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Springborn Life Sciences, Inc.
Environmental Toxicology & Chemistry Division
790 Main Street • Wareham, Massachusetts 02571 • (617) 295-2550 • Telex 4436041 • Facsimile (203) 749-7533

Mr. Jack Davis
Nuclear Materials Safety Section B
Division of Radiation Safety Protection
U. S. Nuclear Regulatory Commission - Region 1
631 Park Avenue
King of Prussia, PA. 19406

25 January 1988

RE: Mail Control No. 108104 - Request to Amend License No. 20-13706-01.

Dear Mr. Davis:

The following information is submitted pursuant to your correspondence of 21 January 1988 concerning the subject request.

1) Paul H. Fackler, Ph.D - Qualification as Radiation Safety Officer (RSO).

Dr. Fackler is qualified by education, training and experience to assume the responsibility of the laboratory RSO. A copy of his resume is enclosed for reference. His formal training in radiation principles, uses and protection was acquired at Boston College during the course of his doctorate education which he received in 1984. His coursework included, "Nuclear and Radiochemistry" by Friedlander, Kennedy and Miller. Formal classes and laboratory studies included topics of Radioactivity, Equations of Radioactive Decay and Growth, Interaction of Radiation with Matter (biological effects), Radiation Detection and Measurement, Statistical Considerations in Radioactivity Measurements, and of course, Radiation Protection.

Dr. Fackler's work experience with radiation began 14 years ago at Harvey Mudd College in Claremont, CA. While an undergraduate student he performed laboratory experiments in biochemistry which required the use of 14C tracer materials. At Boston College, under the direction Professor M. J. Clarke, Dr. Fackler's research dealt primarily with the isotope 99-Technetium (a beta emitter) and the synthesis and radioactive measurement of many technetium containing compounds. Typically, 1 mCi of activity but occasionally as much as 100 mCi of activity, would be employed for these studies. The uses of radiation monitoring and safety procedures were extensive. As a post-doctoral assistant at the University of Cincinnati (1984-85), Dr. Fackler's research involved the use of four radioactive isotopes; 99-technetium, 99m-technetium, 186-rhenium and 113-tin. Quantities in use at any one time ranged from 10 mCi to 1000 mCi depending upon the type of experiment in progress. Again, a radiation safety program was integral to the operation of this

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laboratory.

Prior to joining Springborn Life Sciences in early 1987 Dr. Fackler was employed as a Group Leader of Analytical Chemistry by Johnson-Matthey of West Chester, PA. As Group Leader, he was responsible for directing research in support of development for analogs of the anti-cancer drug Cis-Platin, gold based anti-cancer drugs and organic anti-arthritis compounds. At Springborn, Dr. Fackler is responsible for the supervision of a staff of 17 chemists and technicians involved in the instrumental analysis of a variety of environmental matrices (soil, water, plants). He is experienced with radioactive measurements using TLC procedures, liquid scintillation counters, and other forms of radioactivity detection, e.g., RAM detector, and monitoring requirements, e.g., wipe tests, sealed source leak tests, package inspection and disposal. Radioactivity sources under management include licensed amounts of Carbon 14 and Hydrogen 3 labeled test chemicals and sealed detector cells (Nickel 63) for gas chromatographic applications.

Based on Dr. Fackler's supervisory experience, present responsibilities, understanding of radioactive material safety procedures and precautions and analytical instrumentation and applications background we believe he is well suited for the position of laboratory RSO.

2) Change of Name - Springborn Life Sciences, Inc.

In 1987 the name of the company was changed from Springborn Bionomics, Inc. to Springborn Life Sciences, Inc. The change was in name only. Ownership did not change nor did the location or facility governed by the license change. The facility is located at 790 Main Street, Wareham, MA. The name Springborn Bionomics, Inc. has been retired and is no longer used to describe company activities. It is not a separate business entity.

a. Authorized users remain the same as previous applications i.e., R. B. Foster and K. A. Grandy, with the exception of Robert E. Bentley. Mr. Bentley is no longer with the company. Dr. Paul H. Fackler is proposed as his substitute for the laboratory RSO and an authorized user. Mr. Bentley's name should be removed from the list.

b. A current organization chart for the company is enclosed with this submittal. The senior management, location and test facility are unchanged from the previous application. Since 1985, the facility LSC and sample oxidizer has been replaced with new instrumentation. In 1987, a Beckman Radioactivity Monitor (RAM) was also acquired. Sealed sources (item 9 of July 1985 submission) presently consist of two Hewlett- Packard 5880, two Hewlett-Packard 5840 and one Hewlett-Packard 5890 gas chromatographs plus two Perkin-Elmer 3920 gas

chromatographs. The latter two are inactive instruments but remain on the leak testing schedule. The Perkin-Elmer Sigma 1 instrument is no longer at this location and governed under a seperate license (see attached).

c. The company is the same as represented in prior license agreements with the NRC and agrees to abide by all previous commitments, agreements, provisions and certifications made on our behalf.

Following your review of this supplemental information please contact the undersigned if further clarification is required. We look forward to the completion of your review of our request for amendment.

Sincerely

Springborn Life Sciences, Inc.

Robert B. Foster

Robert B. Foster
President

cc: File: NRC 20-13706-01
P. H. Fackler

Robert B. Foster
President and Laboratory Director

Springborn Life Sciences, Inc.
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PAUL H. FACKLER

BIRTHPLACE AND DATE: Wheaton, Illinois; September 18, 1956

EDUCATION:

Ph.D. Analytical/Inorganic Chemistry, Boston College, Chestnut Hill, MA, 1984

B.S. Chemistry, Harvey Mudd College, Claremont, CA, 1978

PROFESSIONAL EXPERIENCE:

1987-Present - Director, Analytical Chemistry Department, Springborn Life Sciences, Inc., Wareham, Massachusetts. Responsible for providing technical and managerial expertise to the Chemistry Department of the Environmental Toxicology & Chemistry Division. Duties include supervision of GC instrumentation, HPLC, GC-MS, AA, UV/VIS, TOC analyzer, and other analytical equipment.

1986-1987 - Group Leader, Analytical Chemistry, Johnson Matthey, Inc., West Chester, Pennsylvania. Duties included supervision of analytical research in support of drug research program consisting of four primary projects. These programs included developing analogs of the anti-cancer drug Cis-Platin, gold based anti-cancer drugs and organic anti-arthritis compounds. Responsibilities included supervision of personnel, compiling annual reports and program summaries, interfacing with outside collaborators and sponsors, and maintenance of analytical instrumentation.

1985-1986 - Senior Research Chemist, Johnson Matthey, Inc., West Chester, Pennsylvania. Job description similar to above.

1984-1985 - Postdoctoral Assistant, University of Cincinnati. Worked on projects that dealt mainly with identification of nanogram quantities of technetium containing radiopharmaceuticals. Instrumental techniques included HPLC, gamma counting, liquid scintillation counting, TLC, NMR, and mass spectroscopy.

1981-1982 - Laboratory Technician, Poly-Drug, Inc., Boston, Massachusetts. Routinely analyzed serum and urine from hospitals in the Boston area for therapeutic and toxic drugs. Methods used include HPLC, GC, GC/MS, TLC, AA, radioimmunoassay, and enzyme related assays.

PUBLICATIONS AND PRESENTATIONS:

Abrams, M.J., Fackler, P.H., Picker, D.H., Lock, C.J.L., Howard-Lock, H.E., Faggiani, R., Teicher, B.A., and Richmond, R.C. 1986. The Synthesis and Structure of [Rhodamine 123]$_2$PtCl$_4$·-H$_2$O. The First Tetrachloroplatinate(II) Salt with Anti-cancer Activity, Inorganic Chemistry, 25: 3980

Kastner, M.E., Fackler, P.H., Podbielski, L., Charkoudian, J., and Clarke, M.J. 1986. A Dissymmetric μ-Oxo Technetium Complex. Inorganica Chimica Acta, 114(1): L11-L15

Lindsay, M.J., Fackler, P.H., Clarke, M.J., and Kastner, M.E. 1985. Synthesis and Structure of **trans**-[O$_2$(Im)$_4$Tc]Cl·2H$_2$O, **trans**-[O$_2$(1-Me-Im)$_4$Tc]Cl·3H$_2$O and Related Compounds. Inorganica Chimica Acta, 109(1): 39

Fackler, P.H., Czerwinska, A., Deutsch, E., Yelton, R., Schumaker, R. and Lieberman, M.L. 1985. Synthesis, Characterization, and Thermal Decomposition of **tr**-[Co(^{15}NH$_3$)(N$_4$CCN)(NH$_3$)$_4$](ClO$_4$)$_2$. Presented at the 190th National Meeting of the American Chemical Society; Chicago, Illinois; September 1985; Inorganic Paper #175

Fackler, P.H., Kastner, M.E., Clarke, M.J., and Deutsch, E. 1984. Synthesis and Structure of **trans**-[O$_2$(TBP)$_4$Tc]$^+$ (TBP = 4-**tert**-butylpyridine) and Related Complexes. Inorganic Chemistry, 23: 46836

Fackler, P.H., Kastner, M.E., and Clarke, M.J. 1984. Synthesis, Spectra, and Structure of **af**-dibromo-**b**-ethoxo-**d**-oxo-**ce**-bis(4-nitropyridine)technetium(V) and Related Complexes. Inorganic Chemistry, 23: 3968

Fackler, P.H., Kastner, M.E., and Clarke, M.J. 1982. Synthesis and Structure of Oxo Technetium Complexes with Pyridine Ligands. Presented at the 186th Meeting of the American Chemical Society; Washington, D.C.; August 1983; Inorganic Paper #106

Clarke, M.J. and Fackler, P.H. 1982. The Chemistry of Technetium: Toward Improved Diagnostic Agents. Structure and Bonding, 50: 55

Dr. Fackler's formal training in radiation principles, uses and protection was acquired at Boston College during the course of his Ph.D. education. He took and participated in a course entitled "Nuclear and Radiochemistry". The text for this course was Nuclear and Radiochemistry, 2nd Edition, by Friedlander, Kennedy and Miller. The course required laboratory participation of one four hour laboratory session per week. Topics covered were Radioactivity, Equations of radioactive decay and growth, Interaction of radiation with matter (biological effects), Radiation detection and measurement, Statistical considerations in radioactivity measurements, and of course, Radiation protection.

Dr. Fackler's work experience with radiation began in 1976 at Harvey Mudd College in Claremont, California. While an undergraduate student there he took a laboratory course in biochemistry which involved the use of 14-C as a tracer for some of the experiments.

After graduation and subsequent enrollment at Boston College in their Ph.D. program in chemistry, he began work in the laboratory of Professor Michael J. Clarke. His studies dealt primarily with the isotope 99-Technetium (a beta emitter), and involved synthesis and measurements on many technetium containing compounds. We would typically use 1 mCi of activity and occasionally use as much as 100 mCi. Radiation monitoring and safety procedures were extensive.

Dr. Fackler's post-doctoral experience was gained at the University of Cincinnati under the guidance of Dr. Edward A. Deutsch. While there, Dr. Fackler was involved with the use of four radioactive isotopes; 99-technetium, 99m-technetium, 186-rhenium and 113-tin, however, the one used primarily was 99m-technetium. Quantities in use at any one time ranged from 10 mCi to 1000 mCi, depending upon the type of experiment in progress. Again, a radiation safety program was integral to the operation of the laboratory.

Springborn Life Sciences, Inc.
Environmental Toxicology & Chemistry Division

October 1987

Laboratory Director
R. Foster

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S. Ferris

Program Planning
R. Breteler, Ph.D.

Administration
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S. Soule
W. Rezendes
M. Vogel

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Mr. David F. Wells
Springborn Life Sciences, Inc.
Environmental Toxicology & Chemistry Division
790 Main Street
Wareham, MA 02571

Re: NRC License No. 34-18624-01

Dear David:

This is to notify you that we received the regulations for the gas chromatograph. Our Nuclear Regulatory Officer, Dr. Kevin Michlewicz, will notify the NRC that we have received the nickel-63 source from you.

If we can be of further assistance, please let us know.

Sincerely,

Anita M. Bosau
Director, Quality Assurance Unit

AMB:jb

cc: D. E. Rodwell
K. Michlewicz
P. Fackler