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June 28, 1985

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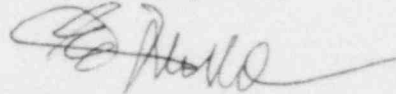
Mr. Jack Davis  
United States Nuclear  
Regulatory Commission  
Region I  
631 Park Avenue  
King of Prussia, PA 19406

Re: Fischer Technology, Inc.

Dear Mr. Davis:

Enclosed herewith is an Amendment to "Application for Byproduct Material License", Registry Sheet No. NR-291-D-102-G for Fischer Technology, Inc. I trust these changes meet with your approval. If you have any questions, please don't hesitate to call Andy Soncha at Fischer Technology (203-683-0781) or myself.

Very truly yours,



Edward F. Rosenthal

EFR:dr  
Enclosure

cc: Andy Soncha  
Bob Christensen

PLEASE EXPEDITE THIS APPLICATION

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AMENDMENT TO  
"APPLICATION FOR BYPRODUCT MATERIAL LICENSE"  
REGISTRY SHEET NO. NR-291-D-102-G

This Amendment supplements and, where contradictory, supersedes those items and provisions to which it makes reference in the previously submitted captioned Application.

1. Item 10, "Radiation Detection Instruments" -- The reference in Column A, Line No. (1) in the original Application is hereby replaced with the following: Scaler with thin end window GM tube.

The reference in Column B, Line No. (1) is hereby replaced with the following: Nuclear Instrument Company.

The reference in Column C, Line No. (1) is hereby replaced with the following: Model 100 with model N7322 GM tube.

The reference in Column D, Line No. (1) is unchanged by this Amendment.

The reference in Column E, Line No. (1) is hereby replaced with the following: Beta > 45Kev      Gamma > 10Kev

The reference in Column F is no longer applicable.

2. Item 11, "Calibration of Instruments Listed in Item 10" -- Item 11a is hereby replaced with the following:

Nuclear Instruments Company  
65 Grove Street  
Rockland, MA 02370

Frequency - Every 6 months

3. Item 15, "Radiation Safety and Protection" -- Item 15.IV.D., "Leak Test Procedures", is hereby replaced with the following:

1). Immersion Type

a. Dilute .5 ml alcohol with 0.5 ml water at 50° C;

b. Immerse source using tweezers for one hour in above solution;

- c. Remove source from liquid with tweezers. Pour liquid onto the center of a three inch (3") diameter filter paper;
- d. After air drying for 1-1½ hours, put filter paper into the GM tube and sample stand portion of the Manual Wipe Test System (Nuclear Instrument Scaler Model 1000, Tube and Sample Stand Model TM-220, Thin end window GM tube Model N7232 and 1" thick lead shield model LS-1).
- e. Activity of material on filter paper should not exceed .001 millicurie (2220 counts/minute; as adjusted for the efficiency of instrument). If count rate exceeds this value:
  - i) new sources from manufacturer - return to manufacturer for credit;
  - ii) sealed sources from customer - deliver to licensed hazardous waste disposal organization for disposal.

## 2). Smear Type

"Rad Wipe" smears with attached record folders are wiped across the sealed source. The "Rad Wipe" smear is then tested with the leak test system as described above in part D.1.d to determine radiation levels.

Both the Immersion and Smear tests are performed in specially designated areas. Safety gloves, glasses, and protective clothing are always used and a Survey Meter and material to absorb particles of byproduct (ISO "Cleaning Concentrate" or "Rad Con") are always present.

Item 15, Sample Calculation, is hereby replaced with the following:

### Sample Calculation

#### 1. Constants Used for Calculations

##### a.) Conversion Factor

$$\begin{aligned}
 1 \text{ Ci} &= 3.7 \times 10^4 \text{ disintegrations/sec.} \\
 &= 22.2 \times 10^4 \text{ disintegrations/min.} \quad ? \quad 2.2 \times 10^6 \text{ dpm}
 \end{aligned}$$

#### II. Instrument Efficiency

Using a beta source of known activity

$$\text{Efficiency} = \frac{\text{Counts (as read for 1 min)}}{\text{Disintegration/min (known activity)}}$$

III. Leak Test Activity Calculation

$$\text{Corrected Counts} = \frac{\text{Counts as displayed on Scaler}}{\text{Efficiency}}$$

note: Counts will be for a 1 minute time period.

$$\text{Activity} = \frac{\text{Corrected Count Reading}}{\text{Conversion Factor}}$$

$$\text{Activity} = \frac{11,100/\text{Min}}{22.2 \times 10^6 \text{ Disintegrations/Min/u/Ci}} = .005 \text{ u Ci}$$

note: The 11,100 Counts/Min is just for example purposes.

6/11/85

TELEPHONE OR VERBAL CONVERSATION RECORD

TIME

☐ A.M.  
☐ P.M.

☐ INCOMING CALL

☐ OUTGOING

☐ VISIT

PERSON CALLING

Jack Davis

OFFICE/ADDRESS

RI

PHONE NUMBER

EXTENSION

PERSON CALLED

Andy Soncha

OFFICE/ADDRESS

Fischer Tech

PHONE NUMBER

EXTENSION

203 683-0781

CONVERSATION

SUBJECT

Dist Gen & Sp Lic for Badger State B deins

SUMMARY

- MAX Activity for Pm147 is 0.9 millicuries at 10 mCi
- activity in iCi range not Ci range as in Schedule 12
- will provide new procedure for L/T sealed sources

will have:

- a) source of known activity to obtain efficiency of instrument
- b) will either use a counter or
- c) have in procedure to use most sensitive  
resptime of 15 sec (mfg spec) = 0.25 min

$$LLD = \frac{4.66 \sqrt{100}}{1.5 \text{ sec} \times \frac{0.025}{0.1}} = \frac{46.6}{1.5 \text{ sec} \times \frac{0.025}{0.1}} = \frac{1864}{0.1} = 18640 \text{ dpm} \times \frac{1 \text{ Ci}}{2.22 \times 10^6 \text{ dpm}}$$

$$= 8.5 \times 10^{-3} \text{ Ci}$$

$$LLD_{15 \text{ sec}} = 8.5 \times 10^{-4} \text{ Ci}$$

REFERRED TO:

ACTION REQUESTED

☐ ADVISE ME OF ACTION TAKEN.

INITIALS

DATE

ACTION TAKEN

INITIALS

DATE

ML18