

6-11 Feb 1967  
COLORADO SCHOOL OF MINES RESEARCH FOUNDATION, INC.

GOLDEN, COLORADO 80401

21 August 1967

Mr. Robert E. Brinkman  
Isotopes Branch  
Division of Materials Licensing  
U. S. Atomic Energy Commission  
Washington, D. C. 20545

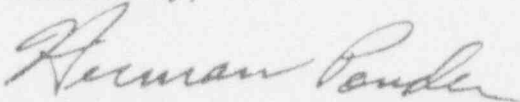
Gentlemen:

We wish to add the name of R. W. Vernon as a user  
to our AEC byproducts license number 5-4607-1.

Attached is a list of his experience and training  
with isotopes.

Mr. Vernon is a member of the Chemical Division at  
the Colorado School of Mines Research Foundation.

Sincerely,



Herman Ponder  
Manager, Mining Division

/mec  
Attachment

316 A 99  
DUPLICATED  
FOR DIV. OF COMPLIANCE

9405190318 930630  
PDR FOIA  
FERNALD93-171 PDR

MINERAL INDUSTRY RESEARCH

96483

T22

## COLORADO SCHOOL OF MINES RESEARCH FOUNDATION

GOLDEN

To Herman PonderDate 21 August 1967From R. W. Vernon

Project No \_\_\_\_\_

Subject Education and experience in radio and nuclear chemistry so that I can be placed on the General AEC License for the Colorado School of Mines Research Foundation

My education and experience in the fields of radio and nuclear chemistry total four years. The breakdown of the four years is as follows:

Education

<u>Subject</u>	<u>Quat. Hrs.</u>	<u>Institution</u>
Nuclear Chemistry and Physics	4	Colorado State University
Nuclear Reactor Material Processes	3	Colorado State University
Radio Chemistry	5	Colorado State University
Special Problems in Radio Chemistry	10	Colorado State University

Experience

## 1. Colorado State University, Endocrine Research Section

Conducting metabolism studies using C-14 and the synthesis of C-14 labeled compounds.

## 2. Colorado State University, Chemistry Department

Laboratory instructor in radio chemistry. This involved instructing students in safe handling of radioisotopes, use of radioisotopes, as traces, in wet chemical reaction, small nuclear reactor techniques and instrumentation methods for detecting all forms of radiation energies.

## 3. U. S. Geological Survey, AEC Project

The use of radioisotopes as traces in ion exchange, hydrology, ground water dating and fallout pattern

DUPLICATED  
FOR DIV. OF COMPLIANCE

96483

## MEMORANDUM

COLORADO SCHOOL OF MINES RESEARCH FOUNDATION  
GOLDEN

To Herman Ponder  
From R. W. Vernon  
Subject Page 2

Date 21 August 1967  
Project No

studies. The determination of fallout particle size and surface areas with respect to fission and fusion products vented from underground detonations. Developing a computer program for analysis of gamma ray spectrums.

4. Radioisotopes licensed for by the AEC and their maximum amounts under the General License for the Denver Federal Center held by the U. S. Geological Survey Permit No. 2.

<u>Isotope</u>	<u>Maximum Amount</u>
Al-26	5 mc
Sb-122	5 mc
Sb-124	5 mc
Sb-125	5 mc
As-77	5 mc
Ba-133	20 mc
Ba-140/La-140	20 mc
Be-7	5 mc
Bi-207	5 mc
Br-82	20 mc
Cd-109	5 mc
Cd-115m	5 mc
Ca-45	20 mc
C-14	10 mc
Ce-134	5 mc
Ce-141	5 mc
Ce-144/Pr-144	10 mc
Cs-134	20 mc
Cs-137/Ba-137	98 mc
Cl-36	5 mc
Cr-51	10 mc
Co-57	5 mc
Co-60	20 mc
Eu-152	5 mc
Eu-154	5 mc
Ge-68	5 mc
Au-195	5 mc
Au-198	50 mc
Hf-181	5 mc

DUPLICATED  
FOR DIV. OF COMPLIANCE

96483

## MEMORANDUM

COLORADO SCHOOL OF MINES RESEARCH FOUNDATION  
GOLDEN

To Herman Ponder  
From R. W. Vernon  
Subject Page 3

Date 21 August 1967

Project No \_\_\_\_\_

<u>Isotope</u>	<u>Maximum Amount</u>
H-3	100 curies
J-125	20 mc
I-131	50 mc
Fe-55	5 mc
Fe-59	5 mc
K-85	5 mc
La-140	5 mc
Mn-52	5 mc
Mn-54	10 mc
Mo-99	5 mc
Mixed Fission Prod.	4.5 curries
Nd-147/Pr-147	5 mc
Ni-63	5 mc
Nb-95	5 mc
Os-191	5 mc
P-32	20 mc
Pr-143	5 mc
Pm-147	5 mc
Rb-86	20 mc
Ru-103	5 mc
Ru-106/Rh-106	50 mc
Se-75	5 mc
Na-22	20 mc
Sr-85	20 mc
Sr-89	20 mc
Sr-90/Y-90	20 mc
S-35	10 mc
Ag-110m/110	5 mc
Ag-111	5 mc
Ta-182	5 mc
Te-99	20 mc
Tl-204	20 mc
Sn-113	5 mc
Su-125	5 mc
W-181	5 mc
V-48	5 mc
V-49	5 mc

DUPLICATED  
FOR DIV. OF COMPLIANCE

96483