

FEB 2 3

Illinois Department of Nuclear Safety
ATTN: Paul D. Eastvold, Chief
Division of Nuclear Materials
1035 Outer Park Drive
Springfield, Illinois 62704

RE; LETTER DATED DECEMBER 22, 1982 REQUESTING AN AMENDMENT TO NRC LICENSE
NUMBER 12-20084-01

Gentlemen:

In order for us to continue our review of your request, please submit the following additional information:

1. Confirmation that the units at your 550 and 580 North Street addresses are warehouse storage facilities.
2. Clarification of how the above facilities will be used, if for purposes other than byproduct materials storage.
3. Justification of your request for the additional storage spaces.
4. A description of Donald Cohen and Timothy Runyon's experiences using radioactive materials. Include isotopes used, maximum activities and types of uses.

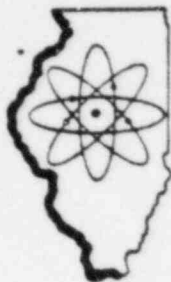
We will continue our review of your application upon receipt of this information. Please reply in duplicate, within 30 days, and refer to Control Number 07299. If you do not reply within 30 days, we will consider that you have abandoned your application and will void this request. This action will be without prejudice to the resubmission of the application.

Sincerely,

B. J. Holt
Materials Licensing Section

8509060336 850829
PDR FOIA
HUBER85-189 PDR

OFFICE	RIII					
SURNAME	Holt/bm					
DATE	1-31-83					



Illinois Department of Nuclear Safety

1035 Outer Park Drive

Springfield, Illinois 62704

(217) 546-8100

Don Etchison
Director

July 31, 1984

Terry Lash
Deputy Director

George M. McCann
Materials Licensing Section
U.S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

RE: License No: 12-20084-01
12-08948-01

Docket No: 030-04157
030-17943

Control No: 75780
75781

Dear Mr. McCann:

Pursuant to your request via telephone, the following information is submitted in support of our October 12, 1983, license amendment request to transfer, in part, the Illinois Department of Public Health's radiochemistry laboratory materials license authority (12-08948-01) to the Illinois Department of Nuclear Safety license (12-20084-01):

- (1) It is requested that our amendment request be processed concurrently with the amendment request submitted by the Illinois Department of Public Health.
- (2) Delete the following usage locations, as per your recommendation:
 - 535 West Jefferson Street, Springfield, Illinois
 - 560 North Street, Springfield, Illinois
 - 245 West Roosevelt Road, West Chicago, Illinois
- (3) A diagram of the facility at 134 North 9th Street, Springfield, Illinois, is attached.
- (4) Areas at 134 North 9th Street, Springfield, Illinois, where less than 200 microcuries are used will be surveyed quarterly; a monthly survey will be conducted if greater than 200 microcuries but less than one millicurie is used; a weekly survey will be conducted if greater than one millicurie is used.

8411020134 840914
NMS LIC30
12-20084-01 PDR

RECEIVED
AUG 03 1984

REGION III

CIN
77247

Discover The Magnificent Miles of Illinois

AUG 3 1984

7

- (5) Individuals working with radioactive material at 134 North 9th Street, Springfield, Illinois, will wear lab coats.
- (6) The procedures for opening packages received at 134 North 9th Street, Springfield, Illinois, are attached.
- (7) With regard to bioassay, we will not be using any tritium or iodine standard in excess of 100 microcuries. As such, bioassays will not be necessary.
- (8) Concerning our mobile laboratory, the quantities of radioactive material used in the mobile lab will be consistent with those encountered in environmental and emergency samples. We will make every reasonable attempt to limit radioactive material to less than exempt quantity levels. In the event we would need to use greater activities, procedures as used at 134 North 9th Street, Springfield, Illinois, will be followed.
- (9) A diagram of the mobile laboratory is attached.
- (10) Please add the following individuals to our license as users of radioactive material:

David Filler	- resume attached
Lih-Ching Chu	- resume attached
Patricia Bostick	- resume attached
Kenneth Hitchcock	- experience and qualifications on file with USNRC under License No. 12-08948-01 (Illinois Dept. of Public Health)

If you have any questions regarding the above, please feel free to contact me. Thank you for your assistance in this matter.

Sincerely,

Paul D. Eastvold

Paul D. Eastvold
Radiation Safety Officer

PDE/mfm

Attachments:

cc: Don Etchison, Director, IDNS
Dave Ed, Office of Technical Support, IDNS
Jim Hundley, Laboratory Manager, IDPH

CIN
77247

NUCLEAR CHEMISTRY AND RADIOCHEMISTRY EXPERIENCE

- Experience in radiation detection and measurement; X-, beta, and gamma ray spectroscopy; and activation, radio-tracer and radiochemical analysis
- Skill with particle-induced x-ray emission; beta-attenuation mass measurement; gamma-ray analysis of light elements; reflectance technique for black carbon analysis; and scanning electron microscopy and x-ray microanalysis
- Work on fission of natural thorium and uranium, including separating and analysing of fission products
- Experience in teaching radioactivity and its application and nuclear and radiochemistry laboratory procedures

AIR POLLUTION AND ENVIRONMENTAL EXPERIENCE

- Sampling, measurement and characterization of air pollutants
- Development of instruments and analytical techniques for non-destructive analysis of aerosols and ambient particulates
- Assessment of the contribution of natural emissions to ambient air quality and to precipitation chemistry
- Experience with acid precipitation, soil characterization and analysis, geochemical equilibrium of natural aqueous systems, toxic metal ion solubility, and evaluation of emissions/depositions relationships
- Experience with the use of computer programming and modeling as well as the application of statistical techniques to examine source/receptor relationships and determine visibility/air quality relationships

COMPUTER RELATED EXPERIENCE

- Experience in FORTRAN, COBOL, BASIC, FLEXTRAN, SAS, and ASSEMBLY languages on IBM, CYBER, PDP-11 and TEKTRONIX computer systems
- Experience in computer interfacing and programming to automate sampling and on-line data collection, as well as computer usage in data reduction and analysis

MANAGEMENT AND SUPERVISORY EXPERIENCE

- Responsibility for supervision and leadership of a field team testing for radioactive and toxic substances, including budget management, purchasing, training, scheduling, inventory and evaluation
- Responsibility for comparing, choosing, ordering and evaluating precision equipment for laboratory use
- Teaching and supervision responsibilities for laboratory activities in graduate and undergraduate courses, as well as experience in middle school teaching and problem solving

WORK HISTORY

1984
1981-present ILLINOIS DEPARTMENT OF ENERGY AND NATURAL RESOURCES,
Champaign, IL
Assistant Professional Scientist
State Water Survey Division

1976-1981 WASHINGTON UNIVERSITY, St. Louis, MO
Research Assistant
Chemistry Department
Graduate Teaching Fellow
Radioactivity and Its Application (graduate level)
General Chemistry Laboratory
Quantitative Analysis Laboratory
Nuclear and Radiochemistry Laboratory (graduate level)

1974-1976 EAST TEXAS STATE UNIVERSITY, Commerce, TX
Graduate Research Assistant
Chemistry Department

1973-1974 YOUNG-HO MIDDLE SCHOOL, Young-Ho, Taiwan, R.O.C.
Instructor
Chemistry and Physics
*Received Science Fair Award in Taipei Hsien, Taiwan (1974)

1971-1973 MILITARY SERVICE, Taiwan, R.O.C.
Chemical Research/Field Officer - Second Lieutenant
*Awarded two merits due to outstanding performance

SCHOLASTIC RECORD

Ph.D. (Environmental, Nuclear and Analytical) Chemistry - 1981
Washington University, St. Louis, MO
Grade Point Average - 3.8/4.0
Scholarship: Research Fellowship (1978-1981)

M.A. (Nuclear and Radio-) Chemistry - 1978
Washington University, St. Louis, MO
Scholarship: Teaching Fellowship (1976-1978)

M.S. (Nuclear and Geo-) Chemistry - 1976
Minor in Computer Science
East Texas State University, Commerce, TX
Grade Point Average - 3.9/4.0 (major), 4.0/4.0 (minor)
Scholarship: Robert A. Welch Foundation Research Fellowship (1974-1976)

- B.S. Chemistry - 1971
Tamkang College of Arts and Sciences, Tamsui, Taiwan, R.O.C.
*Received Academic Award (1970) given yearly to the most outstanding student in Chemistry

PROFESSIONAL MEMBERSHIP - American Chemical Society

PUBLICATIONS AND REFERENCES - Available upon request

PERSONAL DATA - Male Married Permanent Resident

Publications and Presentations of Lih-Ching Chu

- Chu, L. -C., 1976: Spontaneous and induced fission of natural thorium systems. M.S. Thesis, Chemistry Department, East Texas State University, Commerce, TX.
- _____, and M. Attrep, Jr., 1977: Induced fission of natural thorium systems. Inorg. Nucl. Chem., 39, 1945-1946.
- Macias, E. S., R. Delumyea, L. -C. Chu, H. R. Appleman, C. D. Radcliffe, and L. Staley, 1979: The determination, speciation and behavior of particulate carbon. Proceedings of the Conference on Carbonaceous Particles in the Atmosphere, Report LBL-9037.
- Delumyea, R. G., L. -C. Chu, and E. S. Macias, 1980: Determination of elemental carbon component of soot in ambient samples. Atmos. Environ., 14, 647-652.
- Chu, L. -C., and E. S. Macias, 1980: Carbon analysis of atmospheric aerosols collected on teflon filters. Paper presented at Second Symposium on Environmental Analytical Chemistry, Brigham Young University, Provo, UT, June 16-20.
- Conklin, M. H., G. R. Cass, L. -C. Chu, and E. S. Macias, 1981: Winter-time Carbonaceous Aerosols in Los Angeles: An Exploration of the role of elemental carbon. In: Macias, E. S., and P. K. Hopke, Editors, Atmospheric Aerosol: Source/Air Quality Relationships, ACS Symposium Series, 167, American Chemical Society, Washington, DC, pp. 235-250.
- Chu, L. -C., and E. S. Macias, 1981: Carbonaceous urban aerosol — primary or secondary. In: Macias, E. S., and P. K. Hopke, Editors, Atmospheric Aerosol: Source/Air Quality Relationships, ACS Symposium Series, 167, American Chemical Society, Washington, DC, pp. 251-268.
- _____, 1981: The study of carbonaceous ambient aerosol. Ph. D. Dissertation, Department of Chemistry, Washington University, St. Louis, MO.
- Gatz, D. F., and L. -C. Chu, 1982: Solubility of metal ions in rain water, paper presented at the American Chemical Society Symposium on Acid Precipitation, Las Vegas, NV, March 28-April 2.
- Chu, L. -C., and E. S. Macias, 1982: Visibility/air quality relationships in St. Louis. In: Preprint Extended Abstract, Division of Environmental Chemistry, American Chemical Society, 22(2), 24-25.
- Macias, E. S., and L. -C. Chu, 1982: Carbon analysis of atmospheric aerosols using GRALE and reflectance analysis. In: Wolff, G. T., and R. L. Klimisch, Editors, Particulate Carbon, Plenum Press. New York, pp. 131-144.

Chu, L. -C., D. F. Gatz, M. V. Miller, and G. J. Stensland, 1982: The design and application of a soil-blowing wind tunnel for the measurement of crustal aerosol chemical composition and comparison to other generation devices. Paper presented at the 4th International Conference on Precipitation Scavenging, Dry Deposition and Resuspension, Santa Monica, CA, November 29-December 3.

Miller, M. V., D. F. Gatz, G. J. Stensland, and L. -C. Chu, 1982: Characterization of aerosols from selected soil surface materials. Paper presented at ASA-CSSA-SSSA 1982 Annual Meeting, Anaheim, CA, November 29-December 3.

Gatz, D. F., L. -C. Chu, and S. Wiley, 1983: Characterization of urban and rural inhalable particles. SWS Contract Report 308, Final report to Illinois Department of Energy and Natural Resources. March 1983. 110 pp.

David Filler: Education to Experience.

Education:

Purdue University	B.S. Chemistry June 1969
The University of Michigan	M.S. Biochemistry May 1973
The University of Michigan	Ph.D. Biochemistry May 1976
EGG Idaho	Radiochemistry Course Certificate

Experience:

9/71-5/76 Research Assistant at The University of Michigan. Graduate research work involved use of radioisotopes ^3H , ^{14}C , ^{45}Ca , and radio-analytical analysis.

5/76-5/77 Postdoctoral Trainee at St. Jude Children's Research Hospital. The work involved radiolabeling of cell membranes, radioiodination, and radioanalytical analysis.

6/77-9/81 Research Associate at Indiana University Medical Center. The work consisted of radiochemical medical research, incorporation of isotopes into animal tissue, and radiochemical analysis. I was also the Radiation Safety Officer for the laboratory.

9/81-5/84 Radiochemist at the Indiana State Board of Health Radiological Health Section. This work consisted of radiochemical analysis of environmental samples and food samples as well as use of radiochemical calibration standards.

CURRICULUM VITAE

PATRICIA A. BOSTICK

EDUCATION:

Sangamon State University and Lincolnland Community College. Currently enrolled and studying toward completion of a B.A. in Chemistry. Approximate status: Junior.

ADDITIONAL TRAINING:

St. John's Hospital, School of Radiologic Technology, Springfield, Ill. June 1969 to June 1971.

PROFESSIONAL EXPERIENCE:

April 1984 to present

Illinois Department of Public Health - Radiochemistry - analytic environmental samples for MFP, U, TRU. Under supervision, utilize calibration standards ~1 - 10 uCi in activity.

1973 - 1984

Illinois Department of Public Health - Heavy Metals Toxicology - analyzed tissue and samples for Lead, Arsenic and miscellaneous heavy metals.

1972 - 1973

Illinois Department of Public Health, Division of Radiological Health - 1 year special project involving statewide TLD survey. Calibration of dosimeters involved use of ~11 mCi Ra-226 source.

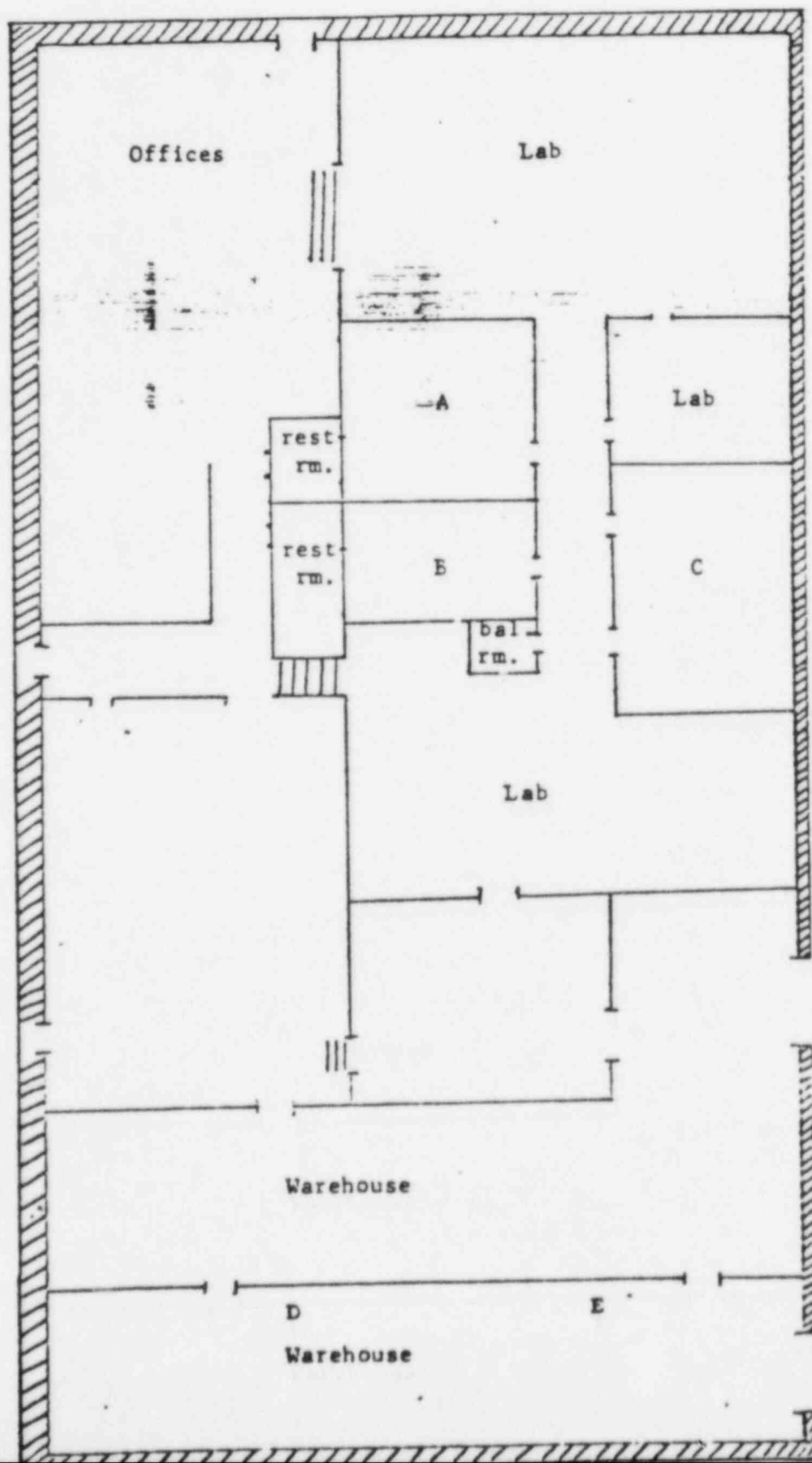
1971 - 1972

Drs. Allyn, Maher and Howard - Radiologic Technologist.

CIN
77247

IDPH IDNS LAB - 134 N. 9th ST., SPRINGFIELD, IL.

- A. IDNS Instrument area
- B. Radioactive materials use area
- C. Radioactive materials storage and use area
- D. IDNS sample storage area
- E. Radioactive waste storage area

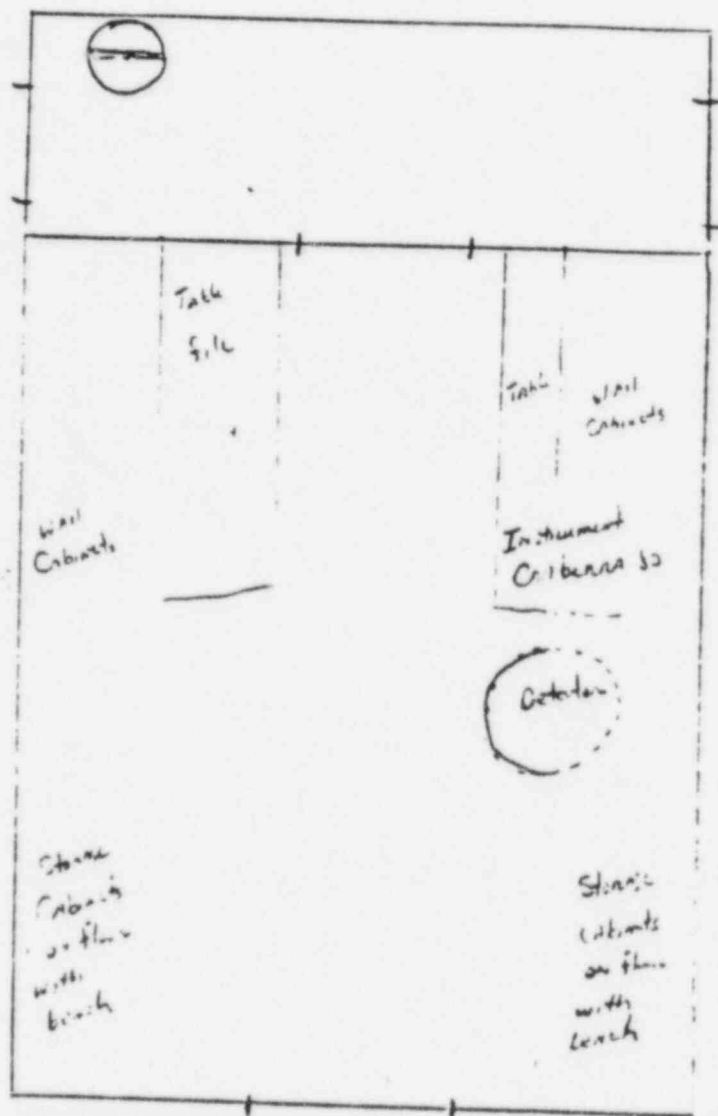


ILLINOIS DEPARTMENT OF NUCLEAR SAFETY

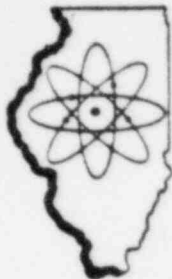
Procedures for Safely Opening Packages
Containing Radioactive Material

1. Special requirements shall be followed for packages containing quantities of radioactive material in excess of the Type A quantity limits as specified in paragraphs 20.205(a)(1) and (c)(1) of 10 CFR Part 20. They shall be monitored for surface contamination and external radiation levels within 3 hours after receipt if received during working hours or within 18 hours if received after working hours, in accordance with the requirements of paragraphs 20.205(a) through (c). The NRC Regional Office shall be notified in accordance with the regulations if removable contamination exceeds $0.01 \mu\text{Ci}/100 \text{ cm}^2$ or if external radiation levels exceed 200 mR/hr at the package surface or 10 mR/hr at 3 feet (or 1 m).
2. Visually inspect packages for any sign of damage (e.g., wetness, crushed). If damage is noted, stop procedure and notify Radiation Safety Officer.
3. Open the package with the following precautionary steps:
 - (1) Open the outer package (following manufacturer's directions, if supplied, and remove packing slip.
 - (2) Open inner package and verify that contents agree with those on packing slip. Compare requisition, packing slip, and label on bottle.
 - (3) Check integrity of final source container (i.e., inspect for breakage of seals or vials, loss of liquid, and discoloration of packaging material).
 - (4) Check also that shipment does not exceed possession limits.
4. If required by USNRC (20 CFR 20.205), wipe external surface of final source container and external surfaces of package and remove wipes to low background area. Assay the wipes and record amount of removable radioactivity (e.g., $\mu\text{Ci}/100 \text{ cm}^2$, etc.).

QDNS Mobile Lab Van



C/N
27247



Illinois Department of Nuclear Safety

1035 Outer Park Drive

Springfield, Illinois 62704

(217) 546-8100

Don Etchison
Director

August 7, 1984

Terry Lash
Deputy Director

George M. McCann
Materials Licensing Section
U.S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

RE: License No: 12-20084-01
Docket No: 030-17943
Control No: 75781

Dear Mr. McCann:

Reference is made to Item 10 of our letter to you dated July 31, 1984.

It is requested that an additional individual be included on our license as a user of radioactive material:

Terry R. Lash, Ph.D. - resumé attached.

Your cooperation in this matter is appreciated.

Sincerely,

Paul D. Eastvold

Paul D. Eastvold
Radiation Safety Officer

PDE/mfm

Encl.

cc: Don Etchison, Director
Terry Lash, Deputy Director

B411020127 B40914
NMS LIC30
12-20084-01 PDR

RECEIVED
AUG 09 1984
REGION III

Discover The Magnificent Miles of Illinois



AUG 9 1984 8

CURRICULUM VITAE

NAME: Terry R. Lash

BUSINESS
ADDRESS: 1035 Outer Park Drive
Springfield, IL 62704

BUSINESS
TELEPHONE: 217/546-8100

EMPLOYMENT HISTORY:

September 1983 to present
— Deputy Director, Department of
Nuclear Safety, State of Illinois.

January 1983 to September 1983
— Independent Consultant.

May 1982 to January 1983
— Science Director, Scientists'
Institute for Public Information, New
York City.

September 1981 to May 1982
— Independent Consultant.

June 1980 to September 1981
— Director, Science and Public Policy,
The Keystone Center, Dillon, Colorado.

November 1972 to June 1980
— Staff Scientist, Natural Resources
Defense Council, San Francisco,
California.

September 1970 to September 1972
— Postdoctoral Research Fellow, Yale
University Medical School, New Haven,
Connecticut.

CURRENT AND FORMER
COMMITTEE MEMBERSHIPS
AND CONSULTANTSHIPS:

1. Member of the Advisory Panel on
Alternative Means of Financing and
Managing Radioactive Waste
Facilities, appointed by U.S.
Secretary of Energy.
2. Member of the Program Review
Committee for Low-Level Radioactive
Waste Management to EG&G Idaho, Inc.
(under contract with the U.S.
Department of Energy).

RECEIVED
AUG 09 1984
REGION III

3. Member of the Advisory Panel on Strategic Responses to an Extended Oil Supply Disruption to the Congressional Office of Technology Assessment.
4. Consultant member of the Science Advisory Board's Subcommittee on High-Level Radioactive Waste Disposal to the U.S. Environmental Protection Agency.
5. Consultant on uranium mill tailings to the U.S. Environmental Protection Agency.
6. Consultant on the public interest community's attitudes toward nuclear power to the Congressional Office of Technology Assessment.
7. Consultant member of hearing boards receiving public comment on proposed general guidelines for recommendation of sites for nuclear waste repositories to the U.S. Department of Energy.
8. Consultant on environmental assessments for siting the Waste Isolation Pilot Plant to the Southwest Research and Information Center.
9. Member of the Advisory Panel on Non-Nuclear Industrial Waste to the Congressional Office of Technology Assessment.
10. Consultant on national oil policies to the Scientists' Institute for Public Information.
11. Consultant on development of a videotape program on radioactive waste to the Human Affairs Research Centers, Battelle Memorial Institute.
12. Consultant on energy conservation policies for New York City to the Natural Resources Defense Council.

13. Member of the Advisory board for the Institute of Governmental Studies, University of California, Berkeley, study, Assessment of Alternative Energy Technologies: An Institutional Analysis (funded by the National Science Foundation).
14. Member of the Technical Advisory Panel on Radioactive Waste to the Congressional Office of Technology Assessment.
15. Member of the Advisory Committee for the Nuclear Energy Education Program to the League of Women Voters Education Fund.
16. Consultant to the Presidentially appointed State Planning Council on Radioactive Waste Management.
17. Member of the Low-Level Radioactive Waste Dialogue Group, sponsored by The Conservation Foundation (under contract with the U.S. Department of Energy).
18. Consultant on radioactive wastes to the Office of Science and Technology Policy, Executive Office of the President and member of the Technical Advisory Committee to the President's Interagency Review Group on Nuclear Waste Management.
19. Consultant on spent fuel storage to the Tennessee Valley Authority.
20. Member of the Risk/Impact Panel, Committee on Nuclear and Alternative Energy Systems, National Academy of Sciences — National Research Council.
21. Member of the Panel for the National Academy of Sciences' Forum on Radioactive Waste.
22. Consultant on radioactive wastes to the California Energy Resources Conservation and Development Commission.

23. Member of the Task Force on Uranium Mill Tailings, Argonne National Laboratory (under contract with the U.S. Nuclear Regulatory Commission).

PUBLICATIONS:

1. Lash, T. and Craig, R.W., "Siting Nonradiactive Hazardous Waste Management Facilities," Hazardous Waste Management: In Whose Backyard? American Association for the Advancement of Science (1983).
2. Cavanaugh, R., Mott, L., Beers, J., and Lash, T., Final Report, Choosing an Electrical Energy Future for the Pacific Northwest: An Alternative Scenario, DOE/CS/10045-T1 (August, 1980).
3. Lash, T., "Radioactive Waste: Nuclear Energy's Dilemma," The Amicus Journal, 1 (2), pp. 24-34 (Fall, 1979). (An abbreviated version appeared in The Energy Consumer, pp. 22-24, January, 1981, published by the Office of Consumer Affairs, U.S. Department of Energy).
4. Linker, E., Beers, R., and Lash, T., "Radioactive Waste: Gaps in the Regulatory System," Denver Law Journal of Contemporary Law, 4 (2), pp. 267-283 (Spring 1978).
5. Beers, R., and Lash, T.R., Draft Final Report, Choosing an Electric Energy Future for the Pacific Northwest: An Alternative Scenario (January 31, 1977).
6. Lash, T.R., "Problems of Radioactive Waste Disposal," Stanford Catalyst, pp. 27-29 (Spring, 1976).
7. Leshy, J.D., and Lash, T.R., "A Black Mark," Environment 17(9), pp. 6-13 (December 1976).

8. Lash, T.R., Bryson, J., and Cotton, R., Citizen's Guide: The National Debate on the Handling of Radioactive Wastes from Nuclear Power Plants, Natural Resources Defense Council (November 1976).
9. Lash, T.R., "The Failure of Federal Waste Management Policy and the Role of the States," Nuclear Power in Illinois, Proceedings of the Third Annual Illinois Energy Conference, Chicago, Illinois, pp. 177-186 (September 11-12, 1975).
10. Lash, T.R., "Radioactive Waste Disposal: A National Program is Needed," States' Role in Radioactive Waste Material Management, A workshop held December 9-11, 1974, in Las Vegas, Nevada (edited by E. Helminski and J. Mack), pp. 54-59.
11. Cassuto, E., Lash, T., Sriprakash, K.S., and Radding, C.M., "The Role of Exonuclease and Beta Protein of Phage Lambda in Genetic Recombination. V. Recombination of Lambda DNA *in vitro*," Proc. Nat. Acad. Sci. USA 68, pp. 1639-1643 (1971).
12. Lash, T.R., and Rubenstein, I.R., "Physical Studies of Lambda DNA Strands as Prophage," presented at Cold Spring Harbor (1970).

EDUCATION:

- 1965 - 1970 — Yale University
 Department of Molecular
 Biophysics and Biochemistry,
 New Haven, Connecticut
 M.Ph., December 1967
 Ph.D., September 1970
- 1961 - 1965 — Reed College
 Portland, Oregon
 Physics Major
 B.A., May 1965

Ph.D. THESIS TITLE:

Isolation of the Lambda Prophage

TEACHING EXPERIENCE:

- 1968 - 1969 -- Teaching Assistant,
Introductory Chemistry
Laboratory,
Yale University.
- 1965 - 1968 -- Teaching Assistant,
Graduate Biophysics,
Yale University.
- 1966 - 1967 -- Teaching Assistant,
Freshman Astronomy,
Yale University.
- 1964 - 1965 -- Laboratory Instructor,
Junior Physics,
Reed College.

BIRTH DATE:

[]

ADDITIONAL EXPERIENCE

UTILIZING RADIONUCLIDES:

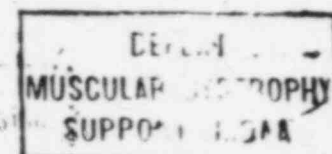
1966 - 1972

Hydrogen 3 - millicurie amounts
Phosphorus 32 - millicurie amounts
Carbon 14 - microcurie amounts



ILLINOIS
DEPARTMENT
OF
NUCLEAR
SAFETY

1000 OUTER PARK DRIVE
SPRINGFIELD, ILLINOIS 62704



George M. McCann
Materials Licensing Section
U.S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137