License Type: Teletherapy

Inspector: B. Allen
Report Reviewed By: C. West on October 2, 1981
Type of Report: Narrative
Enforcement Letter: Clear dated Dated: September 24, 1981
Signed By: B. Allen
Date of Licensee Response: N/A
Date of State Acknowledgement: N/A

22. Company: Stones River Hospital
License No.: R-0801-C6

Address: Doolittle Road
Woodbury, TN 37190

Date of Inspection: 12/16/81

Type Inspection: Complete
Initial
Unannounced

License Type: Medical

Inspector: B. Allen
Report Reviewed By: C. West on December 20, 1981
Type of Report: Narrative
Enforcement Letter: Noncompliance dated December 21, 1981
Signed By: B. Allen
Date of License Response: Not in File
Date of State Acknowledgement: N/A

23. Company: R.I.A., Inc. License No.: R-5407-A5

Address: 210 White Street
Athens, TN 37303

Date of Inspection: 7/16/81

Type Inspection: Complete
Reinspection
Unannounced

License Type: Medical

Inspector: B. Allen
Report Reviewed By: C. West on August 7, 1981
Type of Report: Narrative
Enforcement Letter: Clear dated August 4, 1981
Signed By: B. Allen
Date of License Response: N/A
Date of State Acknowledgement: N/A

24. Company: CBI Nuclear License No.: R-7959-L5

Address: 2700 Channel Ave.
Memphis, TN 38113

Date of Inspection: 1/22/81

Type Inspection: Complete
Reinspection
Unannounced

License Type: Radiography

Inspector: C. Arnott
Report Reviewed By: C. West on March 11, 1981
Type of Report: Narrative
Enforcement Letter: Noncompliance dated February 13, 1981 (Mailed March 11, 1981)
Signed By: C. Arnott
Date of License Response: April 6, 1981
Date of State Acknowledgement: April 22, 1981

25. Company: Texas-Tennessee International, Inc. License No.: R-4713-L5

Address: 4338 Anderson Road
Knoxville, TN 37918

Date of Inspection: 12/8/81

Type Inspection: Complete
Reinspection
Unannounced

License Type: Radiography

Inspector: S. Brooks
Report Reviewed By: C. West on December 21, 1981
Type of Report: Narrative
Enforcement Letter: Noncompliance dated December 30, 1981
Signed By: S. Brooks
Date of License Response: January 15, 1982
Date of State Acknowledgement: February 11, 1982

Summary Table

The following table lists specific compliance comments developed during the review for each of the above numerically coded compliance files.

	Specific Comments	License Code No.
a.	State acknowledgement letter did not adequately address licensee's response to the NOV.	4, 12, 18
b.	More information needed on Isotopic Committee and meetings	6
c.	More information needed on calibration of dose calibrator, QA test, and molybdenum-99 breakthrough test.	6, 9, 10, 22, 23
d.	No information in report to verify that facilities were as licensed.	6
e.	More details needed on off-scale dosimeter leading evaluation.	7
f.	More information needed on surveys performed by licensee.	9, 13, 19, 23, 24
g.	More information needed on "scope" of licensee's program.	9, 11
h.	More information needed on therapy instructions to nursing staff and visitors.	13
i.	Repeat violation was not identified as such in report.	13
j.	Licensee's response to NOV was inadequate and/or not filed.	13, 22
k.	More information needed on licensee's survey	17, 18
l.	More information needed on teletherapy interlock checks performed, and/or area monitor and/or unit calibrations.	17, 18, 21
m.	Were emergency procedures posted at teletherapy unit?	21
n.	More information needed on protective equipment in use (syring shields).	23

	Specific Comments (Continued)	License Code No.
o.	Who were the authorized users?	23
p.	More information needed on transfer records and transportation requirements.	23
q.	Need more information on calibration of dosimeters.	24
r.	Internal audits not performed as required by procedures, and not cited.	25

APPENDIX I

ASSIST INSPECTION

APPENDIX I

ASSIST INSPECTION

Licensee:	TNS, Inc.
Address:	P. O. Box 158 Old Highway 11-E Jonesboro, Tennessee 37659
License Number:	S-9009-F4
Inspection Date:	February 17-19, 1982
Inspectors:	Charles P. West, Tennessee Dept. of Public Health John B. Kahle, Region II E. C. (Jim) Ashley, OSP R. L. Woodruff, Region II
Licensee Representatives	George L. Christensen, Vice President, Operations Richard B. O'Brien, Acting Dir. of Environmental Health and Safety Jerome J. Hoynacki, Manager, Envinronmental Health and Safety Sally Hock, Acting RSO Wanda Ford, Vacuum Furnace Worker

The exit interview was held with Mr. O'Brien, Mr. Hoynacki and Mr. Christensen on February 9, 1982.

Scope of the Inspection

The assist inspection was conducted during the period February 17-19, 1982 in Jonesboro, Tennessee. Time constraints would not permit a complete inspection of all the facilities. This was an unannounced inspection with Mr. West as the lead inspector. NRC personnel were only there to assist Mr. West. Jim Ashley, OSP, was there to assist the Region II Agreement State Representative and to provide assistance as needed to Mr. West. Although this assist inspection was during the week prior to the formal Radiation Control Program (RCP) review, the primary purpose of the NRC inspection activities was to assist the state of Tennessee in the evaluation of the laboratory and bioassay data and to update the records with respect to the operations and the facilities at the Jonesboro site. Mr. Kahle was invited by the State of Tennessee to specifically look at the laboratory analyses and the evaluation of bioassay data.

The State inspector informed the licensee of the nature of our visit and after a discussion of the licensed operations ongoing at the plant, the inspectors were allowed to enter the operational portion of the plant for a walk through type of orientation. The Environmental Health and Safety Manager, the acting Radiation

Safety Officer (RSO), and the vacuum furnace worker accompanied the party during the walk through inspection. The inspector conducted radiation surveys with a portable survey meter and collected smears from various locations within the plant. After an extensive tour of the operational areas and discussions by licensee management, the remainder of the inspection was conducted in the administrative offices and the radiation safety laboratory.

It should be noted that an inspection was not conducted of the waste ponds or the new buildings being constructed at site. An evaluation of these areas has been conducted previously. However, the State inspector did review the environmental monitoring program associated with the plant's site. This included air monitoring data, water sampling data from upstream and downstream locations, and sediment samples taken from the streams.

Organization

The Corporate Aerojet organizational chart has been included as Enclosure I. It should be noted that Mr. O'Brien is Director of Environmental Affairs and Safety on the corporate level and had been recently assigned to the TNS plant on a temporary basis as Acting Director of Environmental Health and Safety. An organizational chart was hand drawn by Mr. O'Brien and this chart has been included as Enclosure II to this Appendix. Currently, the health physics staff consists of an acting RSO and four technologists. A technologist has been assigned to the foundry for the first and third shifts. In addition, two technologists work on the day shift, one in the counting lab, and one on air sampling. The acting RSO works both day and part of the night shifts and supervises the technologists. Mr. Hoynacki is listed on his business card as Manager, Environmental Health and Safety. However, his primary duties are as Director of the Waste Management area which falls under the Operation's Vice President, Mr. Christensen.

Mr. O'Brien stated that the plant was reorganizing the health and safety program and planned to increase the health physics staff from its present membership to two technologists per shift, plus a Health Physics Director, a RSO, and a Supervisor of technologist. Organizational charts were not available but this information was presented to the inspectors in a penciled format. The licensee also stated that they plan to hire a Ph.D as Director of the Environmental Health and Safety Program. This director would be over industrial safety and radiation safety with experience and training in health physics.

Facilities

A layout of the plant site has been included as Enclosure III. This layout shows the present site and operational areas as buildings 101, 102, 103, 201, 202 and the waste ponds. Also shown on the site are the buildings under construction, designated as 003, 004, 203, 205, 204; the crusher area, and the waste treatment area. As previously stated, the buildings under construction and the waste treatment pond were not reviewed during this inspection.

Production Changes

The previous NRC visit to this site was during November 18-19, 1980, by Jim Ashley, OSP. A report on the site visit was documented January 9, 1981, in the OSP files. This report described the sites and the various production processes being conducted within this plant.

The production operations described by Mr. Ashley in his report are still valid; however, there have been considerable changes in buildings 101 and 102. The basic differences being the 300 pound derby operations are no longer being conducted at the plant and the small penetrator production has been closed down. Buildings 101 and 102 have been modified to accommodate what the licensee designated as "774 core production" operation. This operation is basically a large penetrator type operation; however, most of the work is being done with improved automation and enclosed lathes. Effluents from the lathes are filtered through HEPA filters and will go into the building's exhaust system. Diagrams showing the operations and the operational layout in buildings 101, 102, and 103 have been included as Enclosure IV.

The operations superintendent receives a "774 core production checklist" for each shift identifying employee protection and monitoring, fire safety and housekeeping, ventilation equipment, and training received by the plant employees. Also, the radiation safety officer has a "774 core production checklist" that is filled out on a daily basis covering all work shifts. At the end of each day shift a working copy is signed and forwarded to the Director, Environmental Health and Safety. This checklist covers the air quality monitoring program, surface contamination and radiation monitoring program, laboratory counting and instrument check program, ventilation control program, and general environmental health and safety checklist items.

Laboratory and Bioassay Review

A review was conducted of the laboratory and bioassay data by the Region II (RII) office. The following comments were developed concerning the bioassay program and the HP laboratory operation.

1. There is no established program to evaluate bioassay results to check on the air sampling program or to determine if inhalation quantities exceed the regulatory limits. The RII assessment was that such an evaluation would show that regulatory intake quantities were exceeded based on bioassay results. The sampling and counting frequency should be established with defined investigation, corrective action and restriction levels.

2. It appeared the air concentration exceeded 25% of MPC on a weekly basis without process and engineering controls established to limit airborne concentrations.

3. The HP organization is greatly understaffed both in number and professional expertise.

4. The HP counting laboratory is limited both in space and instrumentation; essentially only one counter to count smears, air samples, stack samples, and environmental samples.

5. Although management insisted that QA audits of the HP operation are conducted, it was not apparent that the periodic health physics reports were being received by management, or that management had accessed various operations, exposure to personnel, internal dose evaluations, stack releases, or environmental monitoring. An ALARA type report is needed with trend analysis and evaluation by management.

   The RII inspectors recommended to the State inspector that corrections for the following enforcement actions be taken:

   a) 10 CFR 20.201(b) Failure to show documentary evidence that the alpha self absorption factor should be unity when counting air samples for alpha activity.

   b) 10 CFR 20.103(a)(3) Failure to use bioassay data to show that limit of intake of Uranium was not over 520 MPC hours.

   c) 10 CFR 20.103(b)(1) Failure to (as a precautionary procedure) use process or other emergency controls to limit concentration of Uranium in the air to levels below 25% of MPC on a weekly basis.

State Inspector Report Summary

During the inspection, NRC personnel expended a great deal of time assisting the State inspector on collection or accumulating information that was repetitious. It was obvious in the beginning of the inspection that the licensee had not established or maintained a program to make evaluations and assessments which are essentially required by the equivalence of 10 CFR 20.201(b) and 10 CFR 20.103(a)(3). It appears that the State inspectors make these evaluations when the licensee is required to do so.

It was noted by the NRC inspectors that a number of health and safety procedures were available covering many aspects of the radiation safety program. Most were developed since June 1978 and many had been developed during 1980 and 1981. Management stated that a number of procedures (breathing zone sampling, stack sampling, filter pressure drop and face velocity, filter change procedures, environmental air and water sampling) were in preparation and had been rewritten in February 1982.

Numerous instrument test survey forms (along with smear tets survey forms) were reviewed. These forms detail information by monitor and by shift for each day of the week in various locations that were monitored and sampled. The State inspector prepared a report with numerous attachments of the details of his inspection. The State report, without the attachments, has been included in this Appendix as Enclosure V. If needed, the attachments to the State inspection report are available from the State.

Summary and Conclusions

The State enforcement letter dated April 15, 1982, was sent to the licensee. Five items of noncompliance and two recommendations were identified in the letter to the licensee. The licensee was requested to respond, in writing, within 15 days of the receipt of the letter. The enforcement letter has been included in this Appendix as Enclosure VI.

In addition to the items recommended to the State inspector as items of noncompliance, the following summary comments were developed by the NRC inspectors. These comments were not necessarily recommendations of items of noncompliance but they are for documentation purposes only in this report. Based on the tour of the facilities, discussions with management and HP personnel, and examination of the laboratory and the records, it is apparent that Tennessee should take a very aggressive and firm position with regard to licensing, inspection and enforcement activities with this licensee. The bases for this conclusion are as follows:

1. The adequacy of the air sampling program is questionable because it appears that the placement and number of air samples is not sufficient to be representative of the airborne concentrations of Uranium in which workers are being exposed. It was noted that three air samplers in an area of approximately 50 X 150 feet, and where 10 to 12 different operations are performed is totally inadequate. This type situation appears to be prevalent throughout the plant.

2. The contamination control program needs strengthening in that personnel are permitted to wear shoe covers outside the buildings. Tighter controls are necessary to eliminate outside contamination.

3. Building air is discharged by roof fans without sampling.

4. The HP organization is greatly understaffed both in number and professional expertise. It should be noted that management stated plans are underway to more than double the staff. This is noted previously in this Appendix.

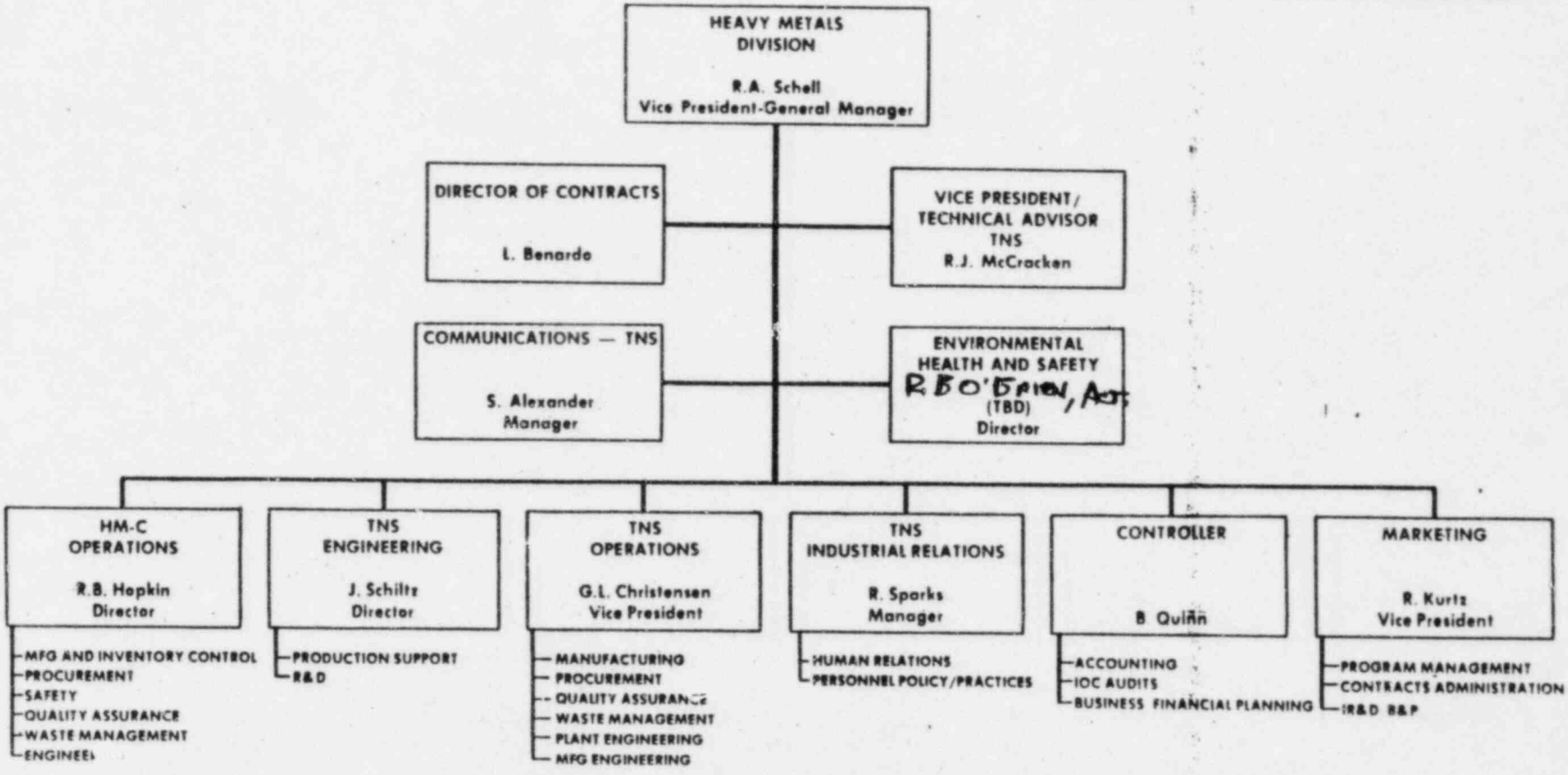
5. The present management appears to exhibit a positive attitude toward health and safety and regulatory compliance. Management acknowledged that some existing problems would be corrected in a timely manner. It is prudent that regulatory pressures be maintained in order to keep the corrective actions moving in an expeditious manner.

ENCLOSURE I

ENCLOSURE 1

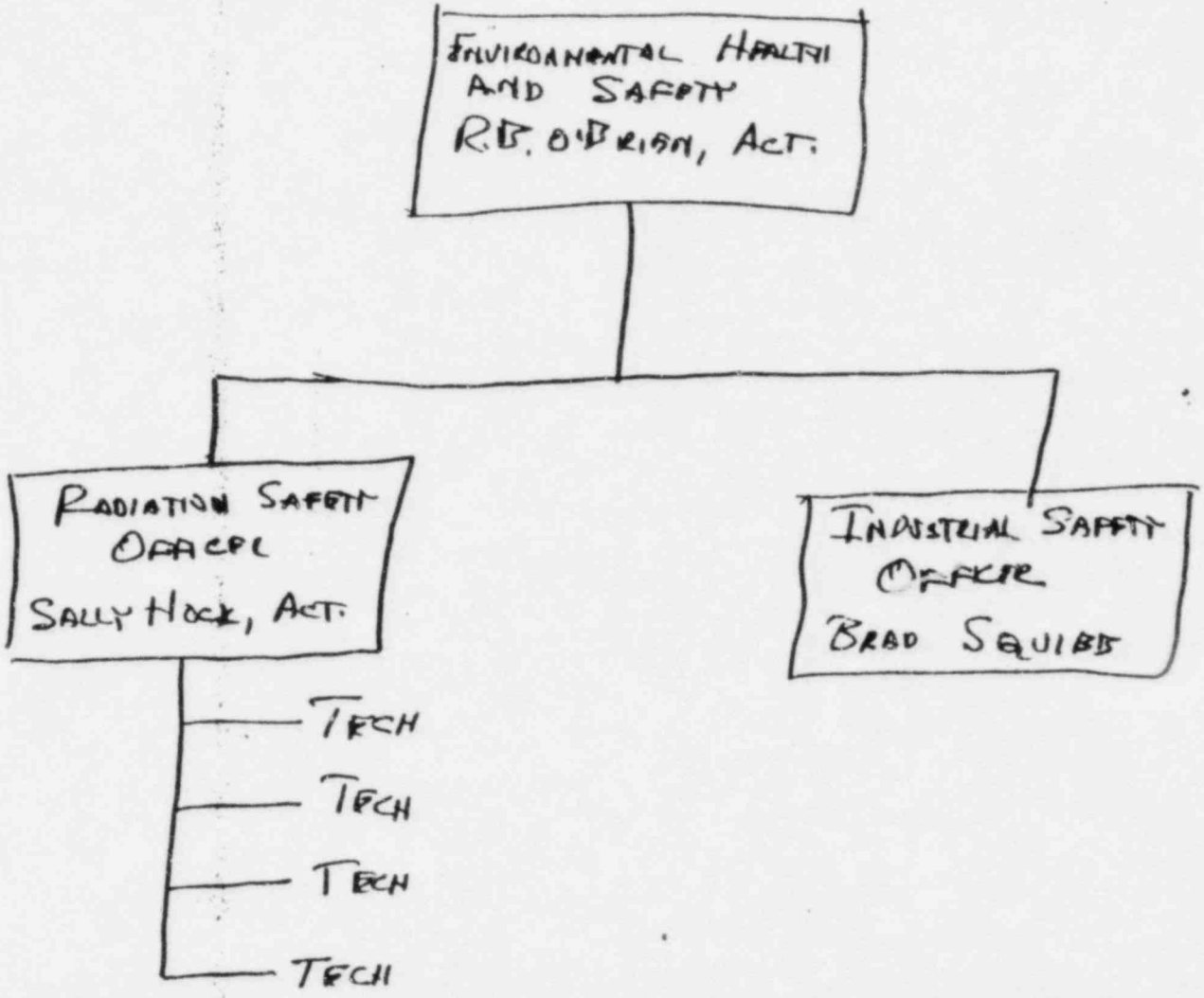
AEROJET ORDNANCE COMPANY
HEAVY METALS
DIVISION

APPROVED BY: R.A. Schell
R.A. Schell
10-19-81



ENCLOSURE II

Enclosure II



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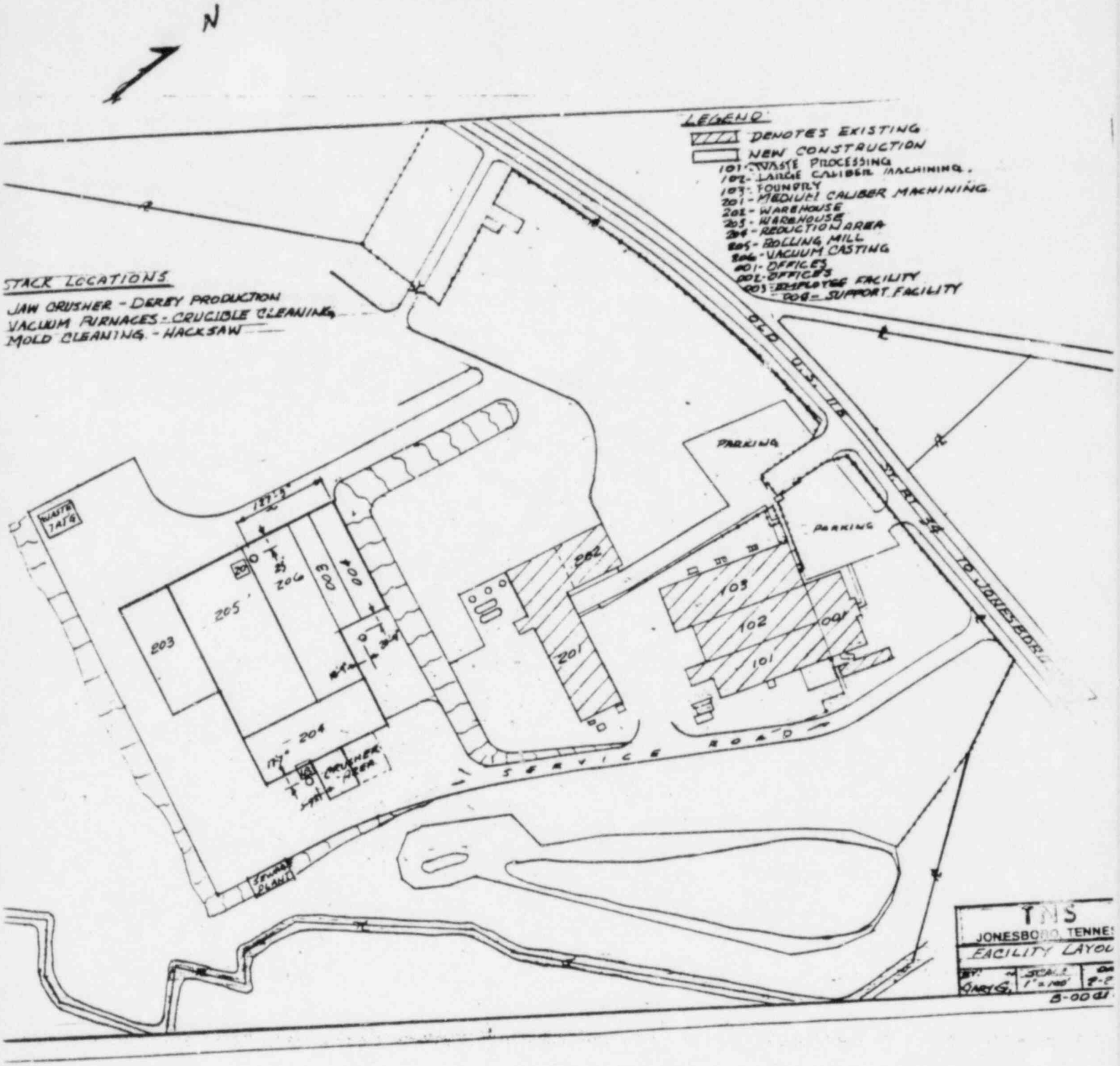
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LEGEND
DENOTES EXISTING
NEW CONSTRUCTION
101 - WASTE PROCESSING
102 - LARGE CALIBER MACHINING
103 - FOUNDRY
201 - MEDIUM CALIBER MACHINING
202 - WAREHOUSE
203 - WAREHOUSE
204 - REDUCTION AREA
205 - ROLLING MILL
206 - VACUUM CASTING
401 - OFFICES
402 - OFFICES
403 - EMPLOYEE FACILITY
- SUPPORT FACILITY
STACK LOCATIONS
JAW CRUSHER - DERBY PRODUCTION
VACUUM FURNACES - CRUCIBLE CLEANING
MOLD CLEANING - HACKSAW
OLD U.S. 11E
PARKING
PARKING
TO JONESBORO
SERVICE ROAD
WASTE TANKS
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CRUSHER AREA
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1" = 100'
JONESBORO, TENNE
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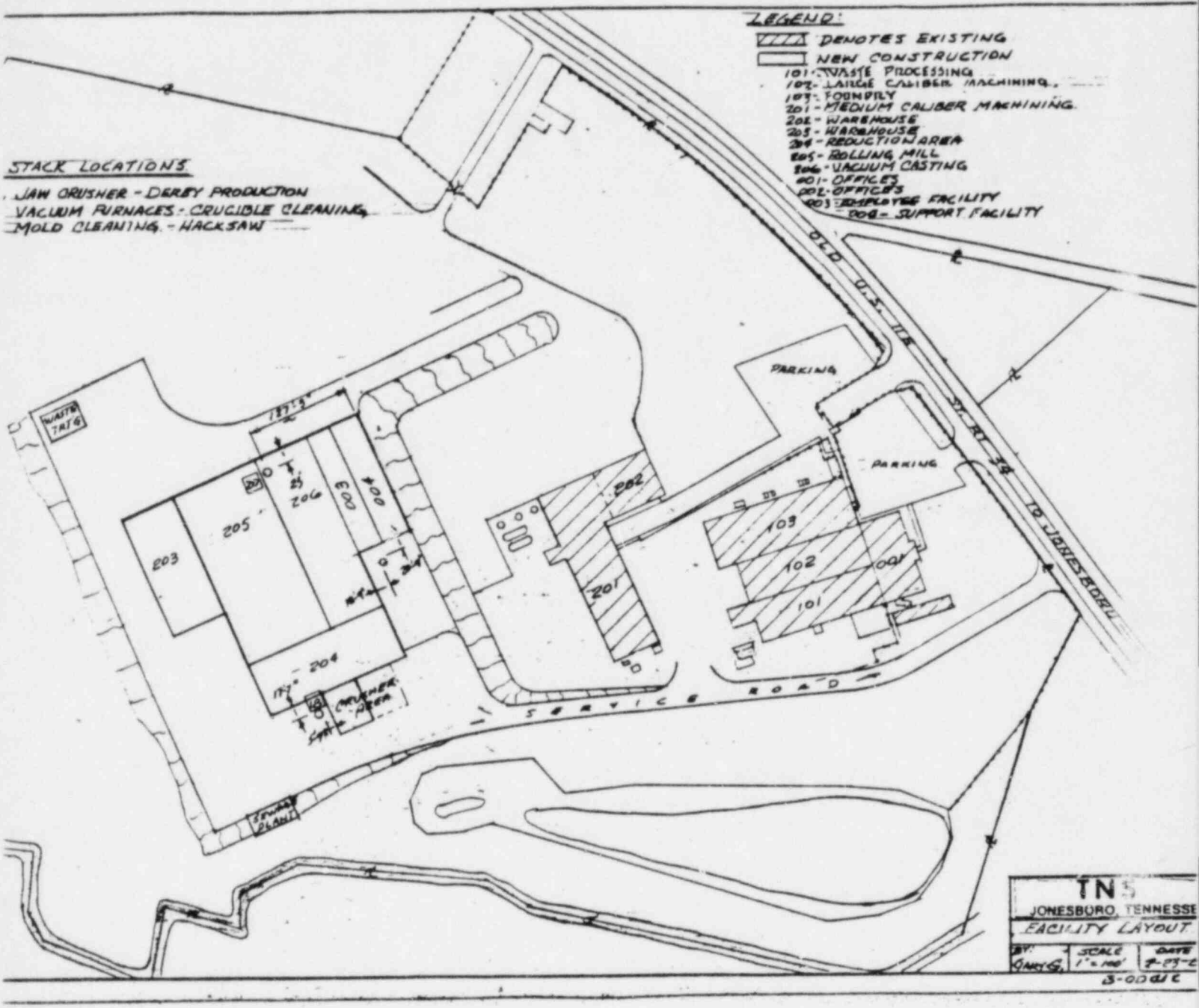
LEGEND:
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NEW CONSTRUCTION
101 - WASTE PROCESSING
102 - LARGE CALIBER MACHINING
103 - FOUNDRY
201 - MEDIUM CALIBER MACHINING
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401 - OFFICES
402 - OFFICES
403 - EMPLOYEE FACILITY
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VACUUM FURNACES - CRUCIBLE CLEANING
MOLD CLEANING - HACKSAW
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TO JONESBORO
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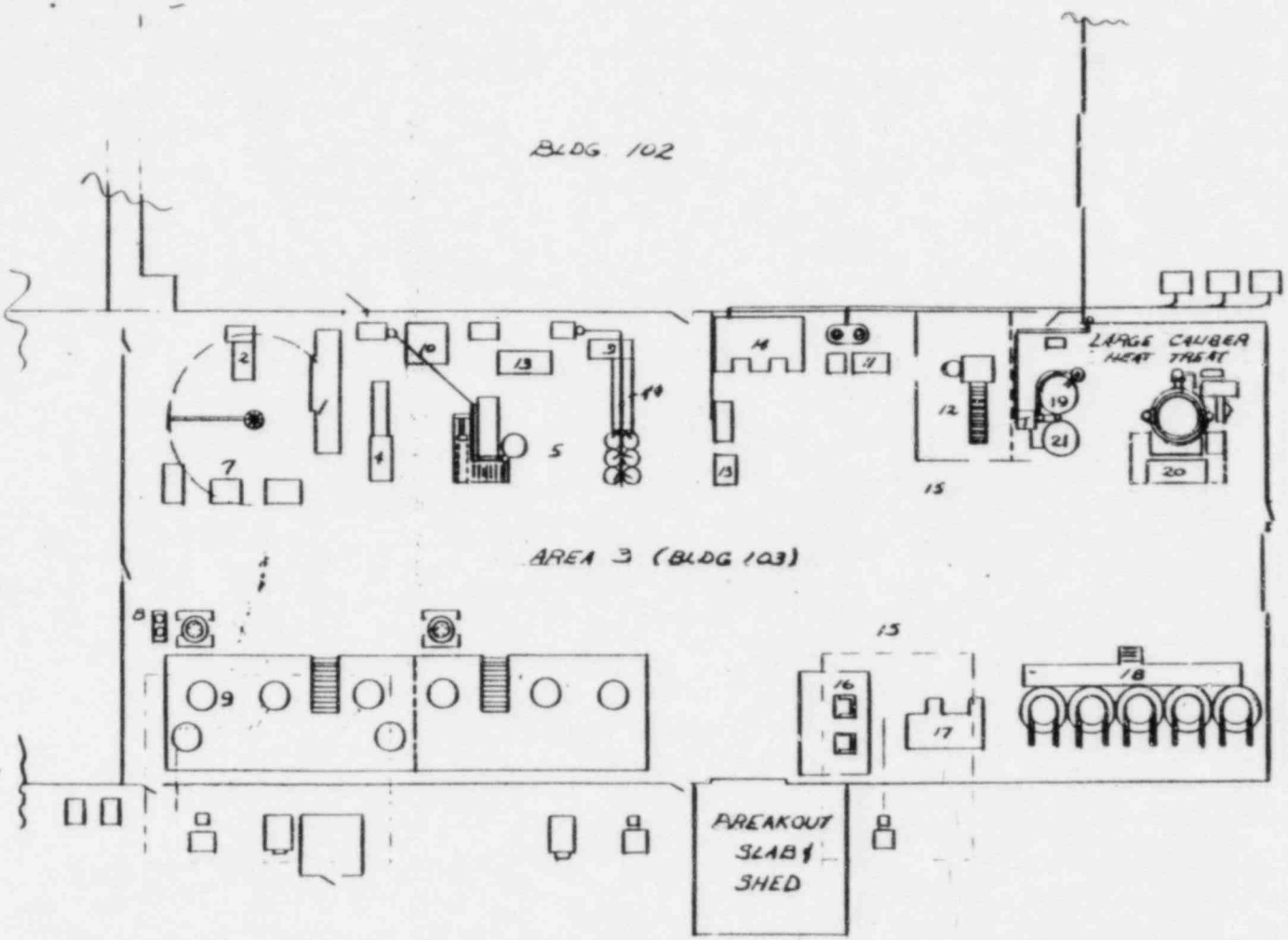
PARKING
WASTE TRTG
SERVICE ROAD
SEWAGE PLANT
TN
JONESBORO, TENNESSEE
FACILITY LAYOUT
BY:
SCALE
1" = 100'
DATE

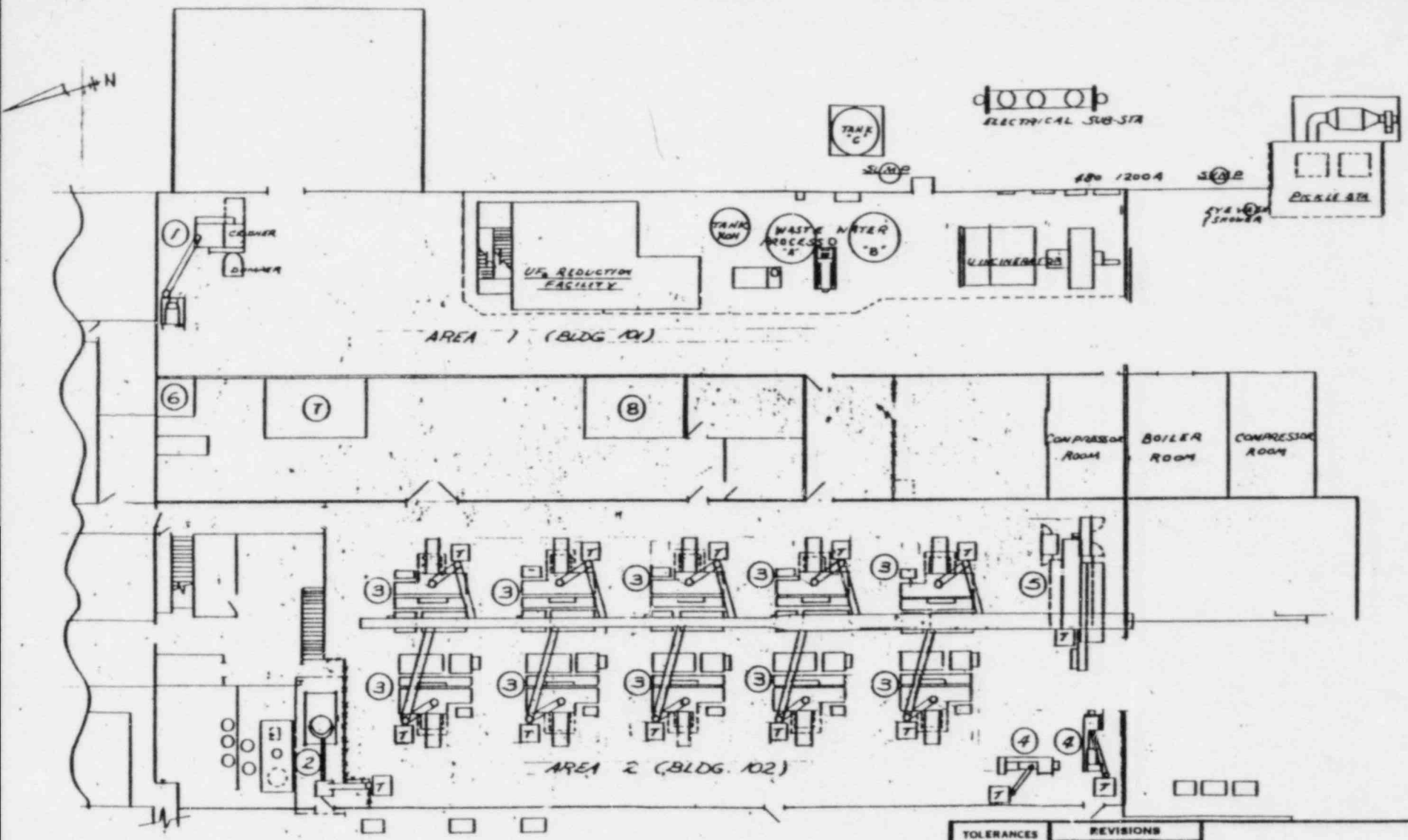
ENCLOSURE IV



LEGEND

1. LATHE
2. SAW
3. MIXER
4. MOLD PREP.
5. MOLD TANK ASSY.
6. MOLD STORAGE
7. BILLET STORAGE
8. REMELT SCRAP
9. FURNACE
10. MOLD DRYING
11. SCALES
12. BLENDER
13. SLAG SAMPLE
14. RETORT LOADING
15. STORAGE
16. BURN OUT
17. RETORT VIBRATE
18. FURNACE
19. AGING FURNACE
20. HEAT TREATMENT FURNACE
21. WATER QUENCH

TOLERANCES (EXCEPT AS NOTED)	REVISIONS			AREA 3 (BLDG 103)		
DECIMAL ±	NO	DATE	BY			
	B	12/2/91	RB			
FRACTIONAL ±				DRAWN BY R BAILON	SCALE 1/16"=1'0"	MATERIAL
ANGULAR ±				CHK'D	DATE 12/2/91	DRAWING NO B-C093-B
				TRACED	APP'D	



LEGEND

1. CRUSHER
2. FURNACE (R&D)
3. LATHE (EAGLE)
4. LATHE (HARRISON)
5. HUSTLER
6. COMPARITOR
7. PHYSICAL DIMENSIONING
8. ULTRASONIC TESTING

TOLERANCES (EXCEPT AS NOTED)	REVISIONS			
DECIMAL ±	NO.	DATE	BY	AREA 1 & 2, BLDG. 101 & 102
FRACTIONAL ±	C	12/14/81	RB	
ANGULAR ±				

DRAWN BY	SCALE	MATERIAL
R. BARON	1/16" = 1'0"	
CHK'D	DATE 12/14/81	DRAWING NO. B-00908
TRACED	APP'D	

KEUFFEL POST 18AE-08E—11 X17

ENCLOSURE V

TNS, Inc.

On February 17, 1982 an inspection was begun at this facility. In addition to myself, I was accompanied by John Kahle and Dick Woodruff, both from NRC Region II, Atlanta, and E.C. Ashley, NRC Washington. Woodruff was along as part of the NRC periodic review of the State's Program. Kahle came at our request for someone to review the TNS bioassay program and their laboratory. Ashley had been to the facility in November 1980 and was returning to view any changes that had taken place. We all left the facility on February 19.

We first met with management (O'Brien) and explained our purpose and our roles for the next few days. During this meeting we were told that TNS is planning to expand the Health Physics organization from its present 4 members to 2 persons per shift plus two additional persons on the day shift and also a Director (H.P. experience with Nuclear Physics degree), an RSO and a supervisor of Technicans. Also we were told that the FOUNDRY operates on the 3rd and 1st shifts only (an H.P. Tech is on Third Shift) and the 774 operation runs on a 10 hour shift per day plus one person on the Second Shift. This is the scope of their operations at this time. In addition, they have about 400 tons of uranium on site at this time, which we were told is about normal.

Some other information given to us during the opening meeting before we started a "walkaround" was that one H.P. Technician has been assigned full time to the Waste Management area (Hoynacki is Director). Also O'Brien stated that the safety program had been reorganized but no charts had been made yet. (They eventually developed some penciled ones which are included in Attachment 1). Mr. O'Brien also stated that the deficiencies in H.P. Program and the expansion of Operations combined into a difficult situation. Along this same line of comments he stated that they may wish and attempt to be licensed as "Manufacturing Process Developers". I recognized where this idea was leading and changed the subject to get them away from it. Mr. O'Brien also told us that the large penetrator was 7.5 lbs. of uranium-titanium alloy. (Proportions unknown.) Wanda Ford, Vacuum Furnace worker, went on the "walk-thru" with us.

The 774 (large penetrator) Operation appeared to be in order. The BZs were being worn as required. More lathes appeared to be in operation in this area than before (Feburary 2). A pile of the unmachined uranium rods was measured with a Ludlum Model 16 survey instrument. The gamma level at contact, measured thru the side of the detector tube was 10 mr/hr (corrected). This probably would be about the highest gamma level that could be expected from an array of these rods. A table in the approximate center of the 774 operation which is used by the foreman and inspectors for writing, etc. gave no detectable alpha when measured with the Model 16 with alpha probe. The highest reading noted on the magnahelics was about 2-inches of water. The Central air mover and outside vertical stack had not been installed at the time of the inspection. In the entire bay where the 774 machining is done there are 3 RAS-1 air sampler heads located such that about 1/4 of the bay length separates them. Kahle stated to me that his preference is for a sample head at each operator manned position although many places use one head per operations.

The incinerator remains as previously noted. Also the UF-6 to UF-4 unit is still in place however it has been covered with plastic sheeting but not "sealed" air tight.

The area previously used as Small derby weigh-up and blend and the Small Derby break-out is now being used for the Jaw crusher and waste handling, respectively. Also part of the Small Derby Vacuum Furnace area has been walled in and assigned to the Quality Control Area. The Jaw Crusher was originally installed at the south end of Building 102.

The operations in Building 103 appeared essentially unchanged except the Jolter-Break-out area for the Large Derbys is located in a shed-like structure opening off of the West side of Building 103.

Buildings 201 and 202 appeared to be used only for storage except for the B&O cutoff and bar straighting units of the 774 operation in Building 201.

No tour was made of the new building where the rolling mill is proposed.

During the walk-thru I gave special attention to ventilation discharge points. Diagrams of the buildings and the site were provided that contained identified discharge points. These diagrams are included as ATTACHMENT 2. In addition to the points they have identified there was a roof discharge point in Building 201 connected to a Heat treat-aging Furnace left over from the Small Penetrator operation and probably will not be used unless and until the Small Penetrator operation is again authorized at this facility. Also near the north east corner of Building 101, two discharges from two "vacuum cleaner" devices were located. They are filtered through Volkes systems before discharge. However, they discharge just through the wall into a lean-to type storage shed with discharge points about 5 feet above ground and pointed downward. In addition there were some roof vents that were not originally drawn on the diagrams but were penciled at the time. The highest Magnahelic gauge reading noted on any of the Volkes Systems was slightly over 6 inches of water. [A copy of the diagrams (ATTACHMENT 2) was given to AR shortly after return from the inspection.]

ATTACHMENT 3 is a summary of their air sampling results. The time period reviewed was one quarter (4th 1981) and nearly all of January 1982. No location had an average concentration greater than MPC during the quarter. However, it can be seen that the first 6 locations are of most concern. The Rock Crusher is also of concern during the one-shift it is used. The Lead Pot and Waste Preparation samples could be due to contribution from other activities. They are in close proximity to Weigh-up and Blend and Rock Crusher, respectively. There are 8 Constant-Alarm-Air monitors through out the plant. ATTACHMENT 4 shows their location and highest reading between 10/1/81 and 2/16/82.

Personnel monitoring review was made by first looking for the highest whole body readings for the 4th quarter 1981 and logging these along with their "skin" exposure. No employee was found to have an overexposure for the quarter or exceeding 5 Rem for the year. There were 18 whole body badge readings (out of 125) that exceeded 300 mrem for the quarter. Next a review of the ring badge program was made. Basically the same individuals with the high whole body reading also had the highest ring badge readings, however, there was not a one to one relationship. There were 18 ring badges readings (out of 69) that exceeded 2.000 Rem for the quarter. (Two Rem was chosen as about 25% of the limit.) A further correlation was made by identifying the work areas of the employees with highest readings. All of these identified with the high readings were from 4 work areas, three of which were in the first six on ATTACHMENT 3. This is summarized in ATTACHMENT 5. One of the ring badge columns is listed as the year's reading. Actually the ring program only started about August 1981.

The use of Breathing Zone samplers (BZ) is rather extensive. During the last quarter of 1981, 135 samples were taken on the first shift. Of these, 36 exceeded 50 percent MPC (1 x 10^{-10} μCi/ml) with the largest concentration being 401.7 percent MPC. During the third shift 26 of approximately 45 samples exceeded 50 percent MPC with largest being 410.6 percent MPC. No work was done on second shift during this quarter. Examples of variations in readings are (1) On 10/1/81, two individuals in the Mold Break-out area (Mold and Crucible Prep) wore BZ for 75 minutes each, one showed a loading of 401.7% MPC the other was 60.1% MPC; (2) On 10/1/81, two individuals in the Down-Draft table area wore BZ for 100 and 105 minutes, respectively, one showed a loading of 150.2% MPC, the other was 58.6% MPC. For the period 1/4/82 thru 2/10/82 the following was noted: (1) First Shift, 26 of approximately 150 BZ samples were 50% MPC or above; (2) Third Shift, there were 12 of 29 samples of 50% MPC or above; (2) Second Shift, only one person worked and was sampled, the BZ read 175.3% MPC. The highest for the 1982 period was 466.2% MPC.

I was told that although no record is maintained to account for <u>every</u> use of a respirator, company policy has been announced that certain tasks require respirator use. These tasks were itemized and distributed by memo and during training. Also a Radiation Work Permit system for certain operations is being used. The tasks requiring respirators are also included in the BZ Sampling program.

For the 774 Operation (Large Penetrator) since the last inspection on 1/27/82 there had been two BZs exceeding 25% MPC (30.6% and 36.9% MPC). They were investigated as required. There was no specific reason found to account for the high readings however it was suspected they might have been due to other operations in that building (103). The BZ samples in the other areas were usually rather low (less than 10% MPC).

During the last quarter of 1981 the Stack of the Rock Crusher had 7 sampling periods recorded at its new location. They were all in December. Apparently it is sampled only when it is operated. The readings ranged from 19.1% MPC to 110.3% MPC and averaged 45.3% MPC. The monitoring of ther incinerator stack for this quarter showed the highest concentration to be 2.2% MPC. This stack is only monitored when the incinerator is in operation which was very little during this quarter. The stack for the 774 operation is monitored once per calander week and between 1/27/82 and 2/12/82 it had been sampled 6 times for approximately 24 hours each time. The readings ranged from 443.6% MPC (the wrong filter was installed and we were notified) to 0.6% MPC. Other than the high one, two samples read above 1% MPC (1.7 and 6.0). The new stack at the B&O Cutoff unit had been sampled 2 times (0.5 and 0.6% MPC).

During November 1981 there was recorded 5 samples for the 774 operation. They ranged from 0.34% MPC to 1.76% MPC. Apparently those were generated during the pilot test run of 200 penetrators.

There are 5 sample stations associated with the Environmental Air Sampling program one of which is a background sampler several miles from the plant site. The other 4 are located around the perimeter of the plant site. The highest concentration reading at each of the sites for the 4th quarter 1981 was (1) 0.76% MPC, (2) 0.53% MPC, (3) 0.69% MPC, (4) 1.3% MPC, and (5) 0.31% MPC. The readings are taken after a sampling period of 1 week (approximately 10,000 to 10,100 min).

The records showed that 5 sets of water (creek) sampling had been analyzed since beginning of the last quarter of 1981. The results UPSTREAM ranged from 0.5 pCi/l to 5.3 pCi/l from alpha activity and from 5.7 pCi/l to 16.8 pCi/l from Beta activity. The results DOWNSTREAM ranged from 2.1 pCi/l to 11.1 pCi/l from alpha activity and from 2.1 pCi/l to 29.0 pCi/l from Beta activity. Two sediment samples were taken during the period and showed 1.4 microgram/gm (dry wt.)(URANIUM) UPSTREAM and 3.5 microgram/gm (dry wt.) DOWNSTREAM.(URANIUM)

The company's Smear Surveying involves over 200 smears per week from various areas and differing frequencies. During the 4th quarter of 1981, 22 smears were found to exceed the company action level for that site. Between 1/4/82 and 2/12/82, three smears have exceeded the action level. However, some independent smears were made by the inspector during this visit. Of 12 smears taken at random, 8 exceeded the company's designated action level when counted in the Department's Lab in Nashville (ATTACHMENT 6).

The Instrument Survey Program involves the same points as the smear program. However, more readings are taken that exceed the action levels than are found with smears. During the 4th quarter 163 excessive readings were found. From 1/4/82 to 2/11/82, 115 readings over action levels were recorded. The independent readings made during the inspection at the same area smears were taken did not detect any reading above the Action Level (ATTACHMENT 7).

A System is utilized whereby a NOTICE is issued from the RSO office to the Supervisors in any area where elevated air concentrations (based on last rather than first reading of a sample) are found, also for high BZ, TLD Badges readings, Dosimeter readings, and surface contamination levels. The supervisor has to respond. In reviewing the responses it appeared that the system had merit, however, it appeared that a lot of the responses were explanations or justifications of what occurred and not much on what was done to protect the employee. Many of the explanations, although possibly inadvertenly, contained enough information to indicate some degree of safety or non-exposure to personnel. The Action Levels as given by the RSO were: (1) Air concentrations - 90% MPC; (2) Urine Levels - 30 microgram/l; (3) Personnel Monitoring - W.B. (200 mrem/2 wks), Ring (no level set), Skin (quarterly limit), Dosimeter (50 mrem per day and/or 300 mrem/wk).

John Kahle, NRC, reviewed the bioassay program and laboratory procedures. His summary is ATTACHMENT 8. He had several suggestions and comments to make on the urinalysis program, in Vivo counting program and the Laboratory, however, only two citations were involved.

In discussion with S.L. Hock, I was told that the proportional counter is checked for efficiencies daily. Also the results from the counter is in dpm becasue the efficiency is programed into the counter. The final calculation is made by hand by inserting the dpm and other variables into the appropriate equation. Also I was told that none of the material from the thorium cleanup was buried on site. She said about 10 feet of concrete across one end of the 102 building was removed. She said that all material was handled, packaged, and shipped for burial by the contract consultant. She said that TNS received a final report on the cleanup. I did not review this report this trip but from the description I would not expect there to be information in it that would identify separate shipments of waste to the extent concrete could be separated from other waste. (Calculations show that approximately 1 ton of thorium could be buried on site under the Regulations.)

The closing was held with the same individuals as the opening except for the addition of J. Hoynacki and G. Christensen. Many topics were discussed including several recommended items, such as use of smaller spikes in uranalysis checks, perform NBS traceable trials, possibly lower Action Limits some and more equipment. Also discussed were TNS plans to add to the Radiation Safety staff. In addition, TNS outlined all of the amendment requests they had sent to us and asked if the status of each could be checked. The items of non-compliance were:

1200-2-5-.05(2)	1.	Evaluation of or back calculation to intake from air concentrations had not been performed from urinalysis and in Vivo counting results.
1200-2-5-.05(3)	2.	The air concentrations in many areas exceeded 25% of Maximum Permissable Concentration (MPC) and adequate process or other engineering controls were not being used.
1200-2-5-.10(2)	3.	Inasmuch as no dates or record was produced as justification for utilizing a self-absorption factor of one (1) in alpha counting adequate surveys were not being performed.
1200-2-5-.10(2)	4.	Inasmuch as air was being exhausted by fan through roof openings without monitoring adequate survey was not being performed.
1200-2-10-.02	5.	Inasmuch as the Jaw Crusher had been moved from the location orignially approved by the license activities ultilizing radioactive material were conducted without license authorization.

CPW/vsp/dl-11

CPW
4/5/82

ENCLOSURE VI

TENNESSEE DEPARTMENT OF PUBLIC HEALTH
Environmental Management and Quality Assurance Administratio
T.E.R.R.A. BUILDING
150 NINTH AVENUE, NORTH
NASHVILLE, TENNESSEE 37203

April 15, 1982

TNS, Inc.
P.O. Box 158
Old Highway 11-E
Jonesboro, TN 37659

Attention: Robert A. Schell

Gentlemen:

This letter refers to an inspection by Charles P. West on February 17 through 19, 1982 of activities authorized by your Tennessee Radioactive Material License number S-9009-F4. Also John Kahle, Richard Woodruff, and E.C. Ashley from the Nuclear Regulatory Commission were in attendance during the inspection.

This inspection revealed the following items of non-compliance with the requirements of "State Regulations for Protection Against Radiation" (Regulations).

1. Contrary to 1200-2-5-.05(2) assessment of or "back calculation' to intake of radioactive material from air concentrations had not been performed using bioassay data (urinalysis and in vivo counting).
2. Contrary to 1200-2-5-.05(3) process or engineering controls were not being used to the extent practicable, to limit concentration of radioactive material in air to levels below those which delimit an airborne radioactivity area. Many areas exceeded an average of 25 percent of maximum permissible concentration (MPC). Among these areas were: (a) Lathe and Hacksaw, (b) Vacuum Furnace Platform, (c) Mold and Crucible Preparation, (d) Down Draft Table, (e) Derby Breakout, (f) Weigh-up and Blend , (g) Lead Pot, and (h) Rock Crusher. (Some of these areas were named as sites of high exposures during the last inspection).
3. Contrary to 1200-2-5-.10(2) surveys adequate to determine compliance with the Regulations were not made. No data or record was available to justify the utilization of an Alpha particle self-absorption factor of one(1).
4. Contrary to 1200-2-5-.10(2) surveys were not adequate to determine compliance with the Regulations. No monitoring was done at roof openings through which air containing radioactive material was exhausted by fan to the environment.

5. Contrary to 1200-2-10-.02 activities involving utilization of radioactive material were conducted without license authorization. The Slag (Rock) Crusher and Large Derby Breakout area had been moved from the originally licensed locations to other locations without a license amendment.

Your are requested to respond in writing within 15 days of the receipt of this letter. Describe the actions or planned actions, to be taken that will bring your activities into full compliance and will prevent further non-compliance. Please direct your response to:

Bill Graham, Director
Division of Radiological Health
Tennessee Department of Public Health
TERRA Building
150 Ninth Avenue North
Nashville, TN 37203

Further, and also as stated in the last inspection's compliance letter, it appears that your safety program was inadequate to protect workers from unnecessary radiation. In addition, in item 2 of this letter as well as on several other occasions the lack of process and engineering controls has been included as a non-compliance element. Except for new operations and processes, little activity has been observed to date which shows commitment to this means of protection from radioactive material. Therefore to assure that situations at TNS, Inc. do not continue to exist, where individuals are exposed to unnecessary radiation and concentrations of radioactive materials, you are directed to take the necessary corrective actions during a period of time not exceeding 120 days from the date of this letter, in which all operations at TNS, Inc. will be modified as necessary with engineering and process controls to provide compliance with State Regulations for Protection Against Radiation unless documentation is submitted to demonstrate that such controls are not practicable.

Sincerely,

Charles P. West
Division of Radiological Health

CPW/sc/5-4