

NRC Form 313 I (12-81) 10 CFR 30		U.S. NUCLEAR REGULATORY COMMISSION		1. APPLICATION FOR: <i>(Check and/or complete as appropriate)</i>	
APPLICATION FOR BYPRODUCT MATERIAL LICENSE INDUSTRIAL				a. NEW LICENSE	
<i>See attached instructions for details.</i> 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.				b. AMENDMENT TO: LICENSE NUMBER	
				c. RENEWAL OF: LICENSE NUMBER XX 05-00393-05	
2. APPLICANT'S NAME <i>(Institution, firm, person, etc.)</i> Umetco Minerals Corporation TELEPHONE NUMBER: AREA CODE - NUMBER EXTENSION (307) 457-2312			3. NAME AND TITLE OF PERSON TO BE CONTACTED REGARDING THIS APPLICATION Pat J. L. Lyons, General Superintendent TELEPHONE NUMBER: AREA CODE - NUMBER EXTENSION (307) 457-2312		
4. APPLICANT'S MAILING ADDRESS <i>(Include Zip Code)</i> <i>(Address to which NRC correspondence, notices, bulletins, etc., should be sent.)</i> P.O. Box 151 Riverton, Wyoming 82501			5. STREET ADDRESS WHERE LICENSED MATERIAL WILL BE USED <i>(Include Zip Code)</i> Gas Hills Station Riverton, Wyoming 82501		
(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 <i>(See Items 16 and 17 for required training and experience of each individual named below)</i>					
FULL NAME			TITLE		
a. See Attachment I					
b.					
c.					
7. RADIATION PROTECTION OFFICER Thomas Wong			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					
LINE NO.	ELEMENT AND MASS NUMBER A	CHEMICAL AND/OR PHYSICAL FORM B	NAME OF MANUFACTURER AND MODEL NUMBER <i>(If Sealed Source)</i> C	MAXIMUM NUMBER OF MILLICURIES AND/OR SEALED SOURCES AND MAXIMUM ACTIVITY PER SOURCE WHICH WILL BE POSSESSED AT ANY ONE TIME D	
(1)	Americium-241	Sealed source	Amerisham Searle AMM-4	2 sources not to exceed .5 μ Ci/source	
(2)	Cesium-137	Sealed source	Ohmart A2102	1 source of 50 mCi	
(3)					
(4)					
DESCRIBE USE OF LICENSED MATERIAL E					
(1)	Used in Texas Nuclear Series 9200 portable elemental analyzer to analyze ore samples.				
(2)	Used in Ohmart Model WeighART 4000 to weigh ore on a belt conveyor.				
(3)	8510240143 850821 REG4 LIC30 05-00393-05 PDR				
(4)					

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)	Source holder	Texas Nuclear	Series 9200			
(2)	Source holder	Ohmart	WeighART 4000			
(3)						
(4)						

10. RADIATION DETECTION INSTRUMENTS						
LINE NO.	TYPE OF INSTRUMENT A.	MANUFACTURER'S NAME B.	MODEL NUMBER C.	NUMBER AVAILABLE C.	RADIATION DETECTED (alpha, beta, gamma, neutron) E.	SENSITIVITY RANGE (milliroentgens/hour or counts/minute) F.
(1)	None required by user. Manufacturer's representatives provide for ongoing tests					
(2)	required by license.					
(3)						
(4)						

11. CALIBRATION OF INSTRUMENTS LISTED IN ITEM 10	
<input type="checkbox"/> a. CALIBRATED BY SERVICE COMPANY NAME, ADDRESS, AND FREQUENCY Not applicable.	<input type="checkbox"/> b. CALIBRATED BY APPLICANT Attach a separate sheet describing method, frequency and standards used for calibrating instruments. Not applicable.

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 <input type="checkbox"/> (2) THERMOLUMINESCENCE DOSIMETER (TLD) <input type="checkbox"/> (3) OTHER (Specify): <u>Not applicable.</u> 	None required by user. Radiation does not exceed 5 mR/hr. at one foot from any instrument and a 100 mR/hr. field is not present.	<input type="checkbox"/> MONTHLY <input type="checkbox"/> QUARTERLY <input type="checkbox"/> OTHER (Specify): <u>Not applicable.</u>

13. FACILITIES AND EQUIPMENT (Check where appropriate and attach annotated sketch(es) and description(s).)	
<input type="checkbox"/> a. LABORATORY FACILITIES, PLANT FACILITIES, FUME HOODS (Include filtration, if any), ETC. <input type="checkbox"/> b. STORAGE FACILITIES, CONTAINERS, SPECIAL SHIELDING (fixed and/or temporary), ETC. <input type="checkbox"/> c. REMOTE HANDLING TOOLS OR EQUIPMENT, ETC. <input type="checkbox"/> d. RESPIRATORY PROTECTIVE EQUIPMENT, ETC.	Not applicable.

14. WASTE DISPOSAL	
a. NAME OF COMMERCIAL WASTE DISPOSAL SERVICE EMPLOYED Texas Nuclear for Series 9200 Analyzer sources; Ohmart for WeighART 4000 source.	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 will be returned to the manufacturer for disposal.

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:

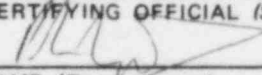
15. **RADIATION PROTECTION PROGRAM.** Describe the radiation protection program as appropriate for the material to be used including the duties and responsibilities of the Radiation Protection Officer, control measures, bioassay procedures (*if needed*), day-to-day general safety instruction to be followed, 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 (See Section 170.31, 10 CFR 170)	b. CERTIFYING OFFICIAL (Signature) 
	c. NAME (Type or print) P.J.L. Lyons
(1) LICENSE FEE CATEGORY:	d. TITLE General Superintendent
(2) LICENSE FEE ENCLOSED: \$ 150.00	e. DATE September 27, 1984

Supplementary Information for Item 15, Radiation Protection Program

Each sealed source containing byproduct material with a half-life greater than thirty days and in any form other than gas shall be tested for leakage and/or contamination at intervals not to exceed six months, unless the manufacturer furnishes certification for longer periods between leak tests. In the absence of a certificate from a transferor indicating that a test has been made within six months prior to the transfer, the sealed source shall not be put into use until tested.

The test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. The test sample shall be taken from the sealed source or from the surfaces of the device in which the sealed source is permanently mounted or stored on which one might expect contamination to accumulate. Records of leak test results shall be kept in units of microcuries and maintained for inspection at Umetco's Gas Hills location.

If the test reveals the presence of 0.005 microcurie or more of removable contamination, the licensee will immediately withdraw the sealed source from use and cause it to be decontaminated and repaired or to be disposed of in accordance with Commission regulations. A report will be filed within 5 days of the test with the Radioisotopes Licensing Branch, Division of Fuel Cycle Material Safety, U.S. Nuclear Regulatory Commission, Washington, DC 20555 (telephone: 301-427-4228), describing the equipment involved, the test results, and the corrective action taken. A copy of such report will also be sent to the appropriate Director, Region IV Office of Inspection and Enforcement, U.S. Nuclear Regulatory Commission, 611 Ryan Plaza Drive, Suite 1000, Arlington, Texas 76011 (telephone: 817-860-8100).

Tests for leakage and/or contamination shall be performed by or under the supervision of one of the persons listed in Attachment I who has received formal training. Leak testing will be done according to manufacturer's recommendations.

The instruments containing the sealed sources will be labeled with the appropriate radiation designation. Precautionary measures will be taken to prevent unauthorized use or theft of the instruments. A gamma detection instrument is available for field monitoring if there is reason to suspect damage to the source holders.

ATTACHMENT I

<u>INDIVIDUAL</u>	<u>TITLE</u>	<u>YEARS SERVICE</u>	<u>FORMAL TRAINING</u>		<u>WORK EXPERIENCE</u>
			<u>YES</u>	<u>NO</u>	
✓ T. Wong	Environmental Coordinator	14	X		See attached resume
✓ F.J. Wicks	Safety Coordinator	25	X		See attached resume
J.L. Conner	Radiation Technician	13	X		See attached resume
J.F. Coulthard	Technical Superintendent	8		X	U-Natural in ton quantities; 8 years
G.L. Preston	Operation Superintendent	24		X	U-Natural in ton quantities; 9 years
✓ B.R. Hankins	Mining Foreman	20		X	U-Natural in ton quantities; 20 years
T.W. Scott	Chief Engineer	11		X	U-Natural in ton quantities; 4 years
M.R. Cooney	Metallurgical Technician	9		X	U-Natural in ton quantities; 9 years

RESUME

Thomas Wong

Title: Environmental Coordinator

Formal Training: Texas Nuclear Division Radiation Safety Training Course
conducted July 17-20, 1979 by W.G. Hendrick.

Eberline Instruments course on Radiation Protection and
Environmental Surveillance for Uranium Resource Organi-
zations conducted April 7-11, 1980 by Nels Johnson.

AIHA Respiratory Protection Course conducted December 9-11,
1981 in Atlanta, GA by John Pritchard.

Union Carbide Corporation Occupational Health and Indus-
trial Hygiene Seminar conducted January 18-22, 1982
by Dr. H.B. Rhodes and R.L. Beethe.

Northwestern University Radiation Safety Course conducted
November 14-18, 1983 by Herman Cember.

Work Experience: U-Natural in ton quantities; 6 years.

Radiation Safety Officer in a uranium mill; 4 years.

Calibration of Alpha survey instrumentation; 4 years.

Radioisotopes: Americium-241 0.5 uCi

Cesium-137 50 mCi

NOTE: Certificates of formal training are attached if available.



**Texas Nuclear
Division**

Ramsey Engineering Company
Box 9267
Austin, Texas 78766 USA
Telephone (512) 836-0801
Telex 77-6413

LETTER OF CERTIFICATION

This is to certify that Thomas Wong
 Union Carbide Corporation

has attended and successfully completed a course of instruction, conducted under the auspices of Texas Nuclear Division and described in the attached Course Agenda. The course covers fundamentals of radiation, units of dose and quality of radiation fields, hazards of radiation exposure, detection devices, regulatory controls, industrial devices and specific training on installation and leak testing of Texas Nuclear density, level and weigh gauges.

The said course of instruction, together with prior experience, is structured to qualify persons who complete it to understand and safely perform various operations involving nuclear devices including the installation, relocation and leak testing of such equipment. The operations are to be done in accordance with the rules and regulations of the United States Nuclear Regulatory Commission and/or "Agreement States", and are in all respects subject to such rules and regulations.

This letter cannot be used in lieu of a specific license from or other sanction by an appropriate regulatory agency.

TEXAS NUCLEAR DIVISION
Ramsey Engineering Company

W. G. Hendrick
Health Physicist

Certificate Of Training

This is to certify that

THOMAS WONG

Has Successfully Completed a Radiation Safety Training Course
sponsored by Texas Nuclear Division.



**Texas Nuclear
Division**

Ramsey Engineering Company

Issued 20th Day Of July 19 79

W. Hendrick
Health Physicist

Tom Guichonne
President

April 7-11, 1980

eberline

Santa Fe, New Mexico

This Certifies That

Tom Wong

Has Successfully Completed Our Prescribed Course In

**RADIATION PROTECTION AND ENVIRONMENTAL SURVEILLANCE
FOR URANIUM RESOURCES ORGANIZATIONS**

This 11th day of April 1980

Nel Johnson
Instructor

John H. Dendahl
John H. Dendahl
President

This is to certify that

Tom Wong

has completed the

**AIHA RESPIRATORY
PROTECTION COURSE**

4.0 CEUs

Newell E. Bolton

NEWELL E. BOLTON, PRESIDENT
AMERICAN INDUSTRIAL HYGIENE ASSOCIATION

John Pritchard

JOHN PRITCHARD
COURSE DIRECTOR



Northwestern University

Technological Institute

THIS IS TO CERTIFY THAT

TOM WONG

WAS A PARTICIPANT IN THE

CONTINUING ENGINEERING STUDY

CES 8424 RADIATION SAFETY



Herman C. Cohen

PROFESSOR

3.0 C.E.U. (equivalent)

Wendell Cohen

ASSOCIATE DEAN

November 18, 1983

DATE

RESUME

Floyd J. Wicks

Title: Safety Coordinator

Formal Training: Attendee - AIF Workshop on Methods of Measuring Radiation In and Around Uranium Mills; May 23-26, 1977.

Attendee - Radiation Seminar at Union Carbide Corporation office in Grand Junction, CO conducted on February 13, 1979 by J. Tell Tappan, Health Physicist.

MSHA Radiation Monitoring and Control Course conducted January 30-February 1, 1979.

Union Carbide Corporation Occupational Health and Industrial Hygiene Seminar conducted January 18-22, 1982 by Dr. H.B. Rhodes and R.L. Beethe.

Umetco Minerals Corporation Industrial Hygiene Training Seminar conducted May 8-10, 1984 by Dr. H.B. Rhodes and R.L. Beethe.

Work Experience: U-Natural in ton quantities; 25 years.

Radiation Safety Officer in a uranium mill; 3 years.

Radioisotopes:	Americium-241	0.5 uCi
	Cesium-137	50 mCi

NOTE: Certificates of formal training or course agenda are attached if available.

RADIATION SEMINAR

UNION CARBIDE CORPORATION - METALS DIVISION

GRAND JUNCTION, COLORADO

February 13, 1979

Session 1 (8:00 AM - 12 Noon)

- 1.0 Radiation
 - 1.1 Define radiation
 - 1.1.1 Sources of radiation
 - 1.1.2 Energy
 - 1.1.3 Structure of the atom
 - 1.1.4 Ionization of the nucleus
 - 1.1.4.1 gamma radiation
 - 1.1.4.2 alpha radiation
 - 1.1.4.3 beta radiation
 - 1.2 Uranium as a source
 - 1.3 Units of measure
 - 1.3.1 Curie
 - 1.3.2 Roentgen (R)
 - 1.3.3 Roentgen equivalent man (rem)
 - 1.3.3.1 airborne radioactivity
Radon and daughters
 - 1.3.3.2 External exposures
- 2.0 Nuclear Instrumentation
 - 2.1 Radiation interaction with matter
 - 2.1.1 Gas amplification and ionization
 - 2.1.2 Scintillation
 - 2.1.2.1 demonstration
- 3.0 Biological Effects
 - 3.1 Relative biological effectiveness
 - 3.2 External
 - 3.3 Internal
 - 3.3.1 The human body
 - 3.3.1.1 Cell composition
 - 3.4 Expected effects of whole body doses
 - 3.5 Estimated risks of biological damage
- 4.0 Maximum Permissible Exposure and Concentrations
 - 4.1 External
 - 4.2 Effluents
 - 4.3 Internal
 - 4.3.1 Radon daughters for uranium miners
 - 4.3.2 Uranium concentrate

U.S. DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
Mailing Address: P.O. Box 25367, DFC
Denver, Colorado 80225
Street Address: 730 Simms
Lakewood, Colorado



FLOYD J. WICKS

HAS SATISFACTORILY COMPLETED

THE 18-HOUR COURSE,

RADIATION MONITORING AND CONTROL

JANUARY 30-FEBRUARY 1, 1979

PRESENTED BY

RADIATION BRANCH

DIVISION OF HEALTH TECHNOLOGY

DENVER TECHNICAL SUPPORT CENTER

AWARDED FEBRUARY 1, 1979

Wade E. Cooper
INSTRUCTOR

Richard J. Kline
RICHARD J. KLINE, CHIEF
DIVISION OF HEALTH TECHNOLOGY



CERTIFICATE OF TRAINING

UMETCO MINERALS CORPORATION

OCCUPATIONAL HEALTH DEPARTMENT



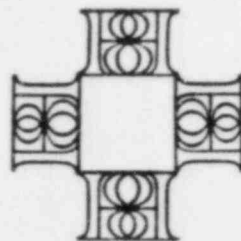
This is certify that F. J. WICKS attended and participated
in the INDUSTRIAL HYGIENE TRAINING SEMINAR
May 8, 9 & 10, 1984 at Grand Junction, Colorado.

H. B. Nichols

Manager, Occupational Health

L. L. Latta

Industrial Hygienist



RESUME

Jim L. Conner

Title: Radiation Technician

Formal Training: Texas Nuclear Division Radiation Safety Training Course
conducted October 16-19, 1979 by W.G. Hendrick.

Eberline Instruments course on Radiation Protection and
Environmental Surveillance for Uranium Resource Organi-
zations conducted October 6-10, 1980 by Nels Johnson.

MSHA Radiation Monitoring Training course conducted
June 1-3, 1981 by R.T. Beckman and others.

Union Carbide Corporation Occupational Health and Indus-
trial Hygiene Seminar conducted January 18-22, 1982 by
Dr. H.B. Rhodes and R.L. Beethe.

Work Experience: U-Natural in ton quantities; 13 years.

Calibration of Alpha survey instrumentation; 4 years.

Radioisotopes:	Americium-241	0.5 uCi
	Cesium-137	50 mCi

NOTE: Certificates of formal training or course agenda are attached if
available.

Certificate Of Training

This is to certify that

JIM CONNER

Has Successfully Completed a Radiation Safety Training Course
sponsored by Texas Nuclear Division.



Texas Nuclear
Division

Ramsey Engineering Company

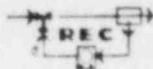
Issued 19th Day Of October 19 79

W. Hendrick

Health Physicist

Tom Bruchmann

President



**Texas Nuclear
Division**

Ramsey Engineering Company
Box 9267
Austin, Texas 78766 USA
Telephone (512) 836-0801
Telex 77-6413

October 26, 1979

Mr. Jim Conner
Radiation Control
Union Carbide Corporation
Box 5100
Gas Hills Station
Riverton, Wyoming 82501

Dear Mr. Conner:

This is notification that you have successfully completed the Radiation Safety Training Course offered in October 1979, by Texas Nuclear.

Enclosed are the following:

- Record of Performance
- Certification of Training
- Letter of Certification
- Guide For Specific License Amendment

This form letter suggests what may be said to your regulatory agency to obtain the license amendments necessary to conduct installation, relocation, and leak testing on the listed Texas Nuclear industrial devices.

Approved Procedures and Forms

Copies of these procedures and forms should be sent with your license applications, as necessary, and the originals maintained in your files for future use.

Congratulations on your having completed the Radiation Safety Training Course. If we can be of further assistance to you, do not hesitate to let us know.

Sincerely,

TEXAS NUCLEAR DIVISION
Ramsey Engineering Company

W. G. Hendrick
W. G. Hendrick
Health Physicist

WGH/nh

Enclosures

eberline

Santa Fe, New Mexico

This Certifies That

Jim Conner

Has Successfully Completed Our Prescribed Course In

RADIATION PROTECTION AND ENVIRONMENTAL SURVEILLANCE
FOR URANIUM RESOURCES ORGANIZATIONS

This 10th day of Oct., 1980

Nels R. Johnson
Instructor

John H. Dendahl
John H. Dendahl
President

MSHA TRAINING COURSE

Agenda Radiation Monitoring Training June 1-3, 1981

		Instructor
June 1		
1:00 - 1:15	Introduction and General Discussion	R.T. Beckman
1:15 - 1:30	Prequiz	R.T. Beckman
1:30 - 3:30	Radiation Concepts and Theory	R.T. Beckman
3:30 - 4:00	Break	
4:00 - 4:15	Film "A is for Atom"	
4:15 - 4:30	Quiz I	D.D. Rapp
June 2		
8:00 - 9:30	Kusnetz Instrumentation and Sampling	J.F. Stewart
9:30 - 9:45	Break	
9:45 - 10:15	Thoron-Daughter Sampling	D.D. Rapp
10:15 - 10:45	Tsivoglou and Rolle Radon-Daughter Sampling	D.D. Rapp
10:45 - 11:30	MDA-IWLM and RSI Radon-Daughter Sampling	D.D. Rapp
11:30 - 12:30	Lunch	
12:30 - 1:30	Radon-Daughter and Gamma Record-Keeping	D.D. Rapp
1:30 - 2:00	Radiation Standards and Regulations	D.D. Rapp
2:00 - 2:15	Break	
2:15 - 4:30	Controlling Radon-Daughter Concentrations	D.D. Rapp
June 3		
8:00 - 8:30	Quiz II	J.F. Stewart
8:30 - 9:30	Lung Cancer (Slides)	M. Gomez
9:30 - 9:45	Break	
9:45 - 10:45	Kusnetz Equipment Calibration	J.F. Stewart
10:45 - 11:15	Quiz III	W.E. Cooper
11:15 - 11:45	Summary and Closing Remarks	R.T. Beckman



THIS IS TO CERTIFY THAT

JIM CONNER

Is One Of The Wild & Crazy Bunch That Participated In
The Metals Division Occupational Health
& Industrial Hygiene Seminar, January 18-22, 1982,
"How To Do Vast Projects With Half-Vast Resources",
Thereby Becoming A Rhode's Scholar
& A Rhode's Raider!!!!

ATTESTED THIS 22 DAY OF Jan., 1982

By H.A. Rhodes Leader

B. L. L. Witness

18208

