NRC FORM 313
(1-84)
10 CFR 30, 32, 33, 34, 35 and 40

APPLICATION FOR MATERIAL LICENSE

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED BY OMB
3150-0120
Expires: 5-31-87

INSTRUCTIONS: SEE THE APPROPRIATE LICENSE APPLICATION GUIDE FOR DETAILED INSTRUCTIONS FOR COMPLETING APPLICATION. SEND TWO COPIES OF THE ENTIRE COMPLETED APPLICATION TO THE NRC OFFICE SPECIFIED BELOW.

FEDERAL AGENCIES FILE APPLICATIONS WITH:

U.S. NUCLEAR REGULATORY COMMISSION
DIVISION OF FUEL CYCLE AND MATERIAL SAFETY, NMSS
WASHINGTON, DC 20555

ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS, IF YOU ARE LOCATED IN:

CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, MAINE, MARYLAND, MASSACHUSETTS, NEW JERSEY, NEW YORK, PENNSYLVANIA, RHODE ISLAND, OR VERMONT, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION I
NUCLEAR MATERIAL SECTION B
631 PARK AVENUE
KING OF PRUSSIA, PA 19406

ALABAMA, FLORIDA, GEORGIA, KENTUCKY, MISSISSIPPI, NORTH CAROLINA, PUERTO RICO, SOUTH CAROLINA, TENNESSEE, VIRGINIA, VIRGIN ISLANDS, OR WEST VIRGINIA, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION II
MATERIAL RADIATION PROTECTION SECTION
101 MARIETTA STREET, SUITE 2900
ATLANTA, GA 30323

IF YOU ARE LOCATED IN:

ILLINOIS, INDIANA, IOWA, MICHIGAN, MINNESOTA, MISSOURI, OHIO, OR WISCONSIN, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION III
MATERIALS LICENSING SECTION
799 ROOSEVELT ROAD
GLEN ELLYN, IL 60137

ARKANSAS, COLORADO, IDAHO, KANSAS, LOUISIANA, MONTANA, NEBRASKA, NEW MEXICO, NORTH DAKOTA, OKLAHOMA, SOUTH DAKOTA, TEXAS, UTAH, OR WYOMING, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION IV
MATERIAL RADIATION PROTECTION SECTION
611 RYAN PLAZA DRIVE, SUITE 1000
ARLINGTON, TX 76011

ALASKA, ARIZONA, CALIFORNIA, HAWAII, NEVADA, OREGON, WASHINGTON, AND U.S. TERRITORIES AND POSSESSIONS IN THE PACIFIC, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION V
MATERIAL RADIATION PROTECTION SECTION
1450 MARIA LANE, SUITE 210
WALNUT CREEK, CA 94596

PERSONS LOCATED IN AGREEMENT STATES SEND APPLICATIONS TO THE U.S. NUCLEAR REGULATORY COMMISSION ONLY IF THEY WISH TO POSSESS AND USE LICENSED MATERIAL IN STATES SUBJECT TO U.S. NUCLEAR REGULATORY COMMISSION JURISDICTION.

1. THIS IS AN APPLICATION FOR *(Check appropriate item)*

- [ ] A. NEW LICENSE
- [X] B. AMENDMENT TO LICENSE NUMBER 37-02375-17
- [ ] C. RENEWAL OF LICENSE NUMBER _____

2. NAME AND MAILING ADDRESS OF APPLICANT *(Include Zip Code)*

U. S. Steel Corporation
1 N. Broadway
Attn: G. Bradley, Jr. MS 91E-2
Gary, IN 46402

3. ADDRESS(ES) WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED.

United States Steel Corporation
Gary Works
1 N. Broadway
Gary, IN

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

James F. Quealy, Chairman, U. S. Steel Radiation Committee

TELEPHONE NUMBER: (412) 433-6838

SUBMIT ITEMS 5 THROUGH 11 ON 8½ x 11" PAPER. THE TYPE AND SCOPE OF INFORMATION TO BE PROVIDED IS DESCRIBED IN THE LICENSE APPLICATION GUIDE.

5. RADIOACTIVE MATERIAL
a. Element and mass number, b. chemical and/or physical form, and c. maximum amount which will be possessed at any one time.

6. PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED.

7. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING AND EXPERIENCE.

8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS.

9. FACILITIES AND [illegible]

10. RADIATION SAFETY PROGRAM.

11. WASTE MANAGE

8610020468 860721
REG3 LIC30
37-02375-17 PDR

12. LICENSEE FEES *(See 10 CFR 170 and Section 170.31)*

FEE CATEGORY: P Add C

AMOUNT ENCLOSED: $ 60.00

13. CERTIFICATION. *(Must be completed by applicant)* THE APPLICANT UNDERSTANDS THAT ALL STATEMENTS AND REPRESENTATIONS MADE IN THIS APPLICATION ARE BINDING UPON THE APPLICANT.

THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATION ON BEHALF OF THE APPLICANT NAMED IN ITEM 2, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PARTS 30, 32, 33, 34, 35, AND 40 AND THAT ALL INFORMATION CONTAINED HEREIN, IS TRUE AND CORRECT TO THE BEST OF THEIR 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.

SIGNATURE-CERTIFYING OFFICER	TYPED/PRINTED NAME	TITLE	DATE
Dean R. Larson	Dean R. Larson	Division Radiation Officer - Coke & Chemicals	29 Mar 86

14. VOLUNTARY ECONOMIC DATA

a. ANNUAL RECEIPTS

- [ ] <$250K
- [ ] $250K-500K
- [ ] $500K-750K
- [ ] $750K-1M
- [ ] $1M-3.5M
- [ ] $3.5M-7M
- [ ] $7M-10M
- [ ] >$10M

b. NUMBER OF EMPLOYEES *(Total for entire facility excluding outside contractors)*

c. NUMBER OF BEDS

d. WOULD YOU BE WILLING TO FURNISH COST INFORMATION *(Dollar and/or staff hours)* ON THE ECONOMIC IMPACT OF CURRENT NRC REGULATIONS OR ANY FUTURE PROPOSED NRC REGULATIONS THAT MAY AFFECT YOU? *(NRC regulations permit it to protect confidential commercial or financial-proprietary-information furnished to the agency in confidence)*

- [ ] YES
- [ ] NO

FOR NRC USE ONLY

TYPE OF FEE	FEE LOG	FEE CATEGORY	COMMENTS	APPROVED BY
Amd	apr 25	3P	APR 21 1986 REGION III	CJ
AMOUNT RECEIVED	**CHECK NUMBER**			**DATE**
$60	60241		Ken Rend	4/24/86

SUPPLEMENTAL SHEETS TO NRC FORM 313
AMENDMENT TO LICENSE 37-02375-17

5. RADIOACTIVE MATERIAL

a. Element and mass number

109/114 6mo Clerical

Am - 241, Texas Nuclear Corporation Model 510-579103
Moisture Sensor Source Capsule

b. Chemical and/or physical form

Texas Nuclear Coporation Moisture On-Line Analyzer (MOLA)
Series MND
Texas Nuclear Coporation Model 5010A
Moisture Sensor Source Housing
The 241 - AmBe source in the moisture sensor is in the form of a pressed pellet of 241 - Am mixed with beryllium powder. This doubly-encapsulated pellet is held in place in the source container by a stainless steel snap ring.

c. Maximum amount which will be possessed at any one time.

200 mCi Am - 241

6. PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED

The licensed material will be used in a a Texas Nuclear Corporation Mositure On-Line Analyzer (MOLA) Series MD with associated Model 5010A Moisture Sensor Source Housing and Model 510-579103 Moisture Sensor Source Capsule. The proposed moisture sensing system will be used to provide real time continuous evaluation of the coke moisture that is loaded in railroad cars at the Coke Loadout Station. The coke that is quenched is loaded into railroad cars at the Coke Loadout Station for transportation to the blast furnaces. The results of the moisture analysis will be available to the operators on a real time, continuous basis for adjustment of the coke quench water. This real time information will allow for acccurate control of the coke moisture. The moisture gauge will be installed in a coke loading chute just above a railroad car loading track. A service platform will be constructed to service the instrument. Once the unit is installed no personnel will work within 44 feet of the gauge, except during routine maintenace of the gauge. There are no severe environmental conditions that can affect the integrity of the source and shielding. All enviornmental factors have been presented to the manufacturer for evaluating prior to specifying these devices. The attached drawings show the proposed installation.

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7. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING AND EXPERIENCE

a. Coke and Chemicals Division Radiation Protection Officer
Dean R. Larson

1. As a member of the USS Gary Works Management Staff he:
a. Has had 10 years experience at Gary Works with Radioisotopes (Kay Ray Gamma Level Control Devices)
b. Has had nine years experience as Division Radiation Officer.
c. Is responsible for the radiation safety of all persons in his area.
d. Is responsible for radiation safety training program given to all employees in his area.

b. Personnel in addition to those members of USS Gary Works Management Staff listed in License Renewal Application (May 1985). NRC Letter of Acknowledgement attached.
1) Joseph A Grina - Process Engineer, Coke and Chemicals Division.
2) Gerald W. Ashley - Shift Manager, Batteries, Coke and Chemicals Division.
3) Thomas J. Cera - Shift Manager, Batteries, Coke and Chemicals Division

c. Formal Training in Radiation Safety

1) March 13, 1986 "Radiation Safety Training - Responsible Users and Supervisors" was conducted at USS Gary Works by Robert L. Clark, Health Physicist, Professional Radiation Management, Inc., and James F. Quealy, Chairman, USS Corporate Radiation Committee. Outline attached.

2) The personnel listed above (except T. J. Cera) have attended this course. Mr. Cera is scheduled to attend the next radiation safety course.

d. Training in Operation of Gauge

1) The Manufacturer will provide training at the time of installation. The gauge will not be operated until the training has been completed. Record of the training will be maintained for five years.

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8. TRAINING PROVIDED TO OTHER USERS

All employees who will operate the gauge will receive training at the time of installation.
USS Gary Works Safe Job Procedure RA-001 dtd 12 November 1985 "Working in the Area of/or Adjacent to Radiation Equipment" is attached.

9. FACILITIES AND EQUIPMENT

1. Sketches of the Proposed Location

Attached to this application.

2. Environmental Conditions

The Nuclear Moisture Gauge will be installed at the Coke Loadout Station, outside of the Screen/Crusher Building. The unit will be exposed to ambient temperature and typical coke plant atmosphere. The unit will intermittently be exposed to steam vapor that is emitted from quenched coke (less than 100° F).

3. Maintenance of Gauge

1) Installation, calibration, and initial operation will be supervised by a licensed salesman from Texas Nuclear Corporation. Gary Works personnel will not operate the system until the Texas Nuclear Corporation serviceman and Gary Works Radiation Officer agree that the installation does not present any radiation hazards.

2) Quarterly surveys of radiation fields around the sources will be made by trained members of the Coke and Chemicals Division Management. The surveys will be forwarded to the Gary Works Radiation Officer for review and filing.

3) Checks for legibility of labels and corrosion/heat damage will be accomplished during the quarterly surveys.

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4. Emergency Procedures

a. If during a routine survey indicated radiation levels above normal, or physical damage is done to the source holder, the following steps are to be taken.

1) Immediately notify the Division Radiation Officer will in turn notify the Gary Works Radiation Officer. Further notification will be at the discretion of the Gary Works Radiation Officer.

2) If the source holder in question is still in its mount, clear all personnel from the immediate area, stopping further loading through the affected loading chute. If the field is strong, determine the boundary of 2 MR/hr field and rope all access to the area.

3) If the source has fallen from its mount, rope off the area around the source holder which bounds the 2MR/hr field.

4) If necessary, post a guard to keep personnel from the roped off area.

5) Further instruction will be given by the Division Radiation Officer, who will:

a) Immediately survey the radiation field on the area of the source.

b) Take necessary steps to close the source holder, if the source shutter is in the OPEN position. If immediate steps to close the source shutter cannot be taken without exposing radiation personnel to radiation fields in excess of permissible levels of radiation in unrestricted areas, notify Texas Nuclear Corporation to report to the scene to handle the repairs to the source holder. The roped off area shall be maintained, and a survey shall be made to insure that the primary beam does not create a radiation hazard in a normal work area. If a normal work area is exposed to excessive radiation, the facilities involved shall be shut down until Texas Nuclear Corporation removes the hazard.

c) If the source shutter cannot be closed, and the primary beam causes a hazard in the area, an attempt will be made to roll the source holder so that the primary beam is directed into the ground.

d) A list of personnel who have worked in the area during the incident shall be be given to the Gary Works Radiation Officer for future reference.

e) After the incident has been resolved, the Gary Works Radiation Officer shall submit a report to the Corporation Radiation Chairman.

10. RADIATION SAFETY PROGRAM

10.1 Performance of Service Operations by Others

Texas Nuclear Coporation, Box 9267, Austin, Texas, 78766-9990. Texas License No. 6-182S will perform all maintenance service on the source holder.

10.2 Personnel Monitoring Equipment

No personnel monitoring devices need to be utilized due to the presence of the moisture gauge. The source holders are designed such that the radiation levels will be less than 2 MR/hr at any accessible surface when the devices are installed.
Texas Nuclear Corporation Drawing C-179 Moisture Gauge, Dose Rate Profile is attached.

10.3 Radiation Detection Instruments

An Eberline Neutron Counter Model PNR - 4 (range: 0-5000 rem) and an Eberline Model E-530 Geiger Counter (range: 0-200 milliroentgens) will be utilized for survey purposes. The instrument will be calibrated so that the readings are plus or minus 20% of the actual value over the range of the instrument. Calibration will be performed utilizing procedure approved by the NRC.
Calibration services will be performed by Midwest Calibration Center, 5213 W. Lawrence, Chicago, IL,60630. NRC License 12-2022701.

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10.4 Leak Testing

A semi-annual wipe test will be conducted by a contract organization utilizing procedures acceptable to the NRC. Leak testing will be performed by Professional Radiation Management Inc., 5213 W. Lawrence, Chicago, IL, 60630, NRC License 12-20227-01.

10.5 Lock Out Procedures

The 241 - AmBe source is located on the perimeter of the shutter wheel which is spring loaded toward the SOURCE OFF position. To move the source to the SOURCE ON position for operation of the gauge, the shutter wheel is manually rotated 180 degrees by means of an external shutter handle. When the source reached the SOURCE ON position, a three-way air solenoid is actuated which energizes a pneumatic cylinder which overrides the return spring and maintains the shutter in the SOURCE ON position. When power to the shutter is interrupted, the three-way air solenoid is deactuated which deenergizes the pneumatic air cylinder allowing the return spring to rotate the source wheel so that the source returns to the SOURCE OFF position. An adjustable flow control valve will dampen the closing action. Switches are provided to actuate lights mounted near the gauge head and on the front panel of the Digital Controller. A red light indicated SOURCE ON position, a green light indicates SOURCE OFF position.
Texas Nuclear Corporation Drawing D860194 Moisture Gauge (W/Power Controlled Shutter) Dimensions and Texas Nuclear Corporation Drawing D389 MOLA Manually Operated Power-Controlled Shutter are attached to this application.

11. WASTE MANAGEMENT

No waste disposal is involved. In the event the the gauge is damaged or its use discontinued, we shall notify Texas Nuclear Corporation for removal and return the gauge or gauges for repair or disposal of the source material.