



BOARD OF LIGHT AND POWER

CITY OF MARQUETTE
2200 WRIGHT STREET
MARQUETTE, MI 49855-1398

PHONE 906-228-0313
FAX 906-228-0329
PLANT FAX 906-228-0359

KIRBY D. JUNTILA
EXECUTIVE DIRECTOR

CERTIFIED MAIL

August 17, 2009

Materials Licensing Branch
U.S. Nuclear Regulatory Commission, Region III
2443 Warrenville Road, Suite 210
Lisle, IL 60532-4352

Re: Marquette Board of Light & Power
License 21-20174-01

The Marquette Board of Light and Power is filing an *Application For Materials License* to amend the above referenced license. Changes include Radiation Safety Officer and the addition of Non-Routine Maintenance Operations.

The enclosed packet contains the following:

- NRC Form 313.
- Requested Items 5 through 11 of NRC Form 313 (taken from NUREG-1556, Vol. 4 Appendix B).
- Item 10 - Operating, Emergency, & Lock-Out Procedures.
- Item 10 - Non-Routine Maintenance Operation Procedures

If you require any additional information or have any questions, please feel free to call me at (906) 228-0335.

Sincerely,

Erik Booth
Manager of Utility Compliance

RECEIVED AUG 24 2009

NRC FORM 313
(4-2008)
10 CFR 30, 32, 33,
34, 35, 36, 39, and 40

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0120

EXPIRES: 10/31/2008

Estimated burden per response to comply with this mandatory collection request: 4.4 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. Send comments regarding burden estimate to the Records and FOIA/Privacy Services Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NE0B-10202, (3150-0120), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

APPLICATION FOR MATERIALS LICENSE

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:

ALABAMA, CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, FLORIDA, GEORGIA, KENTUCKY, MAINE, MARYLAND, MASSACHUSETTS, NEW HAMPSHIRE, NEW JERSEY, NEW YORK, NORTH CAROLINA, PENNSYLVANIA, PUERTO RICO, RHODE ISLAND, SOUTH CAROLINA, TENNESSEE, VERMONT, VIRGINIA, VIRGIN ISLANDS, OR WEST VIRGINIA, SEND APPLICATIONS TO:

LICENSING ASSISTANCE TEAM
DIVISION OF NUCLEAR MATERIALS SAFETY
U.S. NUCLEAR REGULATORY COMMISSION, REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PA 19406-1415

IF YOU ARE LOCATED IN:

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

MATERIALS LICENSING BRANCH
U.S. NUCLEAR REGULATORY COMMISSION, REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, IL 60532-4352

ALASKA, ARIZONA, ARKANSAS, CALIFORNIA, COLORADO, HAWAII, IDAHO, KANSAS, LOUISIANA, MISSISSIPPI, 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 BRANCH
U.S. NUCLEAR REGULATORY COMMISSION, REGION IV
612 E. LAMAR BOULEVARD, SUITE 400
ARLINGTON, TX 76011-4125

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)

- A. NEW LICENSE
- B. AMENDMENT TO LICENSE NUMBER 21-20174-01
- C. RENEWAL OF LICENSE NUMBER _____

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

Board of Light and Power, City of Marquette
2200 Wright Street
Marquette, MI 49855

3. ADDRESS WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED

Shiras Steam Plant
400 East Hampton
Marquette, MI 49855

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

Erik Booth

TELEPHONE NUMBER

(906) 228-0335

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. LICENSE FEES (See 10 CFR 170 and Section 170.31)

FEE CATEGORY _____ AMOUNT ENCLOSED \$ _____

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 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.

CERTIFYING OFFICER -- TYPED/PRINTED NAME AND TITLE

Erik Booth/Manager of Utility Compliance

SIGNATURE



DATE

08/17/2009

FOR NRC USE ONLY

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

Suggested Format for Providing Information Requested in Items 5 Through 11 of NRC Form 313

Table B.1 Items 5 & 6: Materials To Be Possessed and Proposed Uses

Yes	No	Radioisotope	Manufacturer or Distributor Model No.	Quantity	Use As Listed on SSD Certificate	Specify Other Uses Not Listed on SSD Certificate
	<input checked="" type="checkbox"/>	Cobalt-60	Sealed source manufacturer or distributor and model number: Device manufacturer or distributor and model number:	Not to exceed either the maximum activity per source or maximum activity per device as specified in Sealed Source and Device Registration Certificate	Yes <input type="checkbox"/> Specific description of the gauge use: _____ _____ _____	<input type="checkbox"/> Not applicable <input type="checkbox"/> Uses are: (Submit safety analysis supporting safe use)
	<input checked="" type="checkbox"/>	Krypton-85	Sealed source manufacturer or distributor and model number: Device manufacturer or distributor and model number:	Not to exceed either the maximum activity per source or maximum activity per device as specified in Sealed Source and Device Registration Certificate	Yes <input type="checkbox"/> Specific description of the gauge use: _____ _____ _____	<input type="checkbox"/> Not applicable <input type="checkbox"/> Uses are: (Submit safety analysis supporting safe use)
	<input checked="" type="checkbox"/>	Strontium-90	Sealed source manufacturer or distributor and model number: Device manufacturer or distributor and model number:	Not to exceed either the maximum activity per source or maximum activity per device as specified in Sealed Source and Device Registration Certificate	Yes <input type="checkbox"/> Specific description of the gauge use: _____ _____ _____	<input type="checkbox"/> Not applicable <input type="checkbox"/> Uses are: (Submit safety analysis supporting safe use)
<input checked="" type="checkbox"/>		Cesium-137	Sealed source manufacturer or distributor and model number: Device manufacturer or distributor and model number:	Not to exceed either the maximum activity per source or maximum activity per device as specified in Sealed Source and Device Registration Certificate	Yes <input checked="" type="checkbox"/> Specific description of the gauge use: Gamma Gauge _____ _____	<input type="checkbox"/> Not applicable <input type="checkbox"/> Uses are: (Submit safety analysis supporting safe use)

TN Technologies Model 57157C

Ohmart Model A-2102

B-1

7062P

5192

SH-100

APPENDIX B

Yes	No	Radioisotope	Manufacturer or Distributor Model No.	Quantity	Use As Listed on SSD Certificate	Specify Other Uses Not Listed on SSD Certificate
	<input checked="" type="checkbox"/>	Americium-241	Sealed source manufacturer or distributor and model number: _____ Device manufacturer or distributor and model number: _____	Not to exceed either the maximum activity per source or maximum activity per device as specified in Sealed Source and Device Registration Certificate	Yes [] Specific description of the gauge use: _____ _____ _____ _____ _____	[] Not applicable _____ [] Uses are: _____ (Submit safety analysis supporting safe use)
	<input checked="" type="checkbox"/>	Other Isotope (Specify):	Sealed source manufacturer or distributor and model number: _____ Device manufacturer or distributor and model number: _____	Not to exceed either the maximum activity per source or maximum activity per device as specified in Sealed Source and Device Registration Certificate	Yes [] Specific description of the gauge use: _____ _____ _____ _____ _____	[] Not applicable _____ [] Uses are: _____ (Submit safety analysis supporting safe use)
<i>Financial Assurance Required and Evidence of Financial Assurance Provided</i>						

Table B.2 Items 7 Through 11: Training and Experience, Facilities and Equipment, Radiation Safety Program, and Waste Disposal

Item No. and Title	Suggested Response	Yes	Alternative Procedures Attached
<p>7. Individual(s) Responsible For Radiation Safety Program And Their Training And Experience</p> <p>7.1 Radiation Safety Officer</p> <p>Name: <u>Erik Booth</u></p>	<p>Before obtaining licensed materials, the proposed RSO will have successfully completed the training described in Criteria in the section entitled "Individual(s) Responsible for Radiation Safety Program and Their Training and Experience - Radiation Safety Officer" in NUREG-1556, Vol. 4, dated October 1998.</p> <p style="text-align: center;">AND</p> <p>Before being named as the RSO, future RSOs will have successfully completed the training described in Criteria in the section entitled "Individual(s) Responsible for Radiation Safety Program and Their Training and Experience - Radiation Safety Officer" in NUREG-1556, Vol. 4, dated October 1998. Within 30 days of naming a new RSO, we will submit the new RSO's name to NRC to include in our license.</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>7. Individual(s) Responsible For Radiation Safety Program And Their Training And Experience</p> <p>7.2 Authorized Users</p>	<p>PROPOSED AUTHORIZED USERS:</p> <p>Before using licensed materials, authorized users will have successfully completed the training described in Criteria in the section entitled, "Authorized Users" in NUREG-1556, Vol. 4, dated October 1998.</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>8. Training for Individuals Who in the Course of Employment are Likely to Receive Occupational Doses of Radiation in Excess of 1 mSv (100 mrem) in a Year (Occupationally Exposed Workers) and Ancillary Personnel</p>	<p>The applicant is <i>not</i> required to, and should not, submit a training program, for individuals who in the course of employment are likely to receive occupational doses of radiation in excess of 1 mSv (100 mrem) in a year (occupationally exposed workers) and ancillary personnel, to the NRC for review during the licensing phase.</p>	<p>Need Not Be Submitted with Application</p>	

APPENDIX B

Item No. and Title	Suggested Response	Yes	Alternative Procedures Attached
9. Facilities and Equipment	We will ensure that the location of each fixed gauge meets the Criteria in the section entitled "Facilities and Equipment" in NUREG-1556, Vol. 4, dated October 1998.	<input checked="" type="checkbox"/>	[]
10. Radiation Safety Program - Audit Program	The applicant is <i>not</i> required to, and should not, submit its audit program to the NRC for review during the licensing phase.	Need Not Be Submitted with Application	
10. Radiation Safety Program - Survey Instruments	<p>Surveys pursuant to 10 CFR 20.1501 will be performed by a person specifically authorized by the NRC or an Agreement State to perform these surveys.</p> <p style="text-align: center;">OR</p> <p>We will use instruments that meet the Criteria in the section entitled "Radiation Safety Program - Instruments," in NUREG-1556, Vol. 4, dated August 1998, and <i>one</i> of the following:</p> <p style="padding-left: 40px;">Each survey meter will be calibrated by the manufacturer or other person authorized by the NRC or an Agreement State to perform survey meter calibrations.</p> <p style="text-align: center;">OR</p> <p>We will implement the model survey instrument calibration program in Appendix I to NUREG-1556, Vol. 4, dated October 1998.</p>	<input checked="" type="checkbox"/>	[]
10. Radiation Safety Program - Material Receipt and Accountability	Physical inventories will be conducted at intervals not to exceed 6 months or at other intervals approved by the NRC, to account for all sealed sources and devices received and possessed under the license.	<input checked="" type="checkbox"/>	[]
10. Radiation Safety Program - Occupational Dosimetry	We will perform a prospective evaluation demonstrating that unmonitored individuals are not likely to receive, in one year, a radiation dose in excess of 10% of the allowable limits in 10 CFR Part 20 or we will provide dosimetry that meets the Criteria in the section entitled "Radiation Safety Program - Occupational Dosimetry," in NUREG-1556, Vol. 4, dated October 1998.	<input checked="" type="checkbox"/>	[]

Item No. and Title	Suggested Response	Yes	Alternative Procedures Attached
10. Radiation Safety Program - Public Dose	The applicant is not required to submit a response to the public dose section during the licensing phase. However, during NRC inspections, licensees must be able to provide documentation demonstrating, by measurement or calculation, that the total effective dose equivalent to the individual likely to receive the highest dose from the licensed operation does not exceed the annual limit for individual members of the public.	Need Not Be Submitted with Application	
10. Radiation Safety Program - Operating & Emergency Procedures	<p>If the gauge meets one or more of the safety conditions specified in "Discussion," in the section entitled "Radiation Safety Program-Operating Emergency Procedures," in NUREG 1556, Vol. 4, dated August 1998 state the following:</p> <p>Operating and emergency procedures will be developed, implemented, maintained, and distributed, and will meet the Criteria in the section entitled "Radiation Safety Program - Operating and Emergency Procedures," in NUREG-1556, Vol. 4, dated August 1998.</p> <p>For each gauge requested that does not meet one or more of the safety conditions specified in "Discussion," in the section entitled "Radiation Safety Program-Operating Emergency Procedures," in NUREG 1556, Vol. 4, dated August 1998 provide your operating, emergency and lock-out (if applicable) procedures to NRC for review.</p>	<p>[]</p> <p><input checked="" type="checkbox"/> Procedures Attached</p>	[]
10. Radiation Safety Program - Leak Test	<p>Leak tests will be performed at intervals approved by the NRC or an Agreement State and specified in the Sealed Source and Device Registration Certificate. Leak tests will be performed by an organization authorized by NRC or an Agreement State to provide leak testing services for other licensees or using a leak test kit supplied by an organization authorized by NRC or an Agreement State to provide leak test kits to other licensees and according to the kit supplier's instructions.</p> <p style="text-align: center;">OR</p> <p>We will implement the model leak test program published in Appendix M to NUREG-1556, Vol. 4, dated October 1998.</p>	<p><input checked="" type="checkbox"/></p> <p>[]</p>	[]

APPENDIX B

Item No. and Title	Suggested Response	Yes	Alternative Procedures Attached
10. Radiation Safety Program - Maintenance	<p><u>ROUTINE MAINTENANCE</u> We will implement and maintain procedures for routine maintenance of our fixed gauges according to each manufacturer's or distributor's written recommendations and instructions.</p> <p><u>NON-ROUTINE MAINTENANCE OPERATIONS</u> The gauge manufacturer, distributor or other person authorized by NRC or an Agreement State will perform non-routine operations such as installation, initial radiation survey, repair, and maintenance of components related to the radiological safety of the gauge, gauge relocation, replacement, and disposal of sealed sources, alignment, or removal of a gauge from service.</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/> <p><input checked="" type="checkbox"/> The information listed in Appendix N supporting a request to perform non-routing operations in-house is attached</p>
10. Radiation Safety Program - Transportation	The applicant is <i>not</i> required to submit its response to transportation during the licensing process; this issue will be reviewed during inspection. However, the licensee should develop, implement, and maintain transportation procedures according to NRC and DOT regulations.	Need Not Be Submitted with Application	
10. Radiation Safety Program - Fixed Gauges Used at Temporary Job Sites	<p>This is not applicable to our program. We will not use fixed gauges at temporary job sites.</p> <p style="text-align: center;">OR</p> <p>We will develop, implement, maintain and distribute procedures that meet the Criteria in the section entitled "Radiation Safety Program - Fixed Gauges Used at Temporary Job Sites" in NUREG-1556, Vol. 4, dated October 1998.</p>	<input checked="" type="checkbox"/> Not Applicable	<input type="checkbox"/>
10. Radiation Safety Program - Minimization of Contamination	The applicant is not required to submit a response to minimization of contamination if the applicant's responses meet the criteria for the following sections: Radioactive Material - Sealed Sources and Devices, Facilities and Equipment, Radiation Safety Program - Operating and Emergency Procedures, Radiation Safety Program - Leak Testing, and Waste Management - Gauge Transfer and Disposal.	Need Not Be Submitted with Application	

Item No. and Title	Suggested Response	Yes	Alternative Procedures Attached
11. Waste Management - Gauge Disposal & Transfer	The applicant is not required to submit a response to waste management during the licensing process. However, the licensee should develop, implement, and maintain gauge transfer and disposal procedures in its radiation protection program.	Need Not Be Submitted with Application	

FIXED NUCLEAR GAUGES
STANDARD OPERATING PROCEDURES

These operating procedures were developed according to the requirements in Appendix L NUREG-1556, Vol IV. Employee questions, comments, and findings related to fixed nuclear gauges should be directed to the:

Radiation Safety Officer - Erik Booth (906) 228-0335

- ☛ Gauges are to be used according to manufacturer's or distributor's instructions and recommendations.
- ☛ Employees will not touch the unshielded source with their fingers, hands, or any other part of the body.
- ☛ Employees will not place hands, fingers, feet, or other body parts in the radiation field from an unshielded source.
- ☛ Warning signs will be posted stating "Contact Radiation Safety Officer Before Entering Vessel" will be posted at each entry to an area where it is possible to be exposed to the primary beam. (section 8.10.6 of NUREG-1556 Vol. IV)
- ☛ Lockout procedures have been developed for fixed nuclear gauges to prevent employees from entering the radiation beam during maintenance, repairs, or work in, or around the coal bunkers, No. 2 crusher, tripper car, tail end of No 2 and 4 belts, coal feeders, and lime slurry line. Employees are responsible for ensuring that proper lock-out procedures are followed at all times.
- ☛ Gauges are mounted to prevent unauthorized access, removal, or use of the gauge.
- ☛ The on-off mechanism (shutter) of each gauge will be tested for proper operation during the physical inventory to account for all sealed sources at intervals not to exceed six months by the Radiation Safety Officer or Authorized Users.
- ☛ A reevaluation of compliance with public dose limits and proper security of gauges will be conducted by the Radiation Safety Officer after making changes affecting the gauge.

In accordance with 10 CFR 19.11 – Employees may examine Regulations, License Conditions, Operating Procedures, and Notice of Violations by contacting the Radiation Safety Officer.

FIXED NUCLEAR GAUGES

STANDARD EMERGENCY PROCEDURES FOR FIRE, EXPLOSION, & OTHER

This emergency procedure is to be activated at the time of an incident involving devices such as nuclear gauges containing radioactive material. Incidents could include a fire or explosion in an area where devices are installed or stored, the dislocation of a gauging device from its installed position, or other emergencies involving severe damage to these devices.

1. **MOVE AWAY FROM THE SOURCE AT ONCE.**
2. **SOUND THE ALARM** (if fire or explosion and contact local emergency responders). Alert people in the vicinity of the presence of radioactive material and possible hazards.
3. **SECURE THE AREA AROUND THE ACCIDENT.** Keep unauthorized people away.
4. **NOTIFY THE RADIATION SAFETY OFFICER (RSO).**

Radiation Safety Officer:	Erik Booth
Work Phone:	(906) 228-0335
Cell Phone:	(906) 631-8760
5. **EMERGENCY RESPONDERS STABILIZE CONDITIONS.** Attempt to put out any fire by approved means. If the device is directly involved in a fire or explosion, the RSO or Shift Supervisor will provide emergency response personnel with information regarding the isotopes (CS-137) and activities involved (maximum gauge activity on site is 100 mCi). **The presence of nuclear gauges should not impede fire fighting in any way.**
6. **RSO IDENTIFIES DAMAGED GAUGE.** After the immediate threat has been resolved, the RSO will approach the gauge with a survey meter and evaluate the radiation levels. If the gauge is found to be damaged, either by visual inspection or by unusual radiation levels, the area will be controlled and properly posted until qualified personnel can arrive to remove it. The RSO will evaluate the potential contamination levels by wiping the gauge with a cloth and measuring the cloth with an open-window survey meter. The results of this test will be communicated to the manufacturer or other qualified responders. No person should be permitted to return to the area without the approval of the RSO.
7. **RSO NOTIFIES NRC WITHIN 24 HOURS.** The RSO will provide appropriate notification to the Nuclear Regulatory Commission's Safety Hotline at (800) 695-7403. The RSO will also call Thermo Fisher Scientific at (512) 388-9310 or other qualified response organization for any additional advice or assistance.
8. **TRAINED RADIOLOGICAL PROFESSIONALS HANDLE GAUGE RECOVERY & CLEANUP.** The RSO will bring in trained professionals to handle cleanup. No attempt should be made to open or examine contained material.
9. **RSO WILL COMPLETE ACCIDENT REPORT.** The RSO will prepare a complete history of the emergency and the subsequent actions taken.

VIII Nuclear (Radioactive) Devices – Lock Out Procedures

The shutter mechanism of each device will be locked in the closed position during periods when an individual's body may be subject to the direct radiation beam. The Radiation Safety Officer (RSO) must be notified about lockouts by the following business day. Shift Supervisors are responsible for notifying the RSO. The RSO is Erik Booth. Nuclear devices will use standard Lockout / Personnel Protective Tagging procedures with the following additions:

- A) The device is to be observed prior to lockout for any physical damage. If OK, proceed with the lockout. If damaged, immediately contact the RSO for instructions. If the RSO is not available, then inform the Shift Supervisor, who shall make the determination of action that shall be taken.
- B) Local Lockouts (a short duration job in which the employee does not leave the job site): Contact the Control Operator and inform them to document the lockout of specific nuclear device in the *Switching and Tagging Log* sheet. The general lock provided on the nuclear gauges may be used as the only lock in this instance. Ensure that the Control Operator is notified when the nuclear device is put back in service.
- C) Normal Lockout (long or short duration job in which the employee may leave the job site): Follow normal lockout procedures and ensure that both your personal lockout lock and tag, and the general use one are on the device.
- D) The devices are locked out by moving the shutter from *open* to *closed* or *on* to *off*. Use a lockout clamp so both your personal lockout lock and tag, and the general use one are on the device. They are returned to service by removing your lockout lock, tag and lockout clamp and the general use lock. Then move the shutter from *closed* to *open* or *off* to *on*, and then replace the general use lock back on the device.
- E) **Board of Light and Power employees shall not perform the following services on the nuclear devices:** install, relocate, move, remove from service (taken off of equipment), dismantle, align, replace, or dispose. In addition, employees shall not perform any non-routine maintenance or repair of components related to the radiological safety of the gauge (i.e. the sealed source, the source holder, source drive mechanism, on-off mechanism (shutter), shutter control, shielding). These services shall be performed only by persons specifically licensed by the U.S. Nuclear Regulatory Commission (NRC). If any of the work provide in Section E needs to be performed, then contact the RSO.

FIXED NUCLEAR GAUGES

Non-Routine Maintenance Operations:

Installation, Relocation, Alignment and Removal of Fixed Gauges

Type of Work:

These procedures cover the following non-routine maintenance operations: installation, relocation, alignment, and removal of fixed gauges. Device mounting mechanisms and fixed gauging devices are installed at locations, which are designated by the facility Radiation Safety Officer as specified on Semi-Annual Nuclear Gauge Inventory forms.

Individuals Performing Non-Routine Operations:

The Radiation Safety Officer is the only person currently authorized to perform non-routine operations. The Radiation Safety Officer has taken 40-hour Radiation Safety Training Course taught by Thermo Fisher Scientific.

Vessel Tag-Out Procedure during Installation and/or Reinstallation:

During the time of installation, re-installation, or alignment of a gauging device, all access areas on the vessel, on which the device is being installed, re-installed, or aligned, will be closed/secured and personnel will be prevented from entering the vessel.

Ensuring Doses Are Within Regulatory Limits:

Re-entry into the vessel will not be allowed until the non-routine operation process is complete and an appropriate radiation survey has been performed. When radiation levels inside the vessel have been determined to be below the level specified for members of the public (2 mR in any one hour and 100 mrem TEDE) personnel may be allowed to enter or re-enter the vessel.

Removal, Relocation and Storage of Gauging Devices:

During the removal and relocation process, the following procedures will be followed.

- Close the shutter mechanism and secure it with a lock. After locking the shutter in the closed position, and prior to the removal of the device from installation, perform a radiation survey with the use of an appropriate, operable, and currently calibrated survey instrument. This survey will be performed to ensure that the shutter mechanism is in the "Off" position and that it is safe for work to proceed.
- The work area will be restricted (posted with barricade tape, if appropriate) and maintained as a restricted area during the device removal process. Make sure that members of the public do not enter during the work period.
- Remove the gauge fastening devices and remove the gauging device from its place of use.
- Perform a radiation survey at the gauge beam port location to ensure that the shutter has been properly closed.
- If transportation is required (out side of plant on a state or federal designated highway) from place of storage to place of installation perform a radiation survey in the occupied areas of the transport vehicle prior to transport. During transport, sufficient distance will be required around the gauging device to ensure that members of the public are not exposed to radiation

in excess of the dose limits.

- Upon arrival at the storage location, remove the device from the vehicle and place in storage area, which will be secured with a locking device. The RSO or alternate designee should maintain the key and control access to the storage area at all times while there are devices in storage.
- A radiation survey will be performed in the unrestricted areas surrounding the storage location. This survey will be recorded. The exposure to members of the public will be determined and recorded. The records of survey and exposure assessment will be provided to the Facility RSO.
- A radiation check will be performed at the location where the gauge was installed (and results documented) to verify the absence or presence of any residual contamination.

Installation, Reinstallation, or Alignment of Fixed Gauging Devices:

Prior to the installation or relocation of any gauging device, the RSO will determine if there are any other precautions that need to be taken due to such potential hazards as chemicals or flammable materials.

- An inspection of the gauging device will be conducted prior to any work being performed to install and/or reinstall a gauging device.
- On the date of installation and prior to removing the gauging device from storage ensure that the shutter mechanism is closed and locked in the closed position.
- Perform a radiation survey of the gauging device, using an appropriate, operable and currently calibrated survey instrument.
- The area where the installation will occur will be restricted with the use of barricade tape (when appropriate) to ensure that only designated workers are present within the restricted work area. A designated worker will maintain surveillance of the work area to prevent entry by non-essential worker and members of the public.
- The gauging device will be positioned in its use location. Affix the device in its specified location with the use of appropriate fastening devices (nuts and bolts, metal straps, etc.) according to manufacturer instructions.
- Remove all non-essential workers from the restricted work area following the device mounting process.
- Remove the locking device from the gauge shutter mechanism and move the shutter mechanism to the “Open” or “On” position.
- Perform a radiation survey of the gauging device after the shutter mechanism has been opened. This survey will include each accessible area around the device, at the device surface, at a distance of one foot.

- Once the device is properly installed and the radiation levels in the area are within regulatory limits, remove all roped-off areas and return area to normal use.
- The Facility RSO or designee will determine the necessity for posting of the area based on the radiation levels that surround the gauging device. If posting of warning signs is required, the Facility RSO or designee should post the area with the appropriate signs.

Marquette Board of Light & Power
Supervisor of Utility Compliance
2200 Wright Street
Marquette, MI 49855



02 1P \$ 006.49⁰
0003077728 AUG 19 2009
MAILED FROM ZIP CODE 49855



7005 1820 0004 9882 1733

Materials Licensing Branch
U.S. Nuclear Regulatory
Commission, Region III
2443 Warrenville Road, Suite 210
Lisle, IL 60532-4352