

September 3, 1985

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United States Nuclear Regulatory Commission
ATTN: Earl G. Wright
Senior License Reviewer
Nuclear Materials Safety Section
101 Marietta Street, N.W.
Atlanta, Georgia 30323

Gentlemen:

Subject: Additional information in support of license application
(dated May 31, 1985) submitted by Unogen, Inc.
This information was requested by you in your letter of
July 31, 1985. (Reference: 50621; 030-28730)

1. Radiation Protection Officer. Debra Bryant will be the on site radiation protection officer. Her formal training and experience with radiation and radioactive materials is outlined in her curriculum vitae in the original application. More detailed information can be found in the answer to question #5.

It is anticipated that the consulting RSO will routinely spend eight to twelve hours per quarter on site reviewing the licensee's radiation protection program. Supplemental consultation and emergency response will be provided by J.R. Gilchrist and J.E. Henderson, degreed health physicists employed by the University of Virginia Radiation Safety Office.

2. Radiation Safety Committee. The membership of Unogen's radiation safety committee consists of the following individuals:

- A. Brian G. Copcutt, Ph.D., Univ. of Va. and Unogen RSO.
- B. Debra L. Bryant, Ph.D., Staff Scientist.
- C. Michael P. Woodward, Ph.D., Staff Scientist.
- D. J. Thomas Parsons, Ph.D., Professor of Microbiology, University of Virginia.
- E. David C. Benjamin, Ph. D., Professor of Microbiology, University of Virginia.

A description of Dr. Copcutt's training and experience with radiation and radioactive materials is contained in the original application. A description of the training and experience of Drs. Bryant and Woodward are contained in the response to question #5 of this correspondence and in the original application. See attachments #1 and #2 for the relevant information on Drs. Benjamin and Parsons.

short. Halogen fire extinguishers are also available on site. These factors would limit any chance for a major release of radioactive material from fire or explosion at the facility. If airborne contamination were to escape, the fire department would evacuate downwind as in the case of a toxic chemical leak. The Charlottesville Fire Department has been trained by the University of Virginia in radiological accident response. Response to a fire at Oncogen would be handled in a similar manner to a fire involving radioactive materials occurring at the University of Virginia.

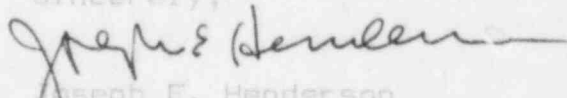
5. Training And Experience Of Persons Responsible For Safe Use Of Licensed Materials.

A. Debra Bryant completed the Radiation Safety Course taught at the University of Virginia in 1980. From 1980 to 1984, she has routinely used Phosphorus 32 and Sulfur 35. The maximum activity of Phosphorus 32 used at any one time was 30 mCi in cell labelling experiments performed over a three day period. These experiments were done at both the University of Virginia and Oncogen, Seattle, Washington. Maximum activity of Sulfur 35 used was 10 mCi in the same types of experiments at the same locations. She has used only trace amounts of Carbon 14 and Tritium. Dr. Bryant, while at Oncogen, was responsible for ordering and receiving all isotopes used by the company. This included checking each incoming shipment for contamination before distribution to respective investigators. In this capacity she has handled mCi amounts of Carbon 14, Tritium and Sulfur 35, and approximately 50 mCi of Phosphorus 32 weekly.

B. Michael Woodward completed the Radiation Safety Course taught at the University of Maryland, Baltimore County in 1977. His experience with radioactive material is clearly outlined in his curriculum vitae in the original application. As an undergraduate at UMBC (1967 to 1969) he utilized tritiated thymidine for labelling bacterial mutants; maximum amount per experiment was 1 mCi. While a graduate student (1971 to 1976) he used tritiated thymidine for labelling protozoa for autoradiography experiments; maximum amount per experiment 1 mCi. During 1977 to 1979 he used ^{14}C N ethylmaleimide and ^{14}C iodoacetamide in 1 mCi amounts. While at Dartmouth College he used Phosphorus 32 (5 mCi/experiment) to follow RNA synthesis in tissue culture cells.

Hopefully this information is complete to your satisfaction.

Sincerely,


Joseph E. Henderson
Consulting Health Physicist

cc: Debra L. Bryant, Ph.D.

ATTACHMENT #1

Question #2 Radiation Safety committee

David C. Benjamin, Professor of Microbiology, University of Virginia,
Charlottesville, Virginia.

Degrees: B.S., Chemistry, 1965, UCLA.
Ph.D. , Biology, 1969, UCSD.

Completed Radiation Safety Course at Scripps Clinic and Research Foundation
La Jolla, CA., 1965.

D. Benjamin has 20 years of experience in the use of radioisotopes in
protein chemistry and biological experimentation as follows:

1965-69 Graduate student, UCSD
1969-71 Postdoctoral fellow, John Hopkins University
1971-present Faculty, Department of Microbiology, University of Virginia

He is currently licensed at the University of Virginia for the following
isotopes and quantities:

I-125	15 mCi
I-131	5 mCi
H-3	10 mCi
Cr-51	5 mCi
C-14	4 mCi
S-35	10 mCi
P-32	50 mCi

J. Thomas Parsons, Ph.D.

EDUCATION: DePauw University, Greencastle, Indiana
Chemistry, B.A., 1964

Duke University, Durham, North Carolina
Biochemistry, Ph.D., 1968

RESEARCH TRAINING:

1963: NSF Undergraduate Research Program, Department of Chemistry, DePauw University

1964-1966: USPHS Predoctoral Trainee, Department of Biochemistry, Duke University, laboratory of Dr. Kenneth McCarty.

1966-1968: USPHS Predoctoral Fellowship, Department of Biochemistry, Duke University, Dr. Kenneth McCarty.

1968-1970: American Cancer Society Postdoctoral Fellowship, Institute for Molecular Virology, St. Louis University School of Medicine, laboratory of Dr. Maurice Green.

1970-1973: Assistant, Institut fur Molekularbiologie, Universitat Zurich, Zurich, Switzerland, laboratory of Dr. Charles Weissmann.

ACADEMIC POSITIONS:

1973-1974: Oberassistent, Institut fur Molekularbiologie, Universitat Zurich, Zurich, Switzerland.

1974-1980: Assistant Professor, Department of Microbiology, University of Virginia.

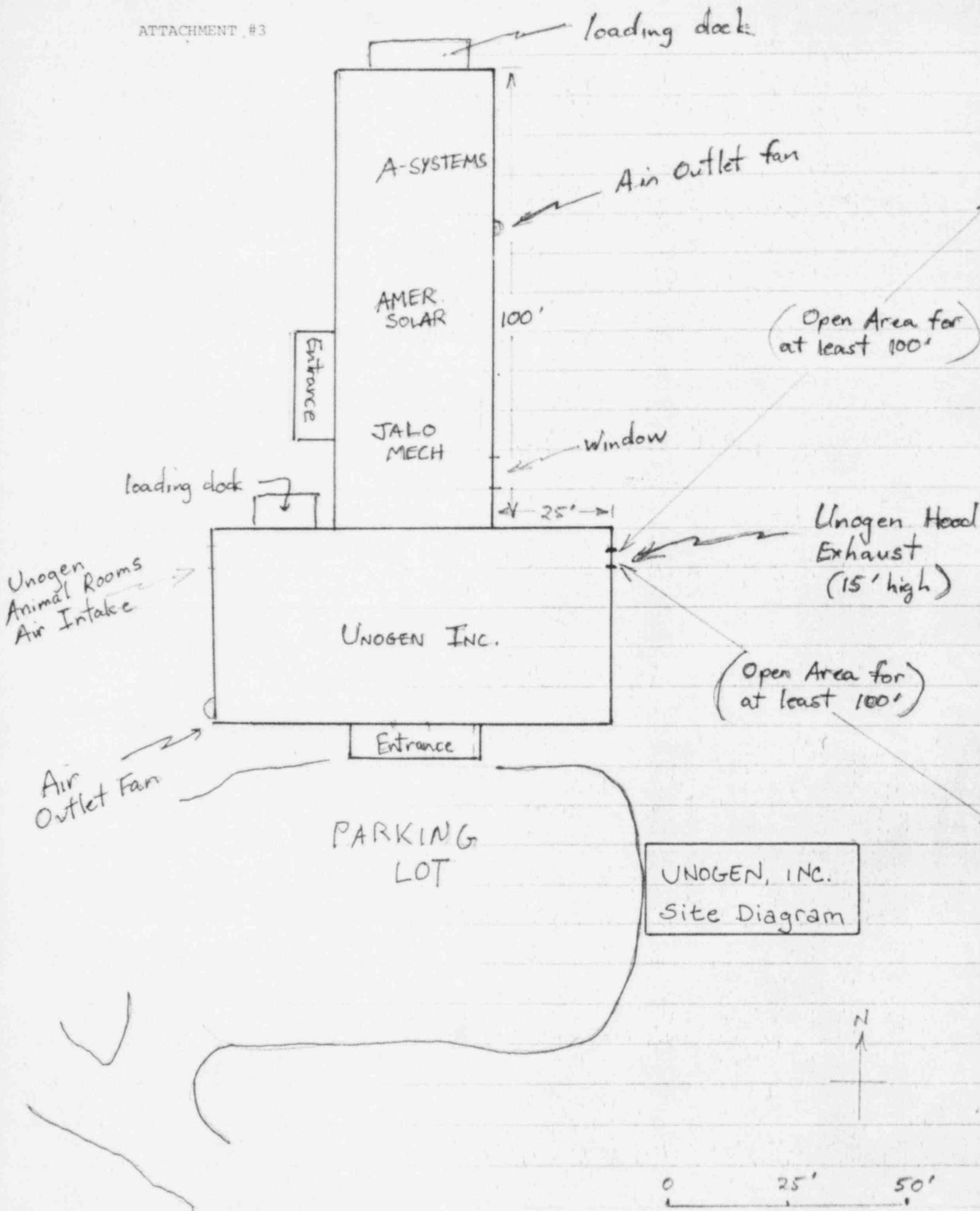
1980-1984: Associate Professor, Department of Microbiology, University of Virginia.

1984- Professor, Department of Microbiology, University of Virginia.

RELEVANT EXPERIENCE:

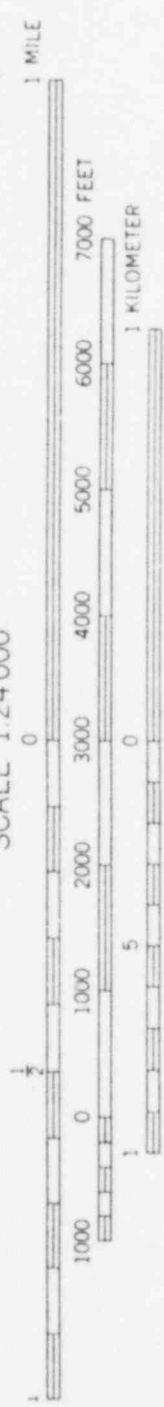
Dr. Parsons was authorized to use isotopes (^3H , ^{14}C , ^{32}P and ^{35}S) at each of the above institutions, Duke University, St. Louis University, University of Zurich and University of Virginia. Dr. Parsons

has been an authorized user at the University of Virginia since 1974. He completed the Radiation Safety Course at UVa in 1974 and has since that time actively supervised the use of isotopes in his laboratory by graduate students, post-doctoral fellows and technicians. At the University of Virginia, Dr. Parsons is currently authorized to use (maximum possession limit): 25mCi of ^3H ; 5mCi ^{14}C ; 100mCi ^{32}P ; 25mCi ^{35}S .





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