CHAPARRAL STEEL
6887 Church Road • Petersburg, VA 23803 • 804.861.0990 • www.chaparralsteel.com

45-25463-01
030-34978

January 14, 1999

Atlanta Federal Center
U.S. Nuclear Regulatory Commission, Region III
61 Forsyth Street, S.W., Suite 23T85
Atlanta, Georgia 30303-3415

Dear Sir:

Enclosed please find an application for a material license for Chaparral Steel. Included are the application and a $730.00 check for the license fee.

Please contact me if you have any questions regarding this application. Thank you for you attention to this matter.

Sincerely,

Lawrence Heyd

Lawrence Heyd
Radiation Safety Officer

Attachments: License Application
$730.00 License Fee

cc: Vic Remeika
Daryl Roberts
John Matschner, Jendco Corporation

258232

NMSS/RGNI MATERIALS-002

NRC FORM 313 U. S. NUCLEAR REGULATORY COMMISSION

(5-1997)
10 CFR 30, 32, 33
34, 35, 36, 39 and 40

APPLICATION FOR MATERIAL LICENSE

APPROVED BY OMB: NO. 3150-0120 EXPIRES: 7/31/1999

Estimated burden per response to comply with this information collection request: 7 hours. Submittal of the application is necessary to determine that the applicant is qualified and that adequate procedures exist to protect the public health and safety. Forward comments regarding burden estimate to the Information and Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0120), Office of Management and Budget, Washington, DC 20503. NRC may not conduct or sponsor, and a person is not required to respond to, an information collection unless it displays a currently valid OMB control number.

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.

APPLICATION FOR DISTRIBUTION OF EXEMPT PRODUCTS FILE APPLICATIONS WITH:

DIVISION OF INDUSTRIAL AND MEDICAL NUCLEAR SAFETY
OFFICE OF NUCLEAR MATERIALS SAFETY AND SAFEGUARDS
U.S. NUCLEAR REGULATORY COMMISSION
WASHINGTON, DC 20555-0001

ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS:

IF YOU ARE LOCATED IN:

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

LICENSING ASSISTANT SECTION
NUCLEAR MATERIALS SAFETY BRANCH
U.S. NUCLEAR REGULATORY COMMISSION, REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PA 19406-1415

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

ATLANTA FEDERAL CENTER
U. S. NUCLEAR REGULATORY COMMISSION, REGION II
61 FORSYTH STREET, S.W., SUITE 23T85
ATLANTA, GEORGIA 30303-3415

IF YOU ARE LOCATED IN:

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

MATERIALS LICENSING SECTION
U.S. NUCLEAR REGULATORY COMMISSION, REGION III
801 WARRENVILLE RD.
LISLE, IL 60532-4351

ALASKA, ARIZONA, ARKANSAS, CALIFORNIA, COLORADO, HAWAII, IDAHO, KANSAS, LOUISIANA, MONTANA, NEBRASKA, NEVADA, NEW MEXICO, NORTH DAKOTA, OKLAHOMA, OREGON, PACIFIC TRUST TERRITORIES, SOUTH DAKOTA, TEXAS, UTAH, WASHINGTON, OR WYOMING, SEND APPLICATIONS TO:

NUCLEAR MATERIALS LICENSING SECTION
U.S. NUCLEAR REGULATORY COMMISSION, REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TX 76011-8064

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 JURISDICTIONS.

1. THIS IS AN APPLICATION FOR *(Check appropriate item)*
   - [X] A. NEW LICENSE
   - [ ] B. AMENDMENT TO LICENSE NUMBER _____
   - [ ] C. RENEWAL OF LICENSE NUMBER _____

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

   Chaparral Steel
   6887 Church Road
   Petersburg, VA 23803

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

   Chaparral Steel
   6887 Church Road
   Petersburg, VA 23803

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

   Lawrence Heyd

   TELEPHONE NUMBER
   (804) 861-0990

SUBMIT ITEMS 5 THROUGH 11 ON 8-1/2 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 EXPERIENCE.

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

9. FACILITIES AND EQUIPMENT.

10. RADIATION SAFETY PROGRAM.

11. WASTE MANAGEMENT.

12. LICENSEE FEES *(See 10 CFR 170 and Section 170.31)*
    FEE CATEGORY 3P
    AMOUNT ENCLOSED $ 730.00

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, 36, 39 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 OFJUNE 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.

CERTIFYING OFFICER -- TYPED/PRINTED NAME AND TITLE	SIGNATURE	DATE
Lawrence Heyd	Lawrence Heyd	1/15/99

FOR NRC USE ONLY

TYPE OF FEE	FEE LOG	FEE CATEGORY	AMOUNT RECEIVED	CHECK NUMBER	COMMENTS
			$		
APPROVED BY				DATE	

ITEM 5 – MATERIAL TO BE POSSESSED

Sealed Source

1. **Isotope – Cobalt 60**
   Manufacturer – EG&G Berthold
   Sealed Source Registration – No. TN-1031-S-103-S (See attachment # 1)

Gauge

2. **Manufacturer – EG&G Berthold**
   Model Number – LB300ML-IRL

Maximum Quantities

3. **The maximum amount will not exceed 20 mCi per source.**

ITEM 6 – PURPOSE FOR WHICH LICENSED MATERIAL WILL BE USED

Licensed material will be used as an integral part of an EG&G Berthold LB352 Mold Level Gauge. The mold Level Gauge has been designed for measuring the level of liquid metal in continuous casting molds for casting steel into several shapes and sizes. The gauge detects the actual mold level within a certain measuring range and, in conjunction with suitable regulators and actuating elements, provides automatic control of the casting process by adjusting the casting rate.

The basic arrangement of the Mold Level Gauging System as shown in figure # A is comprised of the following components:

(1) A radioactive rod source (licensed material) in a protection tube with a threaded cap inside the mold. A portable transport / handling shield is provided for installation and removal of source.

(2) Scintillation counter for radiation detection, including a permanently connected cable.

(3) A seven-conductor terminal box.

(4) A seven conductor shielded cable to connect the terminal box and the LB352 evaluation unit (amplifier).

(5) The LB352 evaluation unit (amplifier).

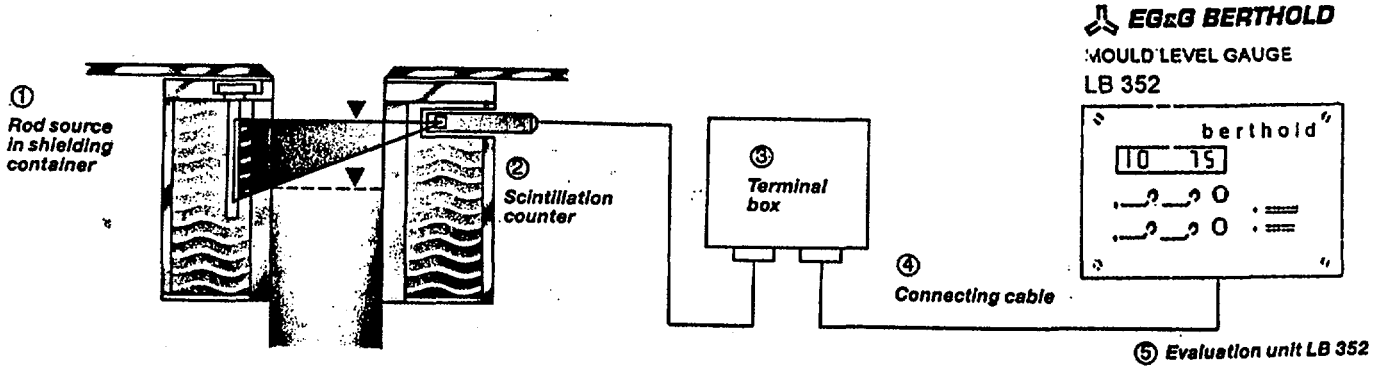
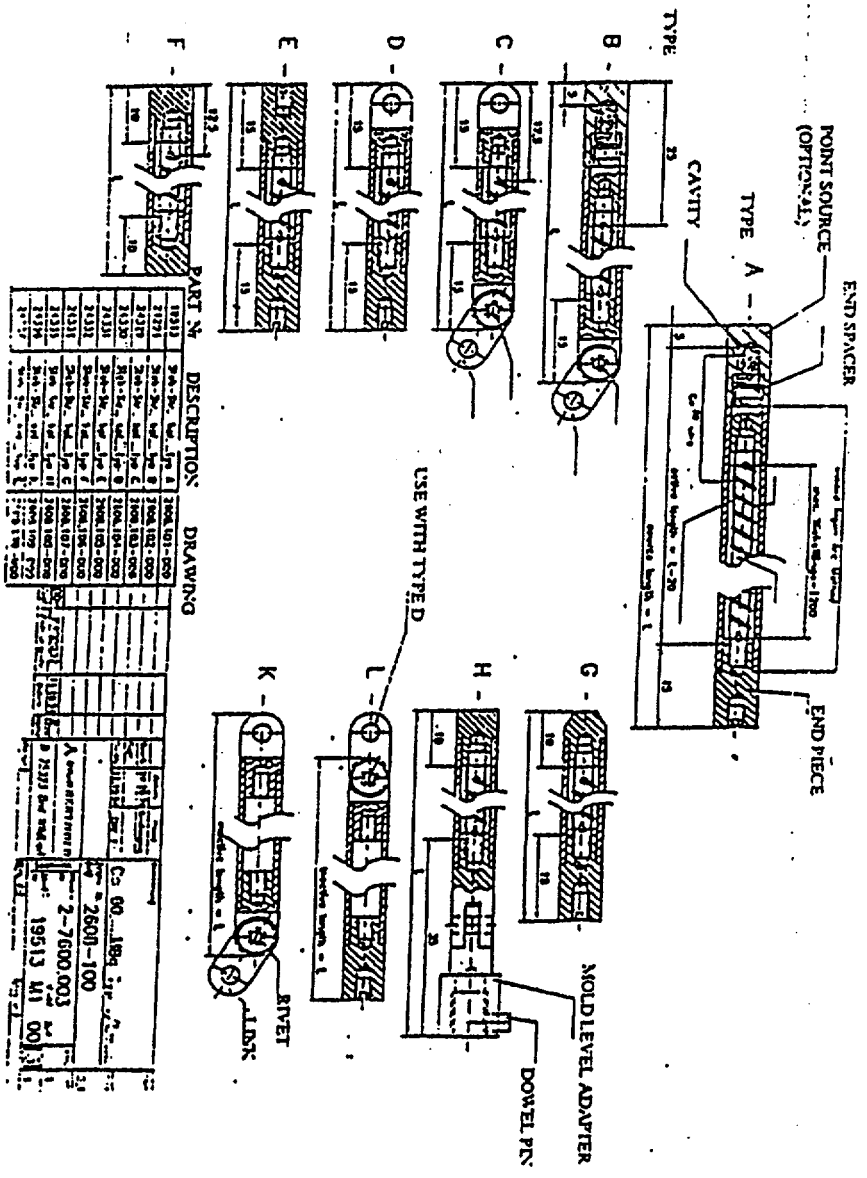


Figure A

258232

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF SEALED SOURCE

NO.: TN-1031-S-103-S Date: July 24, 1997 Attachment # 1



ITEM 7 – INDIVIDUALS RESPONSIBLE FOR RADIATION SAFETY PROGRAM – THEIR TRAINING AND EXPERIENCE

Attachment # 2 is an example of the permanent record that will be maintained and kept on file with the license at Chaparral. This attachment will have the names of the responsible individuals. The responsible individuals will have a minimum of a 40 hour Radiation Safety Course and hands-on experience of the gauge.

The operations that we want to perform are installation, relocation, removal, radiation surveying and leak testing. The supplier of the gauge will perform the initial installation and surveys. The gauge is normally secured inside the mold and is removed on occasion to allow uncontrolled access during maintenance operations. None of the above mentioned operations will be performed until hands-on training is given by a person specifically licensed to perform such services.

Chaparral Steel
6887 Church Road
Petersburg, VA 23803

RESPONSIBLE INDIVIDUAL		40 HOUR COURSE	HANDS-ON TRAINING	RSO
PRINTED	SIGNATURE	CERTIFICATE (ENCLOSED)	CERTIFICATE (ENCLOSED)	SIGNATURE

25823

PLEASE NOTE:

YOUR SIGNATURE AS A RESPONSIBLE INDIVIDUAL MEANS THAT YOU HAVE READ AND UNDERSTAND THE CONDITIONS OF THE LICENSE

ATTACHMENT #2

ITEM 8 - TRAINING PROVIDED TO OTHER USERS

The radiation exposure to the operators is well below the 500 mRem per year limit that is specified for persons not subject to occupational radiation exposure. Emitter activities are relatively low for applications of this kind, and this is possible by using a scintillation counter as the radiation detector and by minimizing the thickness in the radiation path. In addition, the source is housed in a shielded container that allows the active beam to be sealed off. The continuous caster mold construction also provides an additional shielding effect.

Given these facts, a lesson plan for initial training for continuous casting production and maintenance personnel was developed. The lesson plan is presented on the following page. The intent of the initial training presentation is to familiarize personnel with the EG&G Berthold Mold Level Gauge, the reasons for its use, and to provide information about radiation safety as it pertains to the gauge. The training program will be implemented far in advance of the proposed date of the installation. The manufacturer, the manufacturer's representative or the supplier and installer of the system will perform the initial training. Future training sessions will be given by the Radiation Safety Officer or someone specifically licensed to do so.

ITEM 8 – TRAINING PROVIDED TO OTHER USERS (CONTINUED)

Course Outline:

TRAINING PROGRAM

BASIC SCIENTIFIC PRINCIPLES

- Radiation Basics
- Types and Characteristics of Radiation
- Radioactive Dose
- Radiation Dose
- Shielding of Sources
- Radiation Exposure of Human Beings
- Biological Basics of Radiation

RADIATION PROTECTION

- Basics Principles of Radiation Protection
- General Rules of Behavior
- Measuring Systems for Dose Rate Measuring
- Personal Dose Measurement
- Leak Test
- Waste Disposal
- Packing and Transportation
- Malfunctions and Accidents
- Emergency Procedures

LB352 MOLD LEVEL SYSTEM

- Measuring Arrangement
- Basic Principle
- Sources
- Shielding
- Scintillation Counter (Detector)
- Microprocessor (LB352)
- Hands on Training

ITEM 9 – FACILITIES AND EQUIPMENT

A.) Figure A indicates the proposed location of the EG&G Berthold Mold Level Gauge.

B.) The rod source and the scintillation counter will be placed in the upper portion of the continuous casting mold. The complete system arrangement is installed below the mold cover, therefore preventing any intrusion into the casting platform.

C.) Components of the EG&G Berthold Mold Level Gauge will be maintained as per the recommendations of the manufacturers / installers.

D.) Emergency procedures have been developed in the event of an accidental occurrence that could potentially damage the device.

In the case of a steel breakout, where all the molten steel would not effectively be transferred from the tundish to the interior of the mold, the exterior of the mold could be covered with some quantity of escaped metal. In such situations, the ladle containing the metal is immediately transferred to an adjacent emergency pouring area. Any steel, which has escaped the casting operation, will solidify on the cooler surfaces of the water-cooled casting system. If molten steel has solidified, preventing access to the source, the following steps will be taken.

(1) The Radiation Safety Officer will be notified immediately.

(2) Employees will be instructed to retreat at least 20 feet from the mold area.

(3) The Radiation Safety Officer will survey the area and personally supervise removal of the breakout steel from the mold. The priority in the removal of the breakout steel will be to free the top of the mold so that the source can be removed from the mold using an operational shield. The device manufacturer representative will be notified and called so inspection of the source and appropriate leak test can be performed.

(4) If it is determined that access to the top of the mold cannot safely be achieved, the Radiation Safety Officer will contact the device manufacturer representative or someone specifically licensed to perform service on the device, and request that they conduct the appropriate work necessary to remove the source from the mold. Appropriate leak test will be conducted.

ITEM 10 – RADIATION SAFETY PROGRAM

The EG&G Berthold LB352 Mold Level Monitoring System for Chaparral Steel requires EG&G Berthold radioactive sources that are registered with the state of TN (REG# TN-1031-S-103-S). The design of this equipment is such as to allow the caster area to be regarded as unrestricted.

A. Use of film badges will not be required based on the calculated dose to the continuous caster operating and maintenance personnel associated with the device. The dose will be maintained at a level well below 500 mRem per year. Film badges will be supplied to those individuals who request them, with appropriate badge reading, reporting and record keeping provided so as to alleviate any employee concerns pertaining to exposure.

B. The device manufacturer representative will provide initial installation, radiation survey, and leak testing of the device.

C. Relocation of the source will be performed by personnel who have completed the attached training program (attachment # 3). The procedure will require the use of a transport / storage shielding which has been specifically designed for this purpose. The employee will remove the threaded cap from the top of the dip tube, place the shielding over top of the tube, open the lockable gate (shutter), attach the positioning rod to the source, pull source up into the shielding with the positioning rod, close and lock the gate, lift the shielding from the mold and transfer the shielding to a special designated storage area.

D. A lockable storage box with proper warning signs will be provided to store the shielded source holders when appropriate.

E. There are two types of lock-out procedures that we will use. The first lock-out procedure is a temporary lock-out. This will be used when the device is to be relocated to the storage area. The second type of lock-out procedures is when the device is not fully operational or is damaged. The procedures then are to contact the RSO, and tag the device with the words "Do Not Use" or equivalent information. Then the RSO should contact the device manufacturer representative for inspection.

F. All waste management procedures pertaining to the disposal of the licensed material will be conducted by the device manufacturer representative. Disposal of the spent source will be by transfer to EG&G Berthold, which is the supplier of the gauge and is a licensee specifically authorized to dispose of the licensed material.

ITEM 10 – RADIATION SAFETY PROGRAM (CONTINUED)

G. All service to the source and the source holder associated with this gauge will be conducted by the device manufacturer representative, or someone specifically licensed to service the device.

H. At least one calibrated, operable survey meter will be available at all times for use pertaining to the EG&G Berthold Mold Level Gauge Installation. (A radiation survey meter with an energy compensated G/M probe, which provides a dose rate reading in mR/Hr.) The meter will be calibrated on a yearly basis.

I. Leak testing shall be performed at 6-month intervals and performed by the Radiation Safety Officer or someone specifically licensed to perform leak testing on the device. The leak test results will be kept on file with the Radiation Safety Officer.

TRAINING PROGRAM

BASIC SCIENTIFIC PRINCIPLES

- Radiation Basics
- Types and Characteristics of Radiation
- Radioactive Dose
- Radiation Dose
- Shielding of Sources
- Radiation Exposure of Human Beings
- Biological Basics of Radiation

RADIATION PROTECTION

- Basics Principles of Radiation Protection
- General Rules of Behavior
- Measuring Systems for Dose Rate Measuring
- Personal Dose Measurement
- Leak Test
- Waste Disposal
- Packing and Transportation
- Malfunctions and Accidents
- Emergency Procedures

LB352 MOLD LEVEL SYSTEM

- Measuring Arrangement
- Basic Principle
- Sources
- Shielding
- Scintillation Counter (Detector)
- Microprocessor (LB352)
- Hands on Training

ATTACHMENT # 3

ITEM 11 – WASTE MANAGEMENT

All waste management procedures pertaining to the disposal of the licensed material will be conducted by the device manufacturer representative. Disposal of the spent source will be by transfer to EG&G Berthold which is the supplier of the gauge and is a licensee specifically authorized to dispose of the licensed material.