



NAVAL ORDNANCE STATION
INDIAN HEAD, MD. 20640

IN REPLY REFER TO

041A:JCW

6470

Ser 146

OCT 07 1980

From: Commanding Officer
To: U.S. Nuclear Regulatory Commission, Division of Fuel
Cycle and Material Safety Licensing Management Branch,
Washington, DC 20555
Via: Officer In Charge, Naval Energy and Environmental Sup-
port Activity, Port Hueneme, CA 93043
Subj: Application for Byproduct Material License, amendment
to
Ref: (a) U.S. Nuclear Regulatory Commission Materials
License Number 19-00318-06
Encl: (1) Form NRC-3131, Application for Byproduct Material
License (3 copies)

1. Enclosure (1) is submitted to amend reference (a). The
density gage has been installed by a contractor and an expe-
ditious review of enclosure (1) is requested to take posses-
sion.

N. B. Ballance
N. B. BALLANCE
By direction

Copy to:
NAVSFA 04H (w/encl)

8409100387 840830
NMS LIC30
19-00318-06 PDR

05809

FORM NRC-313 I (1-79) 10 CFR 30		1. APPLICATION FOR: (Check and/or complete as appropriate)		
APPLICATION FOR BYPRODUCT MATERIAL LICENSE INDUSTRIAL		a. NEW LICENSE b. AMENDMENT TO: LICENSE NUMBER <div style="display: flex; align-items: center;"> <div style="width: 20px; text-align: center; border: 1px solid black;">X</div> <div>19-00318-06</div> </div> c. RENEWAL OF: LICENSE NUMBER		
See attached instructions for details. Completed applications are filed in duplicate with the Division of Fuel Cycle and Material Safety, Office of Nuclear Material Safety, and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555 or applications may be filed in person at the Commission's office at 1717 H Street, NW, Washington, D. C. or 7915 Eastern Avenue, Silver Spring, Maryland.				
2. APPLICANT'S NAME (Institution, firm, person, etc.) Naval Ordnance Station 301-743-4283 TELEPHONE NUMBER: AREA CODE - NUMBER EXTENSION		3. NAME OF PERSON TO BE CONTACTED REGARDING THIS APPLICATION Joseph C. Wilbourne 301-743-4283 TELEPHONE NUMBER: AREA CODE - NUMBER EXTENSION		
4. APPLICANT'S MAILING ADDRESS (Include Zip Code) Indian Head, Maryland 20640		5. STREET ADDRESS WHERE LICENSED MATERIAL WILL BE USED (Include Zip Code) Indian Head, Maryland 20640		
(IF MORE SPACE IS NEEDED FOR ANY ITEM, USE ADDITIONAL PROPERLY KEYED PAGES.)				
6. INDIVIDUAL(S) WHO WILL USE OR DIRECTLY SUPERVISE THE USE OF LICENSED MATERIAL (See Items 16 and 17 for required training and experience of each individual named below)				
FULL NAME		TITLE		
a. See attached sheet				
b.				
c.				
7. RADIATION PROTECTION OFFICER (Alternate) Melvin C. Hudson		Attach a resume of person's training and experience as outlined in Items 16 and 17 and describe his responsibilities under Item 15.		
8. LICENSED MATERIAL				
L I N E NO.	ELEMENT AND MASS NUMBER A	CHEMICAL AND/OR PHYSICAL FORM B	NAME OF MANUFACTURER AND MODEL NUMBER (If Sealed Source) C	MAXIMUM NUMBER OF MILLCURIES AND/OR SEALED SOURCES AND MAXIMUM ACTI- VITY PER SOURCE WHICH WILL BE POSSESSED AT ANY ONE TIME D
(1)	Cs-137	sealed source	Ohmart Model A2102	1500 millicurie 1 source
(2)	Ni-63	sealed source	Antek Model 203	2 sources of 15 millicuries each
(3)				
(4)				
DESCRIBE USE OF LICENSED MATERIAL E				
(1)	Used measuring a slurry material density in conjunction with Ohmart Model ES-2 source holder density meter.			
(2)	Detector cell used for sample analysis in conjunction with Fisher Chemical Model 4800 gas chromatograph.			
(3)				
(4)				

PAR-8012100647

9. STORAGE OF SEALED SOURCES

LINE NO.	CONTAINER AND/OR DEVICE IN WHICH EACH SEALED SOURCE WILL BE STORED OR USED. A.	NAME OF MANUFACTURER B.	MODEL NUMBER C.
(1)	Density Meter	Ohmart	ES-2
(2)	Gas Chromatograph	Fisher Chemical	4800
(3)			
(4)			

10. RADIATION DETECTION INSTRUMENTS

LINE NO.	TYPE OF INSTRUMENT A	MANUFACTURER'S NAME B	MODEL NUMBER C	NUMBER AVAILABLE D	RADIATION DETECTED (alpha, beta, gamma, neutron) E	SENSITIVITY RANGE (milliroentgens/hour or counts/minute) F
(1)	Geiger Mueller	Technical Industrial	68-27R	2	Beta Gamma	0-500 mr/hr
(2)		Assoc. INC				
(3)						
(4)						

11. CALIBRATION OF INSTRUMENTS LISTED IN ITEM 10

☐ a. CALIBRATED BY SERVICE COMPANY (3 months)

NAME, ADDRESS, AND FREQUENCY

Naval Electronics Security Systems
Engineering Center, Radiac Section,
3801 Nebraska Ave., NW Washington DC

20390

☐ b. CALIBRATED BY APPLICANT

Attach a separate sheet describing method, frequency and standards used for calibrating instruments.

12. PERSONNEL MONITORING DEVICES

TYPE (Check and/or complete as appropriate.) A	SUPPLIER (Service Company) B	EXCHANGE FREQUENCY C
<input type="checkbox"/> (1) FILM BADGE None required for these instruments. <input type="checkbox"/> (2) THERMOLUMINESCENCE DOSIMETER (TLD) <input type="checkbox"/> (3) OTHER (Specify): _____ _____ _____		<input type="checkbox"/> MONTHLY <input type="checkbox"/> QUARTERLY <input type="checkbox"/> OTHER (Specify): _____ _____ _____

13. FACILITIES AND EQUIPMENT (Check where appropriate and attach annotated sketch(es) and description(s).)

- ☒ a. LABORATORY FACILITIES, PLANT FACILITIES, FUME HOODS (Include filtration, if any), ETC.
☐ b. STORAGE FACILITIES, CONTAINERS, SPECIAL SHIELDING (fixed and/or temporary), ETC.
☐ c. REMOTE HANDLING TOOLS OR EQUIPMENT, ETC.
☐ d. RESPIRATORY PROTECTIVE EQUIPMENT, ETC.

14. WASTE DISPOSAL

a. NAME OF COMMERCIAL WASTE DISPOSAL SERVICE EMPLOYED Southwest Nuclear Co., 906 Montgomery St., Laurel, MD 20810 for wipe waste disposal.

b. IF COMMERCIAL WASTE DISPOSAL SERVICE IS NOT EMPLOYED, SUBMIT A DETAILED DESCRIPTION OF METHODS WHICH WILL BE USED FOR DISPOSING OF RADIOACTIVE WASTES AND ESTIMATES OF THE TYPE AND AMOUNT OF ACTIVITY INVOLVED. IF THE APPLICATION IS FOR SEALED SOURCES AND DEVICES AND THEY WILL BE RETURNED TO THE MANUFACTURER, SO STATE. Sealed sources - Radiation holder will be returned to manufacturer for cleaning/replacement or disposal of source material.

INFORMATION REQUIRED FOR ITEMS 15, 16 AND 17

Describe in detail the information required for Items 15, 16 and 17. Begin each item on a separate page and key to the application as follows:

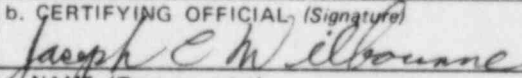
15. **RADIATION PROTECTION PROGRAM.** Describe the radiation protection program as appropriate for the material to be used including the duties and responsibilities of the Radiation Protection Officer, control measures, bioassay procedures *(if needed)*, day-to-day general safety instruction to be followed, etc. If the application is for sealed source's also submit leak testing procedures, or if leak testing will be performed using a leak test kit, specify manufacturer and model number of the leak test kit.
16. **FORMAL TRAINING IN RADIATION SAFETY.** Attach a resume for each individual named in Items 6 and 7. Describe individual's formal training in the following areas where applicable. Include the name of person or institution providing the training, duration of training, when training was received, etc.
 - a. Principles and practices of radiation protection.
 - b. Radioactivity measurement standardization and monitoring techniques and instruments.
 - c. Mathematics and calculations basic to the use and measurement of radioactivity.
 - d. Biological effects of radiation.
17. **EXPERIENCE.** Attach a resume for each individual named in Items 6 and 7. Describe individual's work experience with radiation, including where experience was obtained. Work experience or on-the-job training should be commensurate with the proposed use. Include list of radioisotopes and maximum activity of each used.

18. CERTIFICATE

(This item must be completed by applicant)

The applicant and any official executing this certificate on behalf of the applicant named in Item 2, certify that this application is prepared in conformity with Title 10, Code of Federal Regulations, Part 30, and that all information contained herein, including any supplements attached hereto, is true and correct to the best of our knowledge and belief.

WARNING.—18 U.S.C., Section 1001; Act of June 25, 1948; 62 Stat. 749; makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

a. LICENSE FEE REQUIRED <i>(See Section 170.31, 10 CFR 170)</i>	b. CERTIFYING OFFICIAL <i>(Signature)</i>  c. NAME <i>(Type or print)</i> JOSEPH C. WILBOURNE
(1) LICENSE FEE CATEGORY:	d. TITLE Radiation Safety Officer
(2) LICENSE FEE ENCLOSED: \$	e. DATE 7 Oct 1980

ITEM 6.

Delete:

Lydia E. Sanchez, Chemical Engineer

Add:

Michael L. Day, Chemical Engineering Technician
Mark B. Cummings, Chemical Engineering Technician
Christopher C. Wilmot, Chemical Engineer

Users of Gas
Chromatograph
by Fisher

David R. Seroskie, Chemical Engineer
Robert D. Arbogast, Engineering Technician

Users of
Ohmart Density
Gauge

Linda G. Andrews, Chemist

User of Gas
Chromatograph
by Perkin
Elmer

ITEM 13.

OHMART NUCLEAR DENSITY GAUGE LOCATION AND PURPOSE

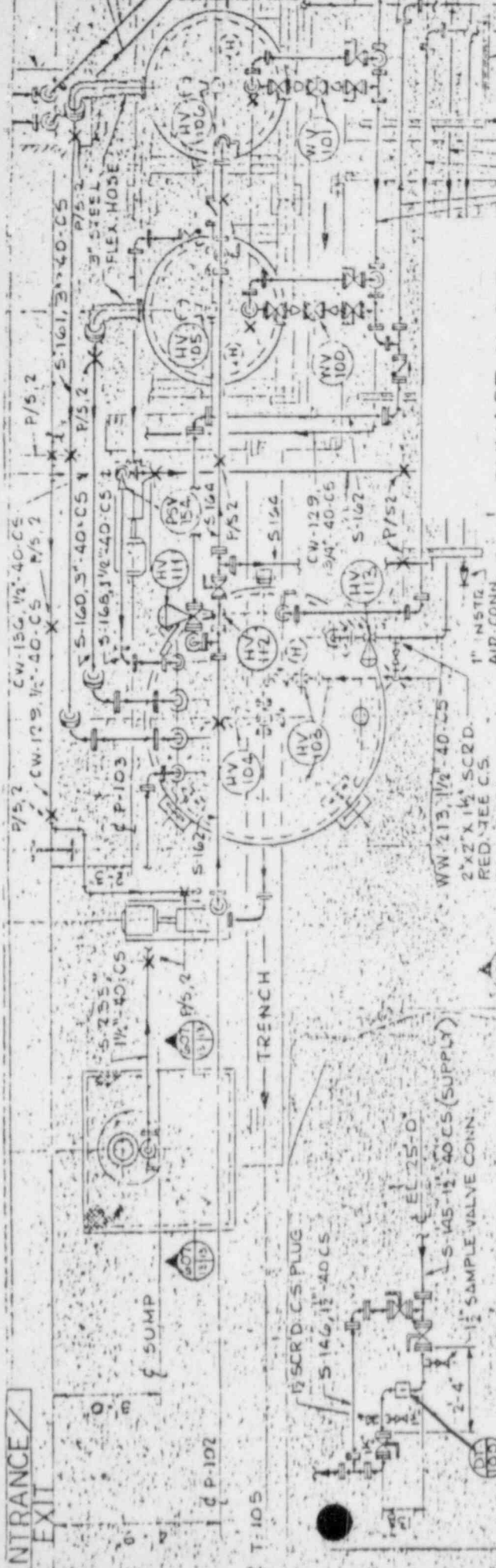
A nuclear density gauge is to be used to measure the density of a water based slurry of solid fuel rocket propellant as it flows through a pipe to storage tanks. The slurry concentration will average approximately 4%. There are no corrosive or explosive liquid or vapor external to the unit and the slurry itself does not present an explosive hazard to the gauge source or shielding.

The density gauge is located in a single level, enclosed building that is used exclusively for slurry makeup and storage, is approximately chest height, and lies along one of the building walls (see attachment). The normal walkway through the building passes through the center between rows of tanks restricted by tankage, interconnecting piping, and a railing around a pipe trench opening (immediately adjacent to the instrument). During normal operations the building is unoccupied. The only cause for workers coming into close proximity to the gauge would be for maintenance to the gauge electronics or to the limited amount of piping immediately overhead.

During normal operations the building in which the nuclear density gauge is to be located will be unoccupied. A transient passing through the building would not pass closer than 10 feet to the gauge. The only cause for an operator to be in close proximity to the device would be for maintenance, as stated above, and which would be an exceptional occurrence rather than a routine one. Based upon normal operating procedures and physical layout within the building, no one should routinely come within 10 feet of the gauge.

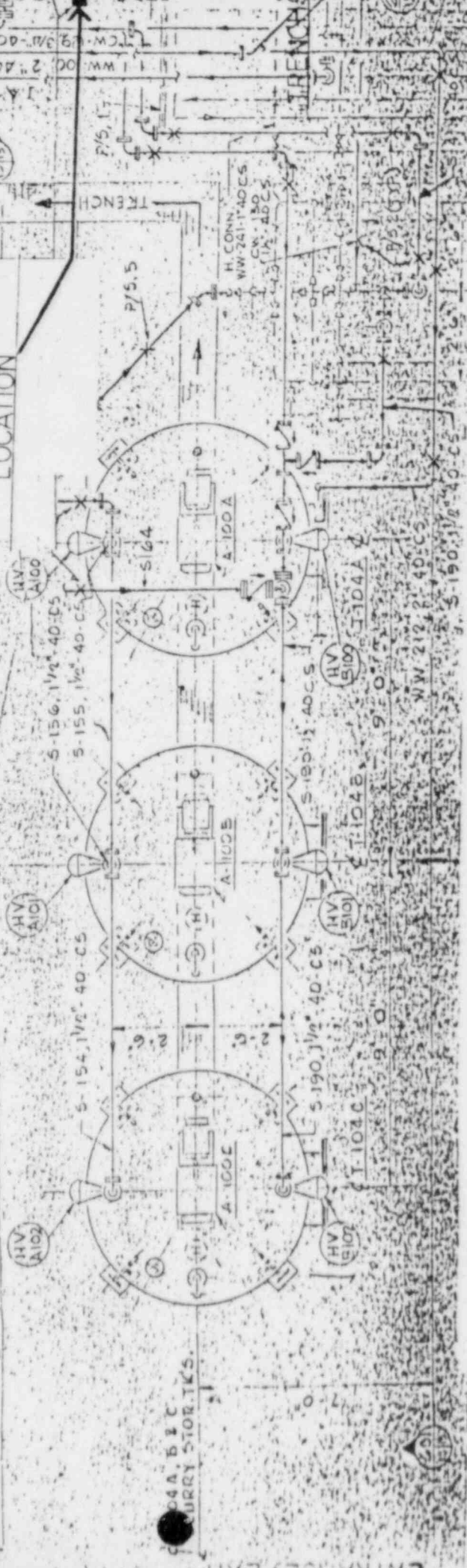
ENTRANCE / EXIT

05809



OHMART NUCLEAR
DENSITY GAUGE
LOCATION

SECTION
SCALE 3" = 1'-0"



04A, 52 C
CARRY STORTKS.

ENTRANCE / EXIT

ITEM 15.

1. Ohmart Model ES-2 Source Holder Density Meter

a. Source holder was installed by John A. Scheibel, Inc. General Contractor, 6005 Marlin Lane, Camp Springs, MD 20031.

b. A radiation survey of the meter using a PDR-27R, Geiger Mueller survey instrument indicates a maximum surface reading in one spot of 3.5 mr/hr. The density meter and the entrance to the building have been posted with Caution Radioactive Materials signs. The building is locked to prevent unauthorized entry. This density meter will not be used (put into service) for approximately one year. Procedures for performing electronic and piping maintenance will be forwarded for approval prior to putting into service. Any electronic maintenance performed prior to getting an approved procedure will be performed by Ohmart personnel.

c. The source holder will be leak tested for source integrity at least once every three years. Leak testing will be performed by the Radiation Safety Officer as follows:

(1) Two cotton swabs, moistened with water, will be wiped around the source holder welded seams, gasket and bolts.

(2) The cotton swabs will be sealed in a plastic bag. After sealing the cotton swabs in the plastic bag, it will be monitored with a 68-27R or Victoreen 444 detector. If measurable radiation is in excess of natural background the following steps will be taken:

a. Seal entire source holder density gauge with plastic.

b. Monitor, and record, exterior of plastic used to seal holder density gauge.

c. Notify Ohmart, the company from which the density gauge was purchased.

d. If no radiation in excess of natural background is present, the plastic bag containing the cotton swabs will be sealed in another envelope and sent for evaluation.

e. Delete: Navy Nuclear Power Unit, Port Hueneme, California with license 04-07316-02 for evaluation of wipe samples. Add Radiation Management Corp, 9022 A-1 Telegraph Road, Lorton, VA 22079, NRC License 37-13129-04 for evaluation of all wipe samples required under this license.

f. The leak test results will be maintained on file by the Radiation Safety Officer.

ITEM 15 con't.

g. All repair, relocation or removal of the source holder will be done by Ohmart personnel unless specifically authorized in electronic and piping maintenance discussed in paragraph 1.b above.

h. In the event some catastrophic emergency occurs and this density gauge is involved, the area of the gauge will be isolated by the use of rope barricades, Ohmart will be notified, and no action will be taken until the condition of the device is known.

2. Fisher Chemical Model 4800 gas chromatograph with Ni-63 in detector cell.

a. Radiation Protection Program - This is the same instrument and program as presented in this license application dated 19 July 1979.

3. All wipe samples will be taken while wearing plastic gloves. The plastic gloves will be monitored at one inch with the open window of a 68-27R survey instrument. Any reading above background and the gloves will be disposed of as radioactive waste.

ITEM 16 and 17.

MICHAEL L. DAY, Chemical Engineering Technician

<u>Type of Training</u>	<u>Time/Location of Training</u>
General Chemistry and Lab	6 credit hours lecture 2 credit hours lab At Charles County Community College
General Physics and Lab	6 credit hours lecture 2 credit hours lab At Charles County Community College

56 hours toward an engineering technology associates degree at Charles County Community College with all courses completed with the exception of general electives.

Work related experience.

7.5 years experience with laboratory and industrial instrumentation and related chemical processing equipment. Received brief, informal training from a manufacturers representative on the operation of gas chromatographs.

ITEM 16 and 17.

MELVIN C. HUDSON, Alternate Radiological Safety Officer

<u>Type of Training</u>	<u>Time/Location of Training</u>
B.S. Physics	Missouri School of Miners and Metallurgy - University of Missouri, Rolla, Missouri 1958 24 hours in Reactor and Atomic Physics
Basic Course in Radiological Protection	80 hours formal training at Naval Nuclear Power Unit, Port Hueneme, CA, Oct 1979 One year experience using Victoreen 444, PDR-27R and Victoreen Minometer II instruments at Naval Ordnance Station, Indian Head, MD 20640
Professional Engineer	Safety Speciality
Certified Safety Professional	Board of Certified Safety Professionals

NOTE:

Working experience with radiation has been with small sources and instruments in school laboratory courses and 1 1/2 years with 13 MEV, 4 MEV, 2 MEV, 250 KVP, and laboratory diffraction x-ray units which included facilities inspection, area monitoring and development of safe standard operating procedures for personnel utilizing the equipment.

ITEM 16 and 17.

MARK B. CUMMINGS, Chemical Engineering Technician

Type of Training

Time/Location of Training

General Chemistry and Lab

6 credit hours lecture
2 credit hours lab
Charles County Community College

Instrumentation Lab

4 credit hours
Charles County Community College

Engineering Physics and Lab

13 credit hours lecture
3 credit hours lab
Charles County Community College

A.A. Engineering Technology

1979 Charles County Community
College

Work Related Experience

Seven and one-half years experience with laboratory and industrial instrumentation including gas chromatographs and particle size analyzer.

ITEM 16 and 17.

CHRISTOPHER C. WILMOT, Chemical Engineer

Type of Training

Time/Location of Training

General Chemistry and
Laboratory

6 credit hours lecture
2 credit hours lab
Worcester Polytechnic Institute

Major Qualifying Project -
Absorption of Carbon Dioxide

6 credit hours research project
Worcester Polytechnic Institute

Organic Chemistry

6 credit hours
Worcester Polytechnic Institute

Work Related Experience

One year experience with laboratory and industrial instrumentation.
Examples of laboratory instruments include MSA particle size Analyzer
and Thermal Conductivity cell and recorder.

Industrial experience includes working with feeder controls using
Emery Hydraulic load cells/Foxboro Pressure.

Experience with Radiation

NONE

ITEM 16 and 17.

DAVID R. SEROSKIE, Chemical Engineer

<u>Type of Training</u>	<u>Time/Location of Training</u>
General Chemistry including Laboratory Course	6 credit hours classroom 3 credit hours lab University of Virginia
Organic Chemistry including Laboratory Course	6 credit hours classroom 2 credit hours lab University of Virginia
Physical Chemistry including Laboratory Course	6 credit hours classroom 3 credit hours lab University of Virginia
Applied Mathematics	10 credit hours classroom University of Virginia
Physics for Engineers including Laboratory Course	12 credit hours classroom 3 credit hours lab University of Virginia
<u>Experience with Radiation</u> NONE	

ITEM 16 and 17

ROBERT D. ARBOGAST, Engineering Technician

Type of Training

Time/Location of Training

General Chemistry

40 hours classroom
No credit
Naval Ordnance Station

Mathematics

10 credit hours classroom
Charles County Community College

General Engineering Physics

5 credit hours classroom including
lab
Charles County Community College

Electronics Technology

26 credit hours classroom
3 credit hours lab
Charles County Community College

Density and Level Gauges
Product Training Session

20 hours
Ohmart, Cincinnati, Ohio

U.S. NRC Rules & Regulations
Radiation Safety Course

20 hours
Ohmart, Cincinnati, Ohio

Experience with Radiation

NONE

ITEM 16 and 17.

LINDA G. ANDREWS, Chemist

Type of Training

Time/Location of Training

B.S. degree in Chemistry

University of Maryland, 1976

18 hrs. graduate work in
Chemistry

Catholic University, 1978-1980

Graduate Course in Radioisotopes
(3 semester hours)

George Washington University,
Spring 1978

Experience with Radiation

Laboratory course in Radioisotopes
included work with H₃ labeling as
well as C¹³ and other radioisotopes

George Washington University,
Spring 1978

1/3/80

TELEPHONE OR VERBAL CONVERSATION RECORD

TIME

8:40

☒ A.M.
☐ P.M.

☐ INCOMING CALL

☒ OUTGOING CALL

☐ VISIT

PERSON CALLING

L. A. O'Reilly

OFFICE/ADDRESS

PHONE NUMBER

EXTENSION

PERSON CALLED

Joseph C. Wilbourne

OFFICE/ADDRESS

Naval Ordnance Station

PHONE NUMBER

EXTENSION

301-743-4283

CONVERSATION

SUBJECT

NEW license application

SUMMARY

Fisher Chemical Model 4800 is the same as
Fisher Scientific's Model 4000 Series
which uses a Victoreen Model CP0-659
detector cell.

REFERRED TO:

ACTION REQUESTED

ACTION TAKEN

☐ ADVISE ME OF
ACTION TAKEN.

INITIALS

DATE

INITIALS

DATE