REPORT AND STAFF EVALUATION
OF THE
NEW YORK STATE DEPARTMENT AND ENVIRONMENTAL CONSERVATION
RADIATION CONTROL PROGRAM
FOR THE PERIOD
MAY 19, 1979 TO SEPTEMBER 7, 1980

6th Regulatory Program Review

REPORT AND STAFF EVALUATION OF THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL RADIATION CONTROL PROGRAM FOR THE PERIOD MAY 19, 1979 TO SEPTEMBER 7, 1980

The sixth regulatory program review meeting with representatives of the New York State Department of Environmental Conservation was held during the period September 8 to 10, 1980, in Albany, New York. The State was represented by Thomas J. Cashman, Chief, Radiation Section. The NRC was represented by Kathleen N. Schneider. The review consisted of a review of standard program indicators such as: organization and structure of the radiation control program, administrative procedures, personnel management, status of regulations, and licensing and compliance activities. A summary meeting regarding the results of the review was held with: Mr. Robert F. Flacke, Commissioner, New York State Department of Environmental Conservation; Mr. Thomas J. Cashman, Chief, Radiation Section; and Mr. Jack Spath, New York State Energy Office on September 10, 1980.

Conclusions

As a result of this program review and correspondence with the State, the staff believes the New York State Department of Environmental Conservation Program for control of agreement material is adequate to protect public health and safety and is compatable with the Nuclear Regulatory Commission's program. These conclusions are based on a review of the technical and administrative aspects of the State's regulatory program for controlling agreement material. However, recommendations were presented which is believed would enhance the program.

Summary Discussion with Commissioner Robert F. Flacke

A summary meeting to present the results of the regulatory program review was held with Commissioner Flacke, Department of Environmental Conservation (DEC) on September 10, 1980, in Albany, New York. Mr. Thomas Cashman, Chief, Radiation Section, and Mr. J. Spath, New York State Energy Office, were also present. The reviewer presented a brief explanation of the Agreement State Program for the benefit of Commissioner Flacke.

The reviewer pointed out to Mr. Flacke that due to the budget cut in the Division of Air in which Radiation Control is located, there had been a significant decrease in the level of funding. The reviewer also informed the commissioner that according to the DEC staff, that the Radiation Control Program had lost two professionals and had been unable to fill the vacant positions in the region due to the funding difficulties. These actions had resulted in the reduced staffing level compared to the previous years.

It was also noted that the number of overdue inspections had increased. However, the program staff indicated that a significant portion of this increase in overdue inspection is due to the significant casework coupled with the loss of personnel and funding. The reviewer stated that she would not make a finding regarding the program at this time.

Commissioner Flacke indicated at the end of the discussion that it had been a difficult year financially for the Department. But he expected to return the radiation control program staffing to its previous levels. Commissioner Flacke then reaffirmed his support of the radiation control program. The

reviewer informed the Commissioner that he would be requesting a written response to the findings and would be able, based on his response, to make a finding regarding adequacy.

Summary Discussion with Mr. T. Cashman

The following comments and recommendations were made to T. Cashman on September 10, 1980:

1. The Office of State Programs has not received any copies of permits issued by DEC since the last review. We recommend that OSP be sent copies of new or amended permits on a quarterly basis.

2. We recommend that formal documentation of the assessment of the permit application, especially for more complex permit applications, be continued and that such a document contain all the important aspects of the reviewer's assessment and actions. The State had indicated that they would not be able to continue this practice in the future because of reduction of staff.

3. It was noted that survey instruments used for independent measurements and inspections were not calibrated. It was recommended that these instruments be calibrated.

4. During the review of selected compliance files, it was noted that several sections of the inspection report were not completed. It was recommended that all sections of the inspection report be covered during the inspection and documented in the report.

5. During the review of the National Lead Industries (NLI) file, it was noted that handwritten notes, and documentation of meetings and telephone conversations were incomplete. It was not possible to determine author, date, and subject. It was recommended that all information sent to the files should be dated, signed, and completed as to pertinent information.

Program Changes Related to Previous NRC Comments and Recommendations

1. Comment and Recommendations

   We noted the staff's participation in various meetings which appeared to be directly related to their permitting and compliance functions, that is, Environmental Protection Agency, Region II and III annual meetings, and American Society of Testing Materials Conference held in Vermont. We also recommend staff participation in short training courses that are related to radioactive source emission and environmental radiation surveillance; for example, the one week Environmental Radiation Surveillance course at the Harvard School of Public Health.

   State Response

   No response from the State.

Present Status

During this review period the staff has attended three courses, including the Emergency Preparedness Course.

2. Comment and Recommendation

It was recommended that the State provide copies of permits issued since the last review to the reviewer, and also that NRC would be receiving copies of new permits on a quarterly basis.

State Response

No response.

Present Status

It was again recommended that the State send copies of permits issued on a quarterly basis to the NRC. This is the third time this comment has been made.

3. Comment and Recommendation

With regard to permitting actions and inspections, we recommend a more formal documentation of the assessment of the permit application, especially for the more complex permitting actions. Such a documentation would put together all the important aspects of the reviewer's assessment and actions.

State Response

The radiation section will implement the 1979 NRC recommendations, including a more formal documentation of the assessment of applications for complex permitting actions.

Present Status

It was noted that the staff is formally documenting the assessment of the permit application, especially for the more complex permitting actions. However, the staff did not believe they could continue this effort in the future due to the reduction of staff.

4. Comment and Recommendation

The reviewer discussed the practices of conducting independent confirmatory surveys by the inspectors using calibrated instruments. We recommended that this practice be in use wherever it is appropriate.

State Response

DEC's confirmatory surveys are primarily based on laboratory analysis of concentrations of radioactivity in air and water samples. The radiological science laboratory has an extensive quality control program. The calibrated instruments in the laboratory are traceable to NBS' standards.

Present Status

It was noted that survey instruments used for independent measurements in inspections are not being calibrated.

5. Comment and Recommendation

The reviewer noted the need for incorporating language in the enforcement letters which would ask the permittee to describe actions that will be taken to correct the item of noncompliance, the date he will achieve correction and what action he will take to prevent such a reoccurrence.

State Response

Enforcement letters will continue to request the permittee to describe actions that will be taken to correct the item of noncompliance, including the schedule and the actions to be taken to prevent such a reoccurrence.

Present Status

This comment has been implemented.

ORGANIZATION

Legal Authority

There has been no change in the statutory authority designating the New York Department of Environmental Conservation, Radiation Control Program. The New York DEC program is one of four agencies in the State that controls agreement materials. DEC is responsible for issuing permits to any licensee who discharges radioactive material into the air or waters of the State, and land disposal.

Location of Radiation Control Program Within the State Organization

The Radiation Section is located under the Bureau of Technical Services, which in turn is under the Division of Air Resources. The Division of Air Resources in turn reports to the Office of Environmental Quality (OEQ). The OEQ is directly under the New York State Department of Environmental Conservation Commissioner. Organizational charts are enclosed as Appendix A.

It does not appear that the Radiation Section is able to compete effectively for resources in its present position. The Section has been affected by the budget cuts and lack of personnel.

Internal Organization of the Radiation Control Program

The internal organization of the Radiation Control Program is attached to this report as Appendix B.

Legal Assistance

Mr. Cashman stated the legal staff is available to the Radiation Control Program as the need exists. He believes the legal staff is qualified to meet the needs of the section.

Technical Advisory Committees and Consultants

The Radiation Section does not utilize any formal or advisory committees. If technical assistance is required, the section utilizes the services of other State agencies and Federal agencies such as NRC and EPA.

ADMINISTRATION

Plans for Response to Local Emergencies Involving Agreement Material

The lead agency for responding to emergencies is the State Department of Health. The Department of Environmental Conservation serves as a resource agency.

Budget

The fiscal years runs from April 1 to March 31. Funds for the Radiation Control Program continue to be funded by State General Funds, and NRC I&E Environmental Surveillance funds.

The total program funds for the interval 1979 to 1980 was $149,250, of which $107,750 was from the State general funds and $41,500 was from the NRC for Environmental Surveillance. Mr. Cashman estimated that the radioactive materials program was allotted $36,000 for this period.

Based on the above information and the 130 permits in effect, the dollars per permit for the agreement materials is estimated to be $277, which is within the range of the NRC recommended value of $200-$350 per license. However, it should be noted that this is a 40% decrease from last year's figure of $469 per permit. This decrease is attributed to radical staff reduction and funding decreases. There is no fee system in place at this time.

Administrative Procedures

There have been no major changes in the administrative procedures for the day to day routine activities from that reported in last year's review. One new permitting guide was issued, a guide on incineration of liquid scintillation wastes. The staff stated that because of the uniqueness of most applications, each one is evaluated on an individual basis. The Office is still experiencing communication difficulties between the Radiation Section and the Regional Offices.

The Office has the authority to withdraw permits, to apply monetary penalties and to hold show cause or compliance hearings. Proceedings for these actions are established under the Air and Water Regulations and the Environmental Conservation Law.

It was reported that the public relation inquries or problems were handled through the public information center. Inquiries may be referred to Mr. Cashman and the staff for response.

Statistical information is compiled on the permitting program and maintained in tabular form. Table shows: (1) The name of the installation and the number of emission points; (2) the type of facility; (3) the date of the permit approval; (4) the date the office received a copy of the permit; (5) date of last inspection; (6) inspection priority; and (7) region the facility is located in. Mr. Cashman indicated that he believes there will be some difficulty in maintaining the statistics on the program due to the decrease in personnel.

Planning

Mr. Cashman estimates the workload every year for the next two years in budget preparations. It should be noted that the cut in funding was not factored into the planning for the radiation control program.

Laboratory Support

The radiation section had inhouse capabilities for TLDs, recording Reuter-Stoker pressure ion chambers and silicon column for tritium measurements. Air flow measurements are performed by personnel from the air pollution section. Other laboratory services are provided by the New York State Department of Health under contract to the DEC. The staff indicated that rush samples can usually be obtained within a day of receipt from the lab and routine samples are processed within one month.

Office Facilities, Equipment and Support Services

The quarters available to the Radiation Section appear to be adequate at this time for the two personnel. There is one secretary assigned to the Radiation Section at this time also. The State has automatic typing capabilities and the regional offices have clerical support.

Public Information

Mr. Cashman stated that if the individual desires to see material relating to permitting and inspection activities, they are first directed to the Public Information Office to fill out the necessary forms. The individual is then provided access to the permit files. However, Mr. Cashman stated that the individual is restricted to permitting matters. It should be noted that in the case of National Lead Industries and Self Power Lighting that the State has separated the files into public information and internal information. It is extremely difficult to review these two files because of the setup.

PERSONNEL

Qualifications

There have been no changes in the personnel position descriptions since the last program review.

Number of Personnel

At the present time, the Radiation Section has two members who are responsible for the radiation control program:

Staff	Title	Staff Years	Duties
T. Cashman	Principal Nuclear Engineer	0.3	Administration, management and supervision
W. Kelleher	Associate Radiological Health Engineer	0.8	Permitting, compliance and environmental surveillance
	Total	1.1	

The above data indicates that 1.1 staff years of technical effort was spent on the materials program. Based on the number of agreement permits in effect, 130, the staff years per 100 licenses is 0.85 staff years per 100 permits. This is a decrease from last year's level of 1.7 staff years per 100 permittees and is below the NRC's suggested staff levels of 1 to 1.5 staff years per 100 licenses. However, the guidelines has limited application to DEC due to severely limited nature of DEC's program.

Training

Since the last program review, Mr. Kelleher has attended the Radiological Emergency Response Coordinator's Course, five days, Harrisburg, Pennsylvania and the low level radioactive waste disposal symposium, 1 day, sponsored by the Northeast Chapter of the Health Physics Society. Mr. James Shanglee has attended the Measurement of Radon and Radon Daughters, 3 days, at Las Vegas, sponsored by the EPA. This training amounts to approximately 0.03 staff years, which is below the NRC's suggested level of 5% to 10% of the program effort. It should be noted, however, that this suggested level is not fully applicable to the NYDEC program in that NYDEC only has responsibility for a small segment of the total radiation control program.

Duties

Mr. Cashman administers, manages and supervises the program. He also stated that he accompanies inspectors, and shares responsibility with Mr. Kelleher in recommending permits, reviewing inspection reports and performing duties in environmental surveillance and emergency planning. However, it was noted in this review, that Mr. Cashman had not performed any accompaniments during this review period. He also signs letters of noncompliance and approves the inspection schedule provided by the staff.

Permit applications are reviewed by Mr. Kelleher. The recommendation for issuing the permit based on the radiological section's review is then sent to the regional offices. The permit is then issued from the regional offices.

Salaries

The salary range for the professional staff of the State Program are as follows:

Grade 31 - $32,475 to $36,915
Grade 27 - $26,390 to $30,230
Grade 23 - $21,345 to $24,645

The reviewer was informed by Mr. Cashman that the State employees are represented by a union and that questions relating to salaries, periodical salary increase and the next steps are outlined under the union contract. The provisions for cost of living increases are also determined by the union contract.

Staff Turnover

Since the last review, two positions have been abolished and one employee has been promoted outside of the program. Because of the difficulty encountered due to the budget cut, the vacant position has not been filled in the region. Also at this time, there is no opportunity for a new promotion to a position within the Department.

Recruiting

There has been no change in the recruiting procedures since the previous review, that is, the State Civil Service Commission handles the recruitment and announcements.

REGULATIONS

Compatibility

Applicable NRC proposed regulations are reviewed by the Radiation Section and responses are coordinated through the New York State Energy Office. The staff advised that the State can administratively adopt new regulations. However, a public hearing can result. There have been no changes in procedures for the development and promulgation of regulations from that reported in the fifth annual review.

Updating of Regulations

Presently, there are no plans for revision of the DEC Radiation Control Regulations. These regulations were last updated in 1974 and are compatible with the NRC regulations.

LICENSING

Licensing Actions

As of this date of the review, there are 130 permits in effect. The state issues a permit for each emission source within a facility. Each emission

point is assigned a priority and is shown as attached in Appendix C. There were six new permits issued since the last review period. Exact data on renewals were not available, but the staff estimated that about 20 renewals were issued since the last review.

There were four complex permits actions. They were: (1) Self Powered Lighting, National Lead Industries, NRD, and UpState Medical Center. A prelicensing visit is always made by the reviewer. For more complex permitting licenses, a visit is made with the regional office and the Radiation Section Staff.

Results of the permit review are attached to this report as Appendix D. Details regarding the file review were discussed with the staff. The reviewer recommended a continuation of the formal documentation of permit application assessment, especially for the more complex permitting actions. Mr. Cashman had indicated that he felt the staff would have some difficulty in continuing this documentation effort due to the reduction of staff.

Adequacy of Product Evaluation

Not applicable.

Licensing Procedures

There have been one new licensing guides issued since the last review; an incineration of liquid scintillation waste. The staff indicated that because of the uniqueness of most applications, each one is usually evaluated on an individual basis. Some copies of permits issued since the last review were obtained and hand carried back. The Office of State Programs has not received any permits for the last three years. Mr. Cashman indicated that in the future, he would be sending permits on a quarterly basis.

The staff stated the permit applications are usually completed within 15 working days of acknowledged acceptance, as required by the uniform procedures act. Permit expiration notices are sent out at least three months before the permit expires. Permit expiration datesare kept track by the computer by the region. The Radiation Section also tracks the dates through the computer of the Air Resources Division.

Timely permit renewal procedures are still in use. It should be noted that there is no review of a renewal of a permit if there has been no change from the previous issue of the permit.

The Radiation Control Section does not utilize a list of standard permitting conditions, instead a reference to Section 380 of the regulations is written in the certificate as a reminder to the permittee.

The physical conditions of the permit files made it difficult to review complex cases such as SPL and NLI. The files had been separated into a public file and a non-public file, with no correlation between the two files.

Mr. Cashman indicated that the relationship with the other New York agencies is acceptable.

Quality Assurance

At the present staffing levels, there are only two members of the Radiation Section who perform licensing duties. Mr. Cashman indicated that he reviewed all proposed actions on new permits.

Medical Advisory Committee

Not applicable.

COMPLIANCE

Status of the Inspection Program

Since the last program review, there were twenty inspections of emission points at a variety of facilities. In Priority I, seventeen emission points were inspected, and in Priority II, nine. It should be noted that of over 26 inspections, 13 were at National Lead Industries.

The number of overdue inspections were reported to be ten in Priority II, nine of which are overdue between one to two years.

Inspector Performance and Capability

Mr. Cashman did not accompany any inspectors in this review period. Because of the reduction in New York DEC inspectors, there were no accompaniments by the NRC reviewer performed on this review.

Response to Incidents and Alleged Incidents

Two investigations have occurred since the last review period. One involved Self-Powered Lighting Company using a laser operation to seal tritium sources and National Lead Industries. The investigation for both incidents is continuing, and selected details are provided in Appendix E.

It should be noted that the State did notify the NRC of both these incidents and has kept the other New York agencies informed as to the pertinent information regarding both companies.

Enforcement Procedures

Mr. Cashman stated that the letters are usually issued within 45 days following inspection and that time period allows the permittee to respond to the enforcement letter is generally 30 days.

The State has procedures for handling escalated enforcement cases of varying degrees. The Department of Environmental Conservation does not impound material. However, the appropriate agency with whom the permittee has a radioactive materials license, can impound material in cases of health and safety. Also, DEC can enter into consent agreements with a permittee with a bond requirement.

Equipment Failure

Not applicable.

Inspection Procedures

No new inspection guides or procedures have been issued since the last review. The staff indicated that they are still utilizing the existing guides and formats which need some updating and which they intend to do some time in the future.

As indicated before, the staff generally issues enforcement letters within 45 days following inspections. The time period to allow the licensee to respond to the enforcement letter is generally 30 days. Mr. Cashman is orally briefed by the inspector on return from a nonroutine inspection.

It was not possible from the files reviewed to indicate whether most inspections were announced or unannounced.

Inspection Frequency

The priority system for inspections has not changed since last year's review. It is as follows:

Priority	Inspection Frequency	Category
I	Once every eighteen months	1. Greater than MPC at the point of release 2. Large total emissions 3. Significant defiencies since last inspection 4. History of accidental releases. 5. Burial site
II	Once every 24 months	1. Incineration 2. Transuranic emissions
	Once every 36 months	1. Laboratory requiring annual permit under Part 380 2. Sanitary Sewer Program
IV	Once every five years	1. Laboratory permits that may possibly be exempt

Adequacy of Inspection Reports

Two compliance files were reviewed and the results are shown in Appendix F. Details regarding the reviews were discussed with the staff. Although the form used by the inspectors appears adequate, it was noted that several sections of the inspection report were not completed. Information such as

permit number, radioactive license number, independent measurements by the inspector and permittee monitoring sections were missing in several cases. Mr. Cashman indicated that the staff was contemplating redesigning the compliance form.

Independent Measurements

The reviewer also encouraged continuing the practice of performing regulatory surveys during the inspections using calibrated instruments were appropriate. It was noted that survey instruments used for the independent measurements and inspections were not being calibrated. It was recommended that these instruments be calibrated.

Equipment used to support the inspectors' independent measurements program is shown in Appendix G. In addition, many confirmatory surveys rely on laboratory analysis by the State Radiological Science Laboratory of Air and Water Samples submitted by the staff.

AUXILIARY INFORMATION

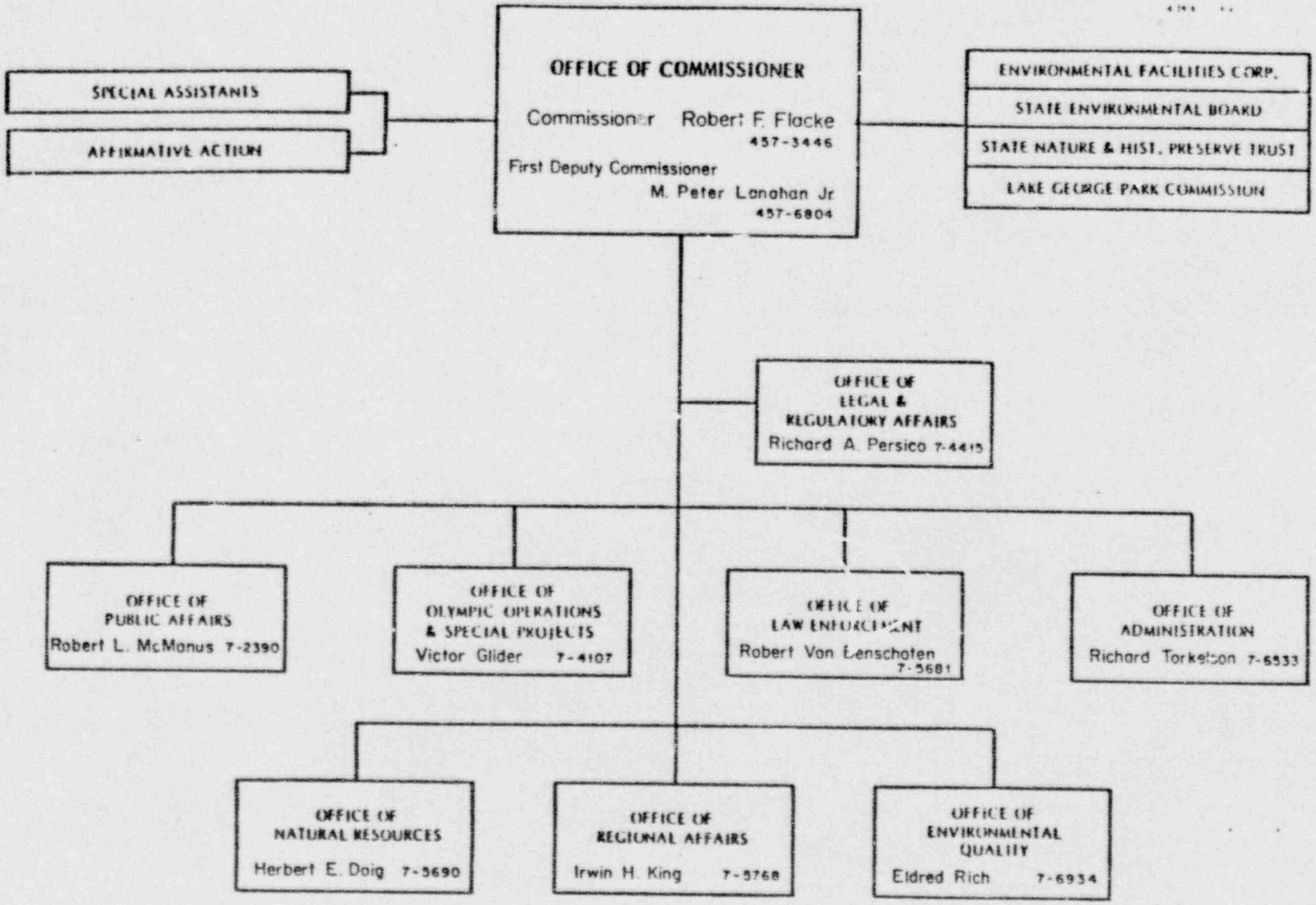
The Environmental Surveillance Program is a program which checks on the radioactive levels of environmental samples taken throughout the state. Environmental media samples are air, milk and water. Quarterly reports and year end reports are prepared. Details on the statewide surveillance program and Nuclear Fuel Services surveillance schedule are shown in Appendix H.

LIST OF APPENDICES

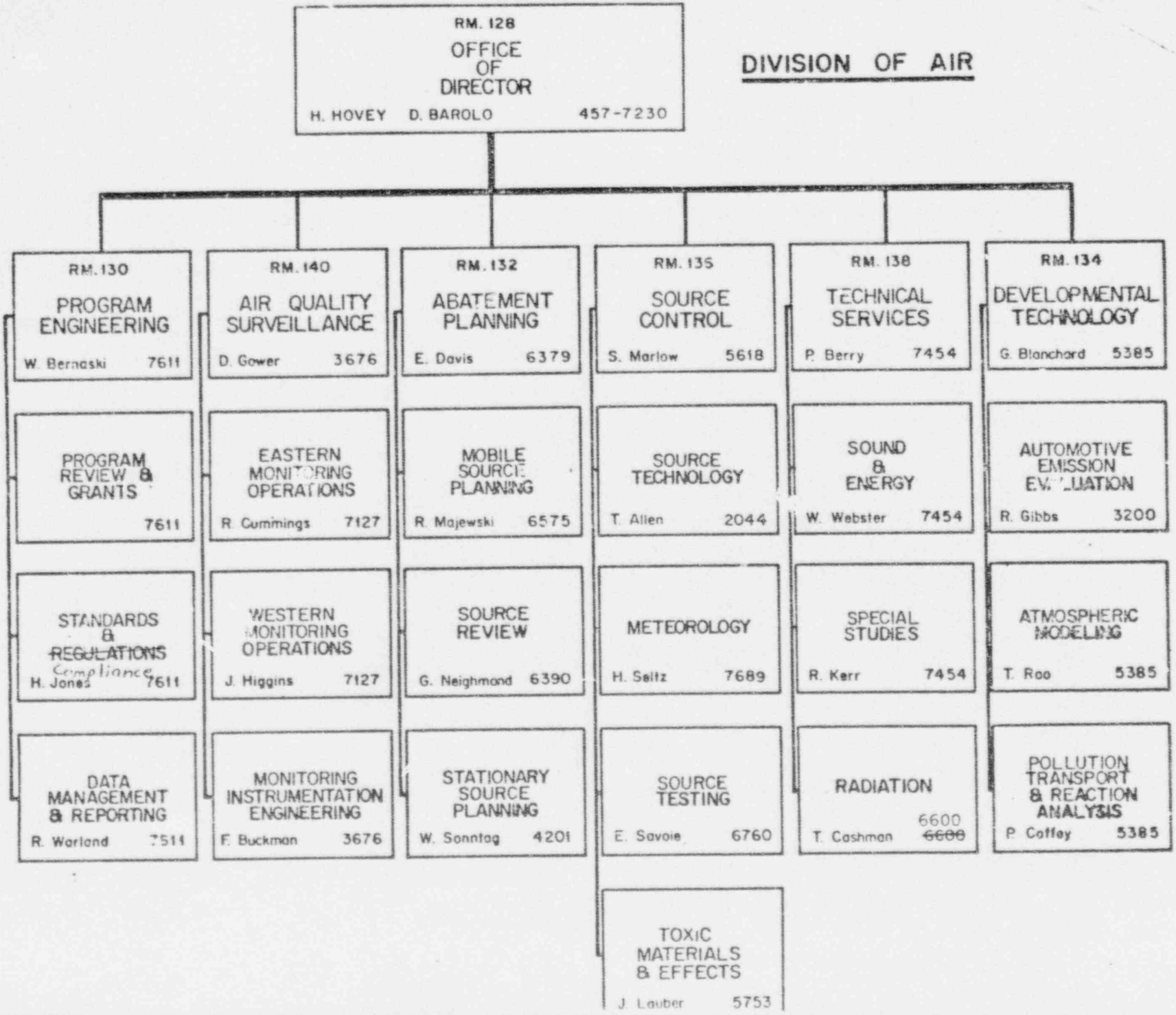
APPENDIX A

ORGANIZATIONAL CHARTS

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

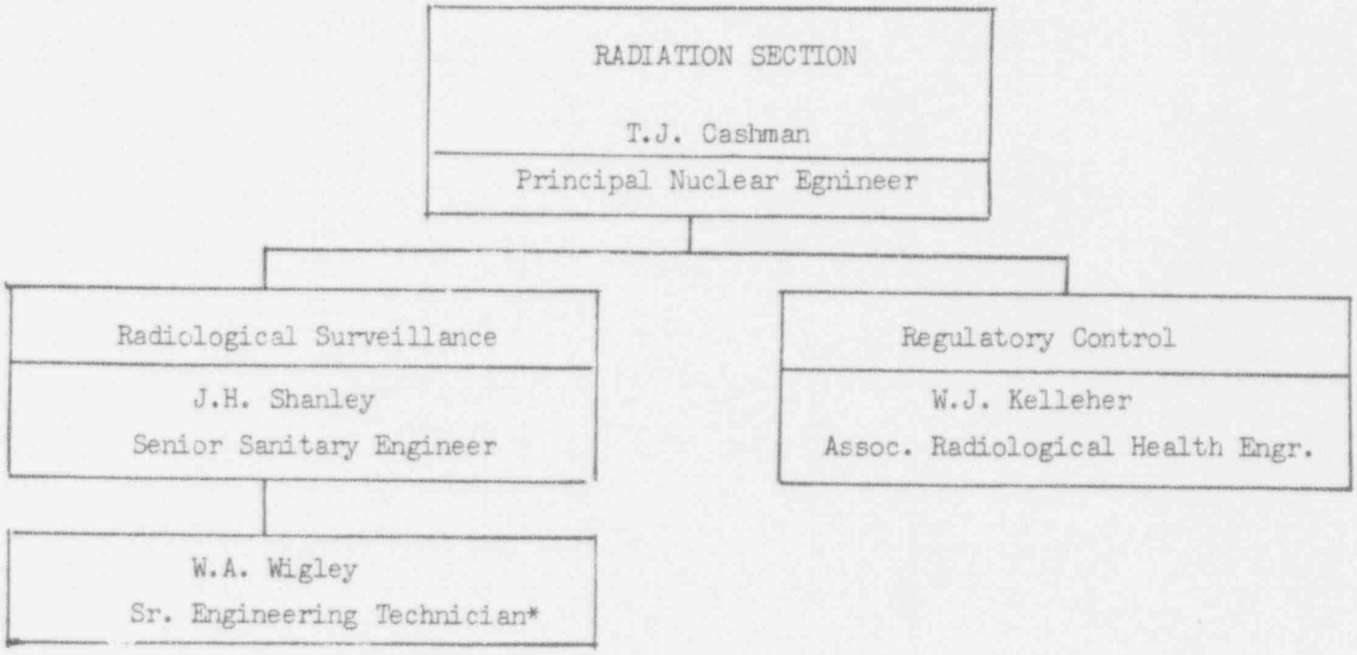


DIVISION OF AIR



APPENDIX B

INTERNAL ORGANIZATIONAL CHART



*Funded by NRC Contract

7/25/80

APPENDIX C

SOURCE EMISSION LISTING

Sources of Radiological Emissions and Burial Sites

Installation (No. of Emission Points)	Type	Date of Approval	Copy of Latest Permit Rec'd by Our Office & Expiration Date	Last Inspection	Priority Inspection	Region
African Metals Corp. - Lewiston	Uranium Tailings(LOOW)	Pending		8/78	I	9
Becton Dickinson Immunodiagnostics - Orangeburgh(6)	H-3 Air Discharges	Approved(2/16/78)	Yes (2/22/81)			
Becton Dickinson Immunodiagnostics - Orangeburgh (1)	H-3 Sanitary Sewer Discharges	Approved(9/7/76)	(Special Conditions should be added) Yes(letter permit)	6/5/78	I	3
Bendix Corp. - Sidney (3)	Kr-85, Production Plant	*Approved	Yes (8/1/80) (Special Conditions should be added)	4/6/79	II	4
Bristol Laboratory-Syracuse (1)	Incineration (E.P. 0006)	Approved(5/2/79)	Yes (3/1/81)	4/13/78	II	7
Bristol Laboratory-Syracuse (1)	Incineration (E.P. 0004A)	Pending				7
Bristol Laboratory-Syracuse (4)	Lab Hoods S-35	Approved(3/10/76)	Yes(3/1/81)E.P.5168, 5262, 23168	4/13/78	III	7
Bristol Laboratory-Syracuse (1)	Sanitary Sewer Discharge(3 Ci/yr)	Approved(9/10/76)	Yes(2/1/79)E.P.23268	4/13/78		
Ciba-Geigy Corp. - Ardsley (1)	Lab Hoods (C-14, H-3)	Approved(9/4/74)	Yes(letter permit)	4/13/78	III	7
Ciba-Geigy Corp. - Livingston (1)	C-14 Study on Potatoes	Approved(6/29/79)	Yes (11/20/80)	3/21/78	IV	3
Corning Glass Works - Corning (2)	Lab Hood (I-125, C-14)	*Approved	Yes(letter permit) Yes (10/31/79) (Special Conditions should be added)		III	4 8
EAD Metallurgical Inc.-Grand Island(2)	Am-241, Production Plant	Approved(10/4/78)	Yes (8/1/79)	10/30/79	II	9
Eastman Kodak Co. - Rochester (6)	Lab Hoods	* Approved	Yes (4/1/80)	4/20/79	III	8
Eastman Kodak Co. - Hawk Eye Plant (3)	Lab Hoods	* Approved	Yes (11/20/79) (Special Conditions should be added)	4/20/79	III	8
FMC Corp. - Middleport (4)	C-14 Environmental Study	Approved(4/24/79)	Yes (letter permit)			9
General Electric - Niskayuna (1)	Lab Hood	*Approved	Yes (4/1/83)	5/25/79	III	4
General Electric - Schenectady (1)	Ventilation	Approved(1/14/76)	Yes (9/5/80)	5/25/79	III	4
General Electric - Syracuse (1)	K-85 (Radiflo)	Approved(3/21/75)	Yes (3/1/82)	4/12/78	III	7
General Electric - Syracuse (1)	U-235	Approved(5/6/76)	Yes (3/1/82)	4/12/78	IV	7
General Food - Tarrytown (1)	Lab Hood	Approved(2/11/77)	Yes (2/23/80)	4/12/79	III	3
Genesee Hospital - Rochester (1)	X-133(Diagnosis Use)	Approved(7/14/75)	Yes (6/30/81)	4/19/79	IV	8
General Instrument Corp. - Hicksville (1)	K-85 (Radiflo)	Pending				1
Grumman Aerospace - Brookhaven (2)	Lab Hoods, Uranium	Approved(2/1/74)	Yes (11/8/79)		III	1
Grumman Aerospace - Brookhaven (1)	Lab Hood, Tritium	Approved(8/24/76)	Yes (3/24/80) (Special Conditions should be added)		III	1

*Approved by Regional Office

Sources of Radiological Emissions and Burial Sites

Installation (No. of Emission Points)	Type	Date of Approval	Copy of Latest Permit Rec'd by Our Office & Expiration Date	Last Inspection	Priority Inspection	Region
IBM - Endicott (2)	Lab Hoods	Approved(11/15/78)	Yes(P.C. 11/17/79)	2/28/80	III	7
IBM - Hopewell Junction (3)	Lab Hoods	Approved	Yes (8/1/81)	6/12/78	III	3
IBM - Hopewell Junction (1)	K-85 (Radiflo)	Approved(10/23/78)	Yes (12/1/81) (Special Conditions should be added)	6/12/78	III	3
IBM - Yorktown Heights (1)	Lab Hood	Approved(1/2/75)	Yes (1/17/81)		III	3
International Paper Co.,-Sterling Forest(1)	Lab Hood	Approved(11/15/77)	Yes (11/21/80)	3/29/79	IV	3
Lederle Lab (6)	Lab Hoods	Approved(3/22/76 12/4/78)	Yes (3/24/79 P.C. 12/8/79) (Special Conditions should be added)		III	3
NYS Dept. of Health-Guilderland (1)	Incineration	Approved(4/15/76)	Yes (3/30/80)		II	4
NL Industries - Colonie (12)	Ventilation	Pending	Order on Consent(1/80)		I	4
NL Industries - Colonie (1)	Incineration	Pending	Order on Consent(1/80)		I	4
Norwich Pharmaceutical Co.-Norwich (2)	Ventilation	Approved(3/22/76)	Yes (9/1/80)	4/5/80	III	7
Norwich Pharmaceutical Co.-Norwich (1)	Lab Hood (C-14, H-3)	Approved(4/2/80)	Yes (P.C. 2/27/81)		III	7
Nuclear Fuel Services Inc.-West Valley(1)	Water Discharge	Approved(pH, heavy metal, temp. etc)	Yes (7/1/83)	4/26/79	I	9
Nuclear Fuel Services Inc.-West Valley(2)	Low Level Waste Treatment	Approved(NRC Licnese)	Yes (10/4/79)	4/26/79	I	9
Nuclear Radiation Development-Grand Island (1)	Am-241 Production Plant	Approved(5/6/79)		10/30/79	II	9
Nuclear Radiation Development - Grand Island (1)	H-3 Production Plant	Approved(5/3/79)	Yes (6/1/80)	10/30/79	II	9
Nuclear Radiation Development - Grand Island (1)	Sanitary Sewer Discharges(48 Ci/yr)	Approved(1/17/80)	Yes(letter permit)	10/30/79	II	9
Numax Electronics Inc.-Hauppauge(1)	Ventilation H-3	Approved(12/29/77)	Yes(2/9/81) (Special Conditions should be added)		III	1
Penwalt Corp. Pharmaceutical Div.-Henrietta (2)	Lab Hoods H-3	Approved(3/22/76)	Yes (2/28/82) (Special Conditions should be added)		III	8
Radium Chemical Co. - NYC	Ventilation Radium-Radon				II	2
Richardson Merrell Inc.-Mt. Vernon(2)	Lab Hoods	Approved(12/18/76)	Yes (5/23/80)		III	3
RPI - Lake George	Environmental Tracer Study	Approved(4/12/76)	Yes(letter permit)			4
RPI - Troy (1)	Incineration	Approved(10/9/74)	Yes (7/31/81)	11/30/77	II	4

Sources of Radiological Emissions and Burial Sites

Installation ((No. of Emission Points)	Type	Date of Approval	Copy of Latest Permit Rec'd by Our Office & Expiration Date	Last Inspection	Priority Inspection	Region
Rochester General Hospital (1)	Incineration	Approved(9/17/75)	Yes (1/11/81) (Special Conditions should be added)		II	8
Roswell Park Memorial Institute (2)	Incineration	Approved(11/4/77)	Yes (12/1/79) (Special Conditions should be added)		II	9
Self-Powered Lighting -Elmsford (2)	H-3 Production Plant	Approved			I	3
Simmonds Precision Products-Norwich(1)	Kr-85 Production Plant	Approved(2/17/77)	Yes (5/1/80)	4/5/79	II	7
State University of NY Buffalo Nuclear Science & Technology Facility-Buffalo (2)	Ventilation	*Approved	Yes (4/1/79)	3/79	II	9
State University of NY Buffalo - Buffalo (1)	Incineration	Pending			II	9
Sullivan Co. Community College-Lock Sheldrake (1)	P-32 Environmental Study	Approved(7/7/7o,	Yes(letter permit)			3
Tri-State Industrial Laundries-Utica(2)	Ventilation(E.P. #3 & #4)	Approved(9/11/75)	Yes (11/1/81)	3/9/78	III	6
Tri-State Industrial Laundries-Utica(1)	Ventilation (E.P. #5)	Approved(12/13/76)	Yes (11/1/81)	3/9/78	III	6
Tri-State Industrial Laundries-Utica(1)	Ventilation (E.P. #6)	Approved(6/9/77)	Yes (11/1/81)	3/9/78	III	6
Tri-State Industrial Laundries-Utica(1)	Movable Decon Laundry	Approved(5/3/79)	Yes (P.C. 5/15/80)		III	6
Trudeau Institute - Saranac Lake (1)	Incineration (H-3)	Approved(10/21/74)	Yes (7/31/80)	8/2/73	II	5
Tufts University, Mass - Chatam (1)	C-14 Environmental Study	Approved(5/25/76)	Yes(letter permit)	3/78		4
		Approved(11/8/76)	Yes(letter permit amendment #1)	2/78		
Union Carbide - Rye (2)	Lab Hoods	Approved(12/8/76)	Yes (12/13/79)		III	3
Union Carbide - Sterling Forest	Air Discharges	Order on Consent			I	3
Union Carbide - Sterling Forest	Water Discharges	Approved(8/1/78)	Yes (8/1/83)		I	3
Union Carbide - Tarrytown (2)	Lab Hoods	Approved(12/8/76)	Yes (12/13/79)		III	3
U.S. Dept. of Energy - Lewiston(LOOW)	Uranium Residues	Pending				
U.S.V. Pharmaceutical Corp.-Tuckahoe(3)	Lab Hoods (Exempt)	Approved(3/22/76)	Yes (2/25/80)		III	3
Watervliet Arsenal-Watervliet (3)	Lab Hoods	Federal Facility(Exempt)				4
Westinghouse Electric Corp.-Horsehead(1)	U-235 Lab Hood	Approved(10/31/77)	Yes (10/1/80)	6/7/79	III	8
Westinghouse Electric Corp.-Horsehead(1)	U-234/U-235 Water Discharges	Approved(10/31/77)	Yes (2/28/81)	6/7/79	III	8
Xerox Corp. - Rochester (1)	Lab Hood	Approved(2/21/75)	Yes (2/28/81) (Special Conditions should be added)	1/15/75	IV	8

Sources of Radiological Emissions and Burial Sites

Installation (No. of Emission Points)	Type	Date of Approval	Copy of Latest Permit Rec'd by Our Office & Epiration Date	Last Inspection	Priority Inspection	Region
		BURIAL SITES				
Cornell University - Ithaca	Burial(stopped operation-since 6/30/78)	Approved(2/20/75)	Yes (memo)	3/26/76		7
Eastman Kodak - Rochester	Burial - Exempt Quantity			4/20/79		8
Lake Ontario Ordnance Works - Niagara Falls	Contaminated Land	Labor Dept. License		8/78		9
Nuclear Fuel Services-West Valley	Burial(stopped operation-since 3/75)					9
Union Carbide - Niagara Falls	Burial (maintenance only)	Approved(10/26/66)	Yes(letter permit)			9

JCH:sl
5/5/80

APPENDIX D

PERMIT FILE REVIEWS

PERMIT FILE REVIEWS

Four permit files were reviewed. The name of the permitees and their permit numbers are:

1.	Simmonds Precision Engine System Division Norwich-Oxford Road Norwich, NY 10523	Permit No. 7-08644 Issued: 6/25/80 Expires: 5/1/81 Kr-85 Production Plant
2.	Bendix Corporation Sidney, New York	Permit No. 00127, 00135, 00136 Issued: 8/1/77 Expires: 8/1/80 Kr-85 production exhaust hood
3.	EAD Metallurgical, Inc. 71 Pearce Avenue P.O. Box 121 Tonawanda, NY 14150	Permit No. 9-12271 and 9-12272 Issued: 2/1/79 Expires: 8/1/79 Am 241 Product Plant
4.	Nuclear Radiation Developments Division of Mark IV Industries, Inc. Grand Island, New York	No permit in file request to increase sewer emission > 1 Ci/yr not to exceed 48 Ci.

Permit reviews were generally reviewed for information on emission point identification and number, process description, control equipment summary, supporting information, operating conditions, address of user and signature on the permit.

Comments resulting from this review were presented for each permit to the staff and can be characterized as: comments occurring in several file reviews; and comments occurring less frequently or singularly, see following table for identification of permitee and comments.

Permit File Comments	1	2	3	4
1. No review of monitoring techniques for this renewal. Original permit issued in 1974.	X			
2. Permit number not clear or permit missing.		X		X
3. No review of application (There had been changes in permittee actions).		X		
4. No information in file on renewal application (permit expired 1979)			X	
5. Documentation of meeting with permittee missing.				X

APPENDIX E

INFORMATION ON SELF-POWERED LIGHTING AND NATIONAL LEAD INDUSTRY FILES

15 (12/75)

File c

New York State Department of Environmental Conservation

MEMORANDUM

TO: Thomas Cashman
FROM: William Kelleher - Radiation Section
SUBJECT: Inspection of Self-Powered Lighting (SPL), Elmsford, New York

DATE: September 3, 1980

A partial inspection was made of SPL on August 29, 1980. The purpose was to review SPL's effluent and environmental monitoring program. The following recommendations were made to Mr. Hegarty:

The tritium emissions report for June 1 through August 15, 1980 submitted in a letter of August 21, 1980 from Mr. Hegarty to Mr. Cashman should be resubmitted because of missing data and mistakes.

SPL should study the various operations to identify where T_2 is being converted to THO.

Readings of the Triton monitors 3 times per day, with special notations and reasons for spikes, should be satisfactory for estimating T_2 discharges that should be reported to DEC on a monthly basis.

A record of spikes on the Triton monitor should be compared to levels of tritium in urine of workers to ascertain possible reasons for conversion of T_2 to THO.

DEC would consider approval of two day sampling of EP-1 and EP-2 instead of daily sampling if SPL can demonstrate through studies and use of the Triton monitors that a two-day sample is as useful as a one-day sample.

Special attention should be given to calibration of air pumps for flow rates including records to indicate when pumps wear and flow rates decrease.

The most likely reason for differences in levels in air at the Martin Building between SPL and DEC is the type of air pump and air flow regulation used by SPL. Mr. Hegarty agreed that SPL will install better air sampling equipment.

The use of soft copper pipe and crimping to seal rejected tritium tubes was recommended. The presence of air in waste barrels and a high radiation field from T_2 itself promotes the oxidation of T_2 to THO. Copper is an effective seal against the release of T_2 or THO.

The inspection was made by Mr. Kelleher accompanied by Messrs. Shanley, Klauss and Jagirdar of DEC. The persons interviewed were Mr. Hegarty, President, and Mr. Terry Kirschenbaum recently employed by SPL as a Health Physicist. Mr. Kirschenbaum's resume is attached.

A review of the effluent monitoring for THO was made and the present system appears to be satisfactory. Air is drawn through silica gel for one day, the gel is soaked in 125 ml of water for 24 hours, a 12 ml sample is counted by liquid scintillation counting. This is an acceptable technique for THO in air determination. A major problem has been wear of the air pumps resulting in lower air flow rates such as recently occurred in July. SPL purchased and installed metal diaphragm-type pumps to minimize this problem. The need to properly calibrate and to keep records of pump performance should be emphasized.

Records of tritium in urine of workers were examined. There appeared to be a correlation between levels in urine and levels of THO in fallout at the Martin Building as measured by DEC. As an example in a period 6/9 to 6/16 the tritium level for the maximum exposed worker increased from 7 μCi/l to 22 μCi/l. The fallout at Martin Building increased from 0.21 million to 1.6 million pCi/l from 6/4 to 6/11. The levels of THO in air at the Martin Building also appeared to rise and fall along with tritium in urine of workers.

The record of one Triton monitor for the month of June was examined. There were definite spikes where something happended but no explanation or reason for any spike was made for the record. Mr. Kirschenbaum plans to record the readings on the 2 monitors 3 times per day. This would be satisfactory for T_2 if spikes are recorded and the total release of tritium recorded for each spike. Further, the suspected reason for the spike should be recorded. In this manner, it may be possible to correlate environmental levels and levels in urine with particular operations.

SPL has initiated a study of THO being discharged from the transfer and waste storage hood. The conversion of T_2 to THO during waste storage is suspected. Sealing of defective tubes in copper pipe, and special handling of vacuum pump oils are possible ways to reduce worker exposure and environmental discharges. The requirements placed on SPL by the burial sites may be in conflict with the above - i.e., cause more worker exposure and environmental discharges in order to meet burial site regulations for immobilizing wastes.

The two offsite air monitoring stations operated by SPL were examined. Mr. Kirschenbaum was not able to measure or adjust the air flow to a steady flow rate. The problem appears to be caused by a combination of the type of air pump, the long intake line, and a

valve type throttle on the intake side following the silica gel. The DEC monitoring station at the same point was explained by Mr. Shanley. SPL has agreed to try to duplicate DEC's equipment. Mr. Shanley offered to help SPL obtain a gas meter to measure total volume.

The emission report for June 1 to August 15, 1980 was reviewed with the following comments:

EP-1: 5/30 to 6/9/80 data missing
EP-1, 2: All reports for total curies discharged not determined correctly.
EP-1: 7/3-7/16 and 7/16-7/23 samples not correct, may be the transfer hood results.
EP-1: 7/23-25 pump broke down?
EP-2: 5/31 - 6/18 data missing.
Sewer: Missing data for month of June.
Robert Martin Bldg.: One page of data missing.
Neighbor: One page of data missing.
Rain Water - Martin Bldg.: Confirm exponent of 10^5; 193,000 pCi/l

Mr. Hegarty should review the data, correct where necessary, and submit a complete new report for that period.

WJK

WJK:sl
Attachment
cc: A. Klauss w/atth.
C. Weber w/atth.
P. Berry wo/atth.

NATIONAL LEAD INDUSTRIES

The reviewer spent part of one day reviewing the NLI files. The files are broken down into two parts: correspondence file which is available to the public and an office file which contains that contains backup information and memos. Following is a summary of some of the information found in the correspondence file.

5/2/79 inspection of non-radioactive material

5/16/79 inspection by DEC, (1) records showed compliance, (2) some points still under review, (3) paragraph about setting up DEC monitoring station to Theodore Rahan from H. Prinz.

8/22/79 DEC requested permission to set up independent monitoring station for continuing releases, weeklys change of filter, etc. to J. Ponciroli, General Manager of NLI.

8/22/79 DOL (Bradley) letter to NL about violations on April 3 -June 1979 inspection 6/13-14/79 followup, August 16-17, 1979, & RSO has left employment - 7 violations: (1) MPC in breathing and general air zone, (2) excessive body burden, - high urine results, (3) excessive skin dose, (4) surface contamination > limits in controlled and uncontrolled area, (5) soil and vegetable sample - excessive concen. of U, (6) smoking in controlled area, (7) inadequate monitoring

This report received at DEC 10/1/79.

9/22/79 Letter to Ponciroli (NLI) from DOL with respect to 9/12/79 meeting - draft ltr on actions that NLI will take with citations (now 8 - no RSO)

9/18/79 NLI gave permission to the State for establishing air monitoring site on NLI property.

9/24/79 DEC letter setting up appointment for monitoring and information on monitoring.

10/12/79 Letter to Stewart Schrank and Mr. Mark Roberts - HP consultant from F. Vanrickce (NLI)

11/14/79 NLI letter (J. Ponciroli) to DEC with stack summary date

10/15/79 Letter to S. Schrank (DOL-OSHA) from F. Varnicka on temporary RSO Michael Boback

10/18/79 DEC (RIV - A. Baskous) to NLI summarizing modification made to the 10/3/79 request. Dec would need for Hi vol samples a permanent power supply and fall out buckets. On 10/11/79 - Brown made committments for NLI and Axelrod (NYSH) and Lyons were present in order to prevent shut down.

10/19/79 NLI proposed soil sampling program

10/23/79 NLI (Ponceroli) to Backone (RIV) summary of first set on data and company explanation for "high readings."

10/26/79 DOL letter to NLI with regard to the 8 citations and their actions to be taken.

11/5/79 NLI to RIV - summary of stack data for week 10/21/79

11/7/79 RIV letter to NLI about proposed soil sampling - 4 changes recommended (penciled in remarks on 10/19/79 letter by RCP in letter)

11/14/79 NLI → RIV stack data for week of 11/4/79

11/21/79 NLI → RIV (A. Baskous) chip converter feed data for 10/17 → 11/17 (considered confidential by licensee)

11/26/79 NLI → RIV effluent sewer information

11/29/79 NLI → RIV stack data wee 11/11/79

11/29/79 Letter to W. Bronner (lawyer) NLI from John Greenthal Compliance Counsel (DEC) copy of Order of Consent requesting response by 12/5/79 if NLI agrees.

11/20/79 J. Matuszek (Director of Labs, NYSH) → J. Ponciroli NLI - sampling errors in stack data - sources of error - requested inform - suggested QA program of EPA

11/30/79 NL (JP) → R IV (AB) Dust bucket analysis and justification for high results

12/4/79 NL (JP) → RIV (AB) - stock sample data - week 11/18/79

12/7/79 RIV (AB) → Leo Hilling (NYSH) data for 11/18/79

12/7/79 W. Bronner (NLI Legal) → J. Greenthal (DEC) about consent order mailed 11/29/79

12/12/79 NLI (A. Belcher) → RIV (David Roman) estimated annual release based on insoluable U 5000 μCi/yr

12/27/79 R. Persico (General Council) to NLI, Order to consent to be signed and incorporates changes from 12/27 meeting

12/31/79 NLI (Bronner) → R. Persico (DEC) in regard to order (order signed by V.P. of NLI Dec. 21, 1979 witness b_ N.P.

1/3/80 DEC (Persiso) → NLI (Bronner) - discussing question raised by 12/31/79 letter

1/29/80 NLI → RIV (AB) copy of stock emission monitoring, EPA method, drawing of emissions, copy of stack flows

1/29/80 NLI → RIV stack data

1/18/80 T. Dagan → J. Ponciroli (NLI) about counting methods

2/5/80 Press release - Flacke (DEC) seek State Supreme Court injunction requiring closure of plant, forfeiture of bond etc.

2/11/80 NLI (A. Belcher) → D. Romano (DEC) RIV application for permit for modification of chip burner.

2/15/80 County of Albany Supreme Court - R. Flacke vs. NL Industry Summons
Affadavit from David J. Romano (2/15/80)
Affadavit from J. Lyons MD Commission of Health - County of Albany February 1980
Affadavit from J. Matesck 2/13/80

2/29/80 NLI → RIV, request authorization to begin burning

3/3/80 RIV → NLI - no phase allowed other than 1st without authorization

2/11/80 RIV → NLI - allow burning of 200 lb of waste in a charge and other requirements

At this point, the reviewer quit reviewing the files due to the difficulties encountered. Discussion with Mr. Cashman and his staff indicated they felt that this separation of the files presented no difficulty. It was impossible to review the internal files due to the time constraint and the file's poor organization.

APPENDIX F

COMPLIANCE FILE REVIEW

REVIEW OF SELECTED COMPLIANCE FILES

1. EAD Neurological, Inc.
71 Pierce Avenue
P.O. Box 121
Tonawanda, New York 14150

Inspection Date: 10/30/79
Routine Inspection
Inspector: William Kelleher & Jim Haung

This was a routine inspection performed on October 30, 1979. The licensee is a manufacturer of fire alarm sources, am-241 mixed with powdered gold. The inspectors met with the plant manager and two recommendations were made to the permittee. A letter was sent to the permittee on November 28, 1979. The report was dated November 2, 1979 and was signed by the supervisor on November 29, 1979. There were no items of noncompliance. The following items were identified as deficiencies.

1. It was not possible to tell from the report if the State performed any independent measurements.

2. Rationale for the recommendations made by the inspectors was not clear in the report. It did not indicate that the State inspectors went to the roof and performed independent measurements. One of the recommendations indicated that the permittee should set up additional sampling on the roof.

3. The letter to the permittee from the State indicated that it would not be necessary to notify the State if anything is found on the roof. The reviewer recommended that the permittee should have contacted the State if radiation was detected on the roof within the given limits.

4. It was not clear whether the inspectors talked to the RSO or if the RSO was the plant manager.

5. The inspection form should as be complete as possible. The report did not contain a State radioactive material license number, priority, and the monitoring section was not completed.

2. Nuclear Radiation Development
2937 Alt Boulevard
Grand Island, New York 14072

Inspection date: October 30, 1979
Inspector: W.P. Kelleher & Jim Huang

This was a pre-permitting visit for a tritium production plant. There were no items of noncompliance indicated in the report. The following deficiencies were noted.

1. There was no DEC number or radioactive material number on the report.

2. No indication of inspection priority.

3. It is not possible to indicate whether it was an announced or an unannounced inspection.

4. There was no supervisory signature on the report.

5. There was no information on the report on monitoring the gaseous discharge.

6. There appeared to be no independent measurements by the State.

7. Inspector's notes were cryptic; difficult to interpret.

8. Letter should have been sent notifying the permittee of the results and recommendations of the pre-licensing visit.

APPENDIX G

LIST OF RADIOLOGICAL MONITORING EQUIPMENT

LIST OF RADIOLOGICAL MONITORING EQUIPMENT

1	Harshaw Model 200P TLD Detector
2	Harshaw Model 2000B Picoammeter
200	Harshaw TLD CaF.Dy type bulbs with cases
1	J.L. Shepherd Mark IV TLD irradiater with timer
2	Reuter-Stokes RSS-111 PIC's equipped with Memodyne tape decks
1	Data General Computer for processing PIC Tapes
1	Reuter-Stokes RSS-111 PIC with strip-chart recorder
18	Low Volume (1.5cfm) continuous air sampliers equipped for sampling airborne particulae and radioiodine
3	400 cc/min air samplers equipped with dessicant columns for tritium sampling
5	FMI water metering pumps for use in water sampling
4	Ion exchange columns for use in water sampling
1	F&P Co. precision rotometer
1	Hi-vol air sampler
3	Micro R/hr meters
3	GM survey meters

APPENDIX H

STATEWIDE AND NFS ENVIRONMENTAL SURVEILLANCE PROGRAM

RADIATION SECTION

STATE-WIDE SURVEILLANCE PROGRAM

Revised ~~3/31/80~~ 7/1/80

(Nuclear Fuel Services Not Included)

Type of Sample Air

Station - Site #		Frequency	Sampling Point	Number of Analyses Per Year								
				GB	^{3}H	$^{125}I/^{131}I$	IG (^{131}I)	$^{90}Sr/^{89}Sr$	IG	IG GeLi		
Albany 0101	001	Weekly	Roof, Albany County Health Department, Albany, N.Y.	52			52[a]	4*	4*			
Brookhaven 5151	002	~~Weekly~~	Creek Road at Shoreham Site Boundary	~~52~~								
Brookhaven 5151	003	Weekly	BNL Perimeter, Station "p-7"	52								
~~Clifton Park~~ 4552	001	~~Weekly~~	Brian Drive & North Bank of Mohawk River - KAPL	~~52~~								
Colonie 0153	001	~~Twice~~/Weekly	NL Industries at West Site Boundary							52		
Colonie 0153	002	~~Twice~~/Weekly	NL Industries at East Site Boundary							~~52~~ 104		
Cortlandt 5951	002	Weekly	NYU Meteorological Tower at Indian Point	52			52[a]		4*			
~~Grand Island~~ 1464	001	~~Bi-Weekly~~	~~Grand Island STP, 7500' NE of NRD Site~~		~~26~~[b]							
Greenburgh 5953	018	Bi-Weekly	Roof of Martin Building, Westchester Ind. Park		26[b]							

*Composite-Quarterly.
a) Charcoal Cartridges.
b) Collection on Silica Gel Column.

Type of Sample Air

Station - Site #		Frequency	Sampling Point	Number of Analyses Per Year								
				GB	^{3}H	$^{125}I/^{131}I$	IG (^{131}I)	$^{90}Sr/^{89}Sr$	IG	IG GeLi		
Ontario 5857	001	Weekly	Ontario Water District, Town of Ontario, Lake Rd., Filtration Plant	52								
Ontario 5857	002	Weekly	Ginna on Site Station #7, 1,000' ± West of Reactor	52			52[a]		4*			
Peekskill 5901	001	Weekly	Camp Field Reservoir Chlorination Building	52								
Scriba 3767	001	Weekly	Intersection Lake Rd. and Co. Rt. 29, Town of Scriba	52								
Scriba 3767	003	Weekly	Lake Road, Niagara Mohawk Station "E"	52			52[a]		4*			
Southold 5159	001	Weekly	Suffolk County, Fishers Island	52								
Tuxedo 3565	001	Weekly	Union Carbide, Long Meadow Road	52		52[b]		4*	4*			
West Milton 4561	001	Weekly	Atomic Road & East Boundary Kesselring Site, West Milton	52								

*Composite-Quarterly.

a) Charcoal Cartridges.

b) Collection on Silica Gel Column.

Type of Sample Fallout

Station - Site #	Frequency	Sampling Point	Number of Analyses Per Year								
			$^{89}Sr/^{90}Sr$*	IG	^{3}H**	IG GeLi					
Albany 0101 001	Weekly	Roof, Albany County Health Department, Albany, N.Y.	12	52	52						
Colonie 0153 001	Weekly	NL Industries at West Site Boundary				52					
Colonie 0153 002	Weekly	NL Industries at East Site Boundary				52					
Grand Island 1464 001	Bi-Weekly	NRD Site Boundary, Grand Island			26						
Grand Island 1464 002	Bi-Weekly	NRD Site Boundary, Grand Island			26						
Greenburgh 5953 017	Weekly	Bottling Plant, One-half mile west of SPL			52						
Greenburgh 5953 018	Weekly	Roof of Martin Building, Westchester Ind. Park			52						

*Composite-Monthly.
**See note #2 on page 18.

Type of Sample Milk

Station - Site #	Frequency	Sampling Point	Number of Analyses Per Year								
			$^{89}Sr/^{90}Sr$	^{90}Sr	IG	^{131}I	^{3}H	$^{125}I/^{131}I$			
Albany 001 0101	Weekly Grab	Empire State Plaza Cafeteria (Crowley Dairy)	12*		52	52	4*				
Buffalo 002 1401	Monthly Grab	Composite of Buffalo Area Milk Plants	12		12	12	4*				
Center Moriches 001 5151	Monthly Grab	Thee's Dairy		12	12	12	12				
Chester 001 3521	Monthly Grab	Myruski Farm Greycourt Rd., Chester	12		12			12			
Massena 001 4402	Quarterly Grab	Homestead Dairy		4	4	4	4				
New York City 001 7093	Monthly Grab	New York City (5 boroughs)	12		12	12	4*				
Ontario 002 5857	Monthly Grab	Marian Molino Farm, 179 Knickerbocker Rd., Ontario		12	12	12	12				
Ontario 5857	Quarterly Grab	DEC/Rochester Gas & Electric Split Sample	4		4	4					
Scriba 002 3767	Monthly Grab	Parkhurst Farm, Scriba R.D., Oswego		12	12	12	12				

*See note #3 on page 18.

Type of Sample Milk

Station - Site #	Frequency	Sampling Point	Number of Analyses Per Year								
			$^{89}Sr/^{90}Sr$	^{90}Sr	IG	^{131}I	^{3}H	$^{125}I/^{131}I$			
Scriba 004 3767	Monthly Grab	Jones Farm, Klocks Corners, Scriba		12	12		12				
Scriba 3767	Quarterly Grab	DEC/Niagara Mohawk Split Sample	4		4	4					
Southampton 001 5158	Monthly Grab	Cow Neck Farm Town of Southampton		12	12		12				
Syracuse 001 3356	Monthly Grab	Marble Farm Dairy (Geddes)	12		4*	4*	4*				
Williamson 002 5863	Monthly Grab	Walter Ghyzel Farm, 733 South Ave., Town of Williamson	12		12		12				
Yorktown 001 5968	Monthly Grab	Hanover Farms Yorktown Heights	12		12	12	12				
Yorktown 5968	Quarterly Grab	DEC/Con Ed Split Sample	4		4	4	4				

*See note #3 on page 18.

Type of Sample Water

Station - Site #		Frequency	Sampling Point	Number of Analyses Per Year								
				GA*/ GB	^{3}H	$^{89}Sr/^{90}Sr$	IG					
Albany 0101	001	Weekly Comp.	Div. of Labs & Research Empire State Plaza Albany, N.Y.	52	52	12***	52					
Angola 1428	001	Monthly Comp.	Angola Village Public Water Supply	12	12							
Angola 1428	001	Quarterly Grab	Angola Village Public Water Supply			4[a]						
Bethlehem 0151	001	Monthly Comp.	Hudson River at Niagara Mohawk Glenmont Station	12								
Brookhaven 5151	001	Monthly Grab	Peconic River at Brookhaven Site Border (BNL)	12	12	12	1**					
Brookhaven 5151	002	Twice/Year Grab	Smith Point Just off Beach		2	2	2					
Buffalo 1401	001	Monthly Grab	Buffalo Sewage Treatment Plant Discharge	12	12		12					
Cape Vincent 2226	001	Twice/Year Grab	St. Lawrence River	2								
Chemung 0754	001	Twice/Year Grab	Chemung River near Chemung	2		2						

*See note #4 on page 18.

**Isotopic Gamma required on January sample.

***Monthly Composite.

Type of Sample Water

Station - Site #	Frequency	Sampling Point	Number of Analyses Per Year								
			GA*/ GB	^{3}H	$^{89}Sr/^{90}Sr$	IG					
Chelsea 001 1368	Weekly Grab	Hudson River(NYC Board of Water Supply	52	52							
Colonie 001 0153	Spring & Fall	Patroon Creek below NL Industries lagoon discharge & Colonie Sewage Treatment Plant	2								
Colonie 002 0153	Weekly Comp.	Colonie Water Treatment Plant, Mohawk River	52	12***							
Cortlandt 002 5951	Weekly Comp.	Hudson River at Verplank	52	12**	12**	12**					
Cortlandt 003 5951	Quarterly Comp.	Hudson River in immediate area of plant discharge, Indian Point		4		4					
Croton-on-Hudson 001 5921	Weekly Grab	Hudson River at Croton Point Park	52	12***							
Derby 001 1463	Monthly Grab	Erie County Water Authority Sturgeon Point Station (treated)	12	12							
Dunkirk 001 0601	Monthly Grab	Dunkirk City Public Water Supply	12	12	4****						
Geneva 001 3402	Quarterly Grab	Seneca Lake - Raw Water Intake	4	4							

*See note #4 on page 18.
**Monthly Composite.
***See note #3 on page 18.
****Quarterly Composite

Type of Sample Water

Station - Site #		Frequency	Sampling Point	Number of Analyses Per Year								
				GA*/ GB	^{3}H	$^{89}Sr/^{90}Sr$	IG					
Greenburgh 5953	009	Weekly Grab	Tributary to Saw Mill River at Self-Powered Lighting		52							
Greenburgh 5953	021	Monthly Grab	Pond at Westchester Community College		12							
Ithaca 5401	001	Twice/Yr Grab	Southern Tip of Cayuga	2								
Lansing 5401	004	Once A Year(May)	F. Hurd - drilled well	1	1							
Lansing 5401	005	Once A Year(May)	M. Nasar·llah - drilled well	1	1							
Lansing 5456	002	Once A Year(May)	Loomis - drilled well	1	1							
Lansing 5456	006	Once A Year(May)	Bloom - dug well	1	1							
Lansing 5456	007	Once A Year(May)	LaBarr - dug well	1	1							
Lansing 5456	013	Once A Year(May)	Kahr's Well	1	1							

*See note #4 on page 18.

Type of Sample Water

Station - Site #		Frequency	Sampling Point	Number of Analyses Per Year								
				GA*/ GB	^{3}H	$^{89}Sr/^{90}Sr$	IG					
Lansing 5456	016	Once A Year(May)	Stream West of Burial Site	1	1							
Lansing 5456	017	Once A Year(May)	Stream East of Burial Site	1	1							
Milton 4561	001	Monthly Grab	Glowegee Creek at U.S. 65 gaging station of West Milton Road	12	12							
Mt. Pleasant 5957	005	Quarterly Grab	Kensico Reservoir		4							
Mt. Pleasant 5957	019	Monthly Grab	Pocantico Reservoir (Ferguson's Pond)		12							
New York City 7093	001	Monthly Grab	NYC Public Water Supply 3 Reservoirs	12	12							
New Haven 3758	002	Monthly Grab	Lake Ontario at Mexico Bay	12	4							
Niagara Falls 3102	001	Monthly Grab	West Branch - Niagara River	12	4**							
Ontario 5857	001	Weekly Comp.	Lake Ontario, Ontario Water District Filtration Plant	52	12***		12***					

*See note #4 on page 18.
**See note #3 on page 18.
***Monthly Composite.

Type of Sample Water

Station - Site #		Frequency	Sampling Point	Number of Analyses Per Year								
				GA*/ GB	^{3}H	$^{89}Sr/^{90}Sr$	IG					
Ontario 5857	001	Quarterly Grab	Lake Ontario., Ontario Water District Filtration Plant			4[a]						
Ontario 5857	002	Quarterly Comp.	Lake Ontario, Immeidate Area of Ginna Discharge		4		4					
Orangetown 4352	001	Monthly Grab	Pond 400' ESE of Becton-Dickinson Plant		12							
Orangetown 4352	002	Monthly Grab	Sparkill Creek at Rts. 303 & Mt. View Road		12							
Orangetown 4352	003	Monthly Grab	Tappen Lake Reservoir		12							
Ossining 3903	001	Monthly Grab	Indian Brook Reservoir(raw)	12								
Oswego 3702	001	Weekly Comp.	PWS at City Hall - Lake Ontario Water	52	12**		12**					
Peekskill 5901	001	Monthly Grab	Camp Field Filter Plant (raw)	12								
Rochester 2701	001	Monthly Grab	Monroe County Sewage Treatment Plant Discharge	12	12		12					

*See note #4 on page 18.
**Monthly Composite.
a) Ion Exchange Column.

Type of Sample Water

Station - Site #		Frequency	Sampling Point	Number of Analyses Per Year								
				GA*/ GB	^{3}H	$^{89}Sr/^{90}Sr$	IG	$^{125}I/^{131}I$				
Rouses Point 0922	001	Twice/Yr Grab	Lake Champlain	2								
Scriba 3767	003	Quarterly Comp.	Lake Ontario in immediate area of plant discharge, Nine Mile Point		4		4					
Shoreham 5128	001	Twice/Yr. Grab	Shoreham Site Near Stone Jettys		2	2	2					
Southold 5159	001	Monthly Grab	Fishers Island	12	12							
Syracuse 3301	001	Quarterly Comp.	Onondaga County Sewage Treatment Plant Discharge	4	4		4					
Tonawanda 1403	001	Monthly Grab	Town of Tonawanda, Sewage Treatment Plant Discharge	12	12		12					
Tuxedo 3565	002	Monthly Grab	Indian Kill - Union Carbide	12	12			12				
Watertown 2269	001	Quarterly Grab	Black River	4								
Yorktown 5968	001	Monthly Grab	Croton Reservoir-Gate House Bridge	12	12							

*See note #4 on page 18.

Type of Sample Water

Station - Site #	Frequency	Sampling Point	Number of Analyses Per Year								
			GA*/ GB	^{3}H	$^{89}Sr/^{90}Sr$	IG	$^{125}I/^{131}I$				
Yonkers 5907 007	Weekly Continuous	Water Treatment Plant-Saw Mill River Intake		52							
Bureau of Public Water Supplies		To be determined by Bureau of Public Water Supplies	472	Analytical Man-hours							

*See note #4 on page 18.

Type of Sample Algae or Aquatic Vegetation

Station - Site #	Frequency	Sampling Point	Number of Analyses Per Year								
			IG								
Cortlandt 5951 001	Once/Yr	Green's Cove	1								
Croton-on-Hudson 5921 001	Once/Yr	Croton Bay	1								
New Haven 3738 001	Once/Yr	Lake Ontario-Demster Beach	1								
Ontario 5857 001	Once/Yr	Lake Ontario, Ontario on the Lake	1								
Ontario 5857 002	Once/Yr	Lake Ontario, Ontario Water Filtration Plant	1								
Peekskill 5901 002	Once/Yr	Peekskill Bay	1								
Scriba 3767 001	Once/Yr	Lake Ontario, Ontario Bible Camp	1								
Southold 5159 001	Once/Yr	West Harbor	1								
Stony Point 5921 002	Once/Yr	Cove, North End of Iona Island	1								

Type of Sample Algae or Aquatic Vegetation

Station - Site #	Frequency	Sampling Point	Number of Analyses Per Year								
			IG								
Yorktown 5968 001	Once/Yr	Croton Reservoir	1								

Type of Sample Fish

Station - Site #		Frequency	Sampling Point	Number of Analyses Per Year								
				^{90}Sr**	IG***							
Brookhaven 5151	001 002 003	Once/Yr.	Peconic River at Donahue's Lake, Swan Pond, Preston's Pond	7	7							
Cortland 5951	001	Once/Yr.	Green's Cove at Boat Livery on Kings Ferry Road		2							
Croton-on-Hudson 5921	001	Once/Yr.	Croton Bay		2							
New Haven 3758	004	Once/Yr.	1,000' offshore of Reactor Building on Lake Ontario		2							
Ontario 5857	002	Once/Yr	1,000' offshore of Reactor Building on Lake Ontario		2							
Peekskill 5901	002	Once/Yr.	Peekskill Bay		2							
Shoreham* 5128	001	Once/Yr.	Shoreham site offshore of Reactor		3							
Southold* 5159	001	Once/Yr.	Fishers Island		4							
Stony Point* 4354		Once/Yr.	Cove, North End of Icna Island		2							

*Crustaceans may also be obtained.
**See note #5 on page 18.
***See note #6 on page 18.

Type of Sample Bottom Sediments

Station - Site #	Frequency	Sampling Point	Number of Analyses Per Year								
			IG	IU							
Colonie 0153 002	Once/Yr.	NL Industries	2	2							
Cortlandt 3931 001	Once/Yr.	Green's Cove at Boat Livery on Kings Ferry Rd.	1								
Croton-on-Hudson 3921 001	Once/Yr.	Croton Bay	1								
Ontario 5857 001	Once/Yr.	Lake Ontario in Vicinity Ginna Reactor	1								
Peekskill 5901 002	Once/Yr.	Peekskill Bay	1								
Scriba 3767 001	Once/Yr	Lake Ontario in Vicinity of Nine Mile Point Reactor	1								
Stony Point 4354 002	Once/Yr.	Cove, North End of Iona Island	1								

Type of Sample Crops

Station - Site #	Frequency	Sampling Point	Number of Analyses Per Year								
			IG								
Cortland 5951	Once/Yr.	Vicinity of Indian Point Reactor	2								
New Haven 3753	Once/Yr.	Vicinity of Nine Mile Point Reactor	2								
Ontario 5857	Once/Yr.	Vicinity of Ginna Reactor	2								
Tuxedo 3565	Once/Yr.	Vicinity of Union Carbide	1								

NOTES:

1) Save 2-inch filters for quarterly USNRC compliance samples.

2) ^{3}H analysis cannot be done unless at least 20 ml of precipitation are collected.

3) On those samples with an asterisk, the designated analyis is performed on the first sample received from the sampling point each month, or each quarter.

4) Isotopic gamma analysis is required if the gross beta exceeds 50 pCi/l.

5) ^{90}Sr analyses are done on the whole fish.

6) Isotopic gamma analysis.

7) Do ^{89}Sr when ^{90}Sr analysis is 5 pCi/l or greater.

ABBREVIATIONS:

GB - Gross Beta
GA - Gross Alpha
IG - Isotopic Gamma
IU - Isotopic Uranium

RADIATION SECTION

NUCLEAR FUEL SERVICES SURVEILLANCE SCHEDULE

Revised ~~3/31/80~~ 7/1/80

Type of Sample Air

Station - Site #	Frequency	Sampling Point	Number of Analyses Per Year								
			GB	IG*	$^{89}Sr/^{90}Sr$*	Pu**					
0451 44	Weekly	Zefer's Farm on Rt. 240 East of Plant	52	4	4	—					
~~0451 14~~	~~Weekly~~	Corner of Dutch Hill and Swartz Roads	52								

*See note #1 on page 9.
**See note #2 on page 9.

Type of Sample Milk

Station - Site #	Frequency	Sampling Point	Number of Analyses Per Year								
			IG	^{89}Sr / ^{90}Sr	^{3}H*						
0451 14.	Monthly Grab	Walter Feuz Farm, Dutch Hill Road, Ashford	12	4	4						
~~0451 31~~	Monthly Grab	Sylvester Heary Farm, Rt. 240, Riceville(W. Valley)	12	4	4						

*See note #4 on page 9.

Type of Sample Water

Station - Site #	Frequency	Sampling Point	Number of Analyses Per Year								
			GB*/ GA	IG*	^{90}Sr	^{3}H	Pu				
0451 04	Quarterly Grab	Buttermilk Creek at Fox Valley Rd., West Valley	4			4					
0451 35	Monthly Composite of Wkly Grab	Buttermilk Creek at Thomas Corners Road	12	(2)		12					
1459 42	Weekly Comp.	Cattaraugus Creek at Springville Power Dam	52	(2)	4***	52					
~~1454 65~~	Quarterly ~~Composite of~~ Monthly Grab	~~Cattaraugus Creek at~~ Irving	4			4					
~~0457 07~~	Quarterly Grab	~~Cattaraugus Creek at~~ Bigelow Bridge(Rt. 240)	~~4~~			~~4~~					
0451 53	Weekly Grab	Erdman Brook between burial area and plant discharge	52	(20)	12	52					
0451 67	Monthly Composite of Wkly Grab	Stream northeast at low level burial area	12			12					
~~0451 72~~	Monthly Grab	Sewage Treatment Plant Effluent	~~12~~	~~(9)~~	~~4***~~	~~12~~					
~~0451 73~~	Quarterly Grab	Mouth of Hot & Cold Ditch ~~(storm drainage east of~~ plant)above confl~~u~~x of Erdman Brook.	~~4~~		~~4~~	~~4~~					

*See note #5 on page 9.
**See note #4 on page 9.
***Quarterly composite.

Type of Sample Water

Station - Site #	Frequency	Sampling Point	Number of Analyses Per Year								
			GB*/ GA	IG*	^{90}Sr	^{3}H	Pu				
1427	Once A Year	Springville Lab Tap Water	1			1					
1435	Once A Year	Reservoir in Colden, Orchard Park Public Water Supply	1			1					
0451	Once A Year	West Valley Public Water Supply	1			1					
1401	Once A Year	Delevan Public Water Supply	1			1					
0469	Once A Year	Machias Public Water Supply	1			1					
1471	Once A Year	Sardinia Public Water Supply	1			1					
1453	Once A Year	Hamburg Public Water Supply	1			1					
0434	Once A Year	Franklinville Public Water Supply	1			1					
6020	Once A Year	Arcade Public Water Supply	1			1					

*See note #5 on page 9.

Type of Sample Water

Station - Site #	Frequency	Sampling Point	Number of Analyses Per Year								
			GB*/ GA	IG*	^{90}Sr	^{3}H	Pu				
~~1466~~	Once A Year	~~Holland Public Water Supply~~	~~1~~			~~1~~					
0451 74A	Monthly Grab	Ditch draining area north and west of plant	12		4**	12					
0451 74B	Monthly Grab	Spring Swamp Drainage	12	(10)	12	12					
~~0451 75~~	Monthly Grab	French Drain, Discharge 100' North of Weir	~~12~~	~~(5)~~	~~12~~	~~12~~					
~~0451 77~~	Monthly Grab	Swamp Drainage Northeast of Burial Site	~~12~~	~~(6)~~	~~4***~~	~~12~~					
~~0451 106~~	~~Weekly Grab~~	Between Hull Burial and Burial Site.	~~52~~	~~(52)~~	~~12**~~	52					
Special Burial Site Samples	To Be Determined	To Be Determined									

*See note #5 on page 9.
**See note #4 on page 9.
***Composite.

Type of Sample Fish

Station - Site #	Frequency	Sampling Point	Number of Analyses Per Year								
			IG*	^{90}Sr**							
~~1459 01~~	Spring & Fall	Cattaraugus Creek at Rt. 16 Bridge (Concord)	~~4~~	~~4~~							
~~0451 01~~	Spring & Fall	Buttermilk at Bond Road (Ashford) and Buttermilk Creek at Thomas Corners Road (Ashford)	~~4~~	~~4~~							
1459 02	Spring & Fall	Cattaraugus Creek at Springville Dam (Concord)	4	4							
~~1454 01~~	Spring & Fall	Cattaraugus Creek at Irving (Brant)	~~4~~	~~4~~							

*See note #7 on page 9.
**See note #8 on page 9.

Type of Sample Crops

Station - Site #	Frequency	Sampling Point	Number of Analyses Per Year								
			IG								
1459	Once A Year	Around Vicinity of NFS (Indian Reservoir)-Concord	5								

Type of Sample Wildlife

Station - Site #	Frequency	Sampling Point	Number of Analyses Per Year								
			IG	^{90}Sr	^{3}H	^{129}I	Pu				
0451	Spring	Vicinity of NFS (Deer) - Ashford	3*	3*	3**	3***	3****				

*See note #9 on page 9.
**See note #10 on page 9.
***See note #11 on page 9.
****See note #12 on page 9.

NOTES:

1) The isotopic gamma and ^{90}Sr analyses are done on a quarterly composite of 13 weekly 2" air filters.

2) The plutonium analysis is done on a composite of 13 weekly 8"x10" high volume air filters.

3) ^{3}H analysis cannot be done unless at least 20 ml of precipitation are collected.

4) The sample collector will specify samples to be analyzed for $^{89,90}Sr$, ^{3}H and Pu.

5) Isotopic gamma analysis required if the gross beta exceeds 50 pCi/l for any sample. Estimated isotopic gamma analysis required are given in parenthesis.

6) Isotopic uranium and plutonium analyses required if the gross alpha exceeds 50 pCi/l.

7) Isotopic gamma analysis is performed on the whole fish.

8) ^{90}Sr analysis is performed on whole fish.

9) Isotopic gamma and ^{90}Sr analyses are performed on the flesh tissue.

10) A determination of unbound ^{3}H in the flesh tissue is made.

11) ^{129}I analysis is performed on the thyroid tissue.

12) Pu analysis performed on lung tissue.

ABBREVIATIONS:

GB - Gross Beta
GA - Gross Alpha
IG - Isotopic Gamma