



## CONVERSATION RECORD

07/23/2015

NAME OF PERSON(S) CONTACTED OR IN CONTACT WITH YOU

DATE OF CONTACT

TYPE OF CONVERSATION

Marshall W. Lowe, Lead Control Room Operator/proposed Radiation Safety Officer

07/23/2015

☐ E-MAIL☒ TELEPHONE

E-MAIL ADDRESS

TELEPHONE NUMBER

marshall.lowe@cmsenergy.com

ext. 0

(231) 723-6573

☐ INCOMING☒ OUTGOING

ORGANIZATION

DOCKET NUMBER(S)

T.E.S filer City Station Limited Partnership

030-31372

LICENSE NUMBER(S)

CONTROL NUMBER(S)

21-26079-01

586122

SUBJECT

Our review of your February 14, 2015, application and July 23, 2015 additional information letter. Additional information is requested by August 6, 2015. Direct any questions you have to me at (630) 829-9892 or sara.forster@nrc.gov.

## SUMMARY AND ACTION REQUIRED:

Please provide information as noted below. Refer to NUREG 1556, Vol. 4, "Program-Specific Guidance About Fixed Gauge Licenses," found at <http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1556/v4/sr1556v4.pdf>, when responding.

- Please provide your response on typed 8.5" x 11" sheets, under signed and dated cover letter.
- Please FAX your response to my attention at (630) 515-1078 OR scan your response and send to me via email, as a pdf file.

## ADDITIONAL INFORMATION NEEDED:

1. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING AND EXPERIENCE - AUTHORIZED USERS (AUs): Please confirm that "Before using licensed materials, authorized users will have successfully completed one of the training courses described in Criteria in the section entitled 'Authorized Users' in NUREG-1556, Vol. 4, 'Consolidated Guidance about Materials Licenses: Program-Specific Guidance about Fixed Gauge Licenses,' dated October 1998." Any alternative response must clearly state the educational-background and hands-on experience with gauges.

2. RADIATION SAFETY PROGRAM - OPERATING & EMERGENCY PROCEDURES: Both the application and additional information letter limited the response to steps to take in the event of accidental damage, fire, explosion, vehicle accident, or theft. The correspondence appeared to omit any routine (e.g.... gauge operation, cleaning, shutter tests, inventory, ALARA steps, etc.). It also omitted emergency steps suggested in the guidance volume including 10 CFR Parts 20 & 21 reporting and not attempting to repair the gauge.

- 2.1. As requested previously, please either provide procedures that meet the Criteria in section 8.10.6 of NUREG 1556, Vol. 4 (attached for your reference); *or*

NAME OF PERSON DOCUMENTING CONVERSATION

Sara A. Forster, Materials Licensing Branch, Region III Office, 2443 Warrenville Road, Suite 210, Lisle, Illinois 60532

SIGNATURE

*Sara A. Forster**07/23/2015*

CONVERSATION RECORD (continued)

M. Lowe

CN 586122

SUMMARY AND ACTION REQUIRED (continued):

ADDITIONAL INFORMATION NEEDED (continued):

2.2 In the alternative, if all gauges used or stored under the license meet one of the safety conditions in that criteria, confirm the statement, "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, 'Consolidated Guidance about Materials Licenses: Program-Specific Guidance about Fixed Gauge Licenses,' dated October 1998."

3. RADIATION SAFETY PROGRAM - NON-ROUTINE MAINTENANCE : The application and additional information letter both confirmed that any non-routine maintenance would be contracted and performed by the manufacturer AND would be performed in-house.

3.1. As requested previously, if all gauges will be repaired by the manufacturer, please confirm the statement, "The gauge 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."

3.2 In the alternative, if you are requesting an authorization for non-routine maintenance operations (e.g., installation, initial radiation survey, gauge relocation, alignment, and removal of a gauge from service, etc.), please provide additional information as requested in NUREG 1556, Vol. 4, Appendix N (copy attached for your reference.) At a minimum, information submitted should include:

- (i) a description of the types of work, maintenance, cleaning or repair activities to be performed that involve installation, initial radiation survey, gauge relocation, alignment, and/or removal of a gauge from service;
- (ii) the name of the individual(s) designated to perform non-routine maintenance;
- (iii) a description of each designated individual's training and experience, consistent with non-routine operations to be performed and training requirements described on page N-2 (attached); and
- (iv) procedures for non-routine operations as noted on pages N-2 to N-3 (attached).



## 8.10.6 OPERATING AND EMERGENCY PROCEDURES

**Regulations:** 10 CFR 30.34(e), 10 CFR 20.1101, 10 CFR 20.1801, 10 CFR 20.1802, 10 CFR 20.2201-2203, 10 CFR 30.50, 10 CFR 21.21, 10 CFR 19.11(a)(3).

**Criteria:** Each applicant should do the following:

- Develop, implement, and maintain operating procedures containing the following elements for each type of fixed gauge:
  - Instructions for operating the gauge
  - Instructions for performing routine cleaning and maintenance (e.g., calibration and lubrication) according to the manufacturer's or distributor's recommendations and instructions
  - Instructions for testing each gauge for the proper operation of the on-off mechanism (shutter) and indicator, if any, at intervals not to exceed 6 months or as specified in the SSD certificate
  - Instructions for lock-out procedures, if applicable, that are adequate to assure that no individual or portion of an individual's body can enter the radiation beam
  - Instructions to prevent unauthorized access, removal, or use of fixed gauges
  - Steps to take to keep radiation exposures ALARA
  - Steps to maintain accountability (i.e., inventory)
  - Instructions to ensure that 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 are performed by the manufacturer, distributor or person specifically authorized by the NRC or an Agreement State
  - Steps to ensure that radiation warning signs are visible and legible.
- Develop, implement, and maintain emergency procedures for gauge malfunction or damage containing the following elements for each type of fixed gauge:
  - Stop use of the gauge.
  - Restrict access to the area.
  - Contact responsible individuals. (Telephone numbers for the RSO, AUs, the gauge manufacturer or distributor, fire department or other emergency response organization, as appropriate, and the NRC should be posted or easily accessible.)

## CONTENTS OF AN APPLICATION

- Do not attempt repair or authorize others to attempt repair of the gauge except as specifically authorized in a license issued by the NRC or an Agreement State.
  - Require timely reporting to NRC pursuant to 10 CFR 20.2201-20.2203, 10 CFR 30.50, and 10 CFR 21.21.
  - Take additional steps, dependent on the specific situations.
- Provide copies of operating and emergency procedures to all gauge users.
  - Post copies of operating and emergency procedures at each location of use or if posting procedures is not practicable, post a notice which briefly describes the procedures and states where they may be examined.

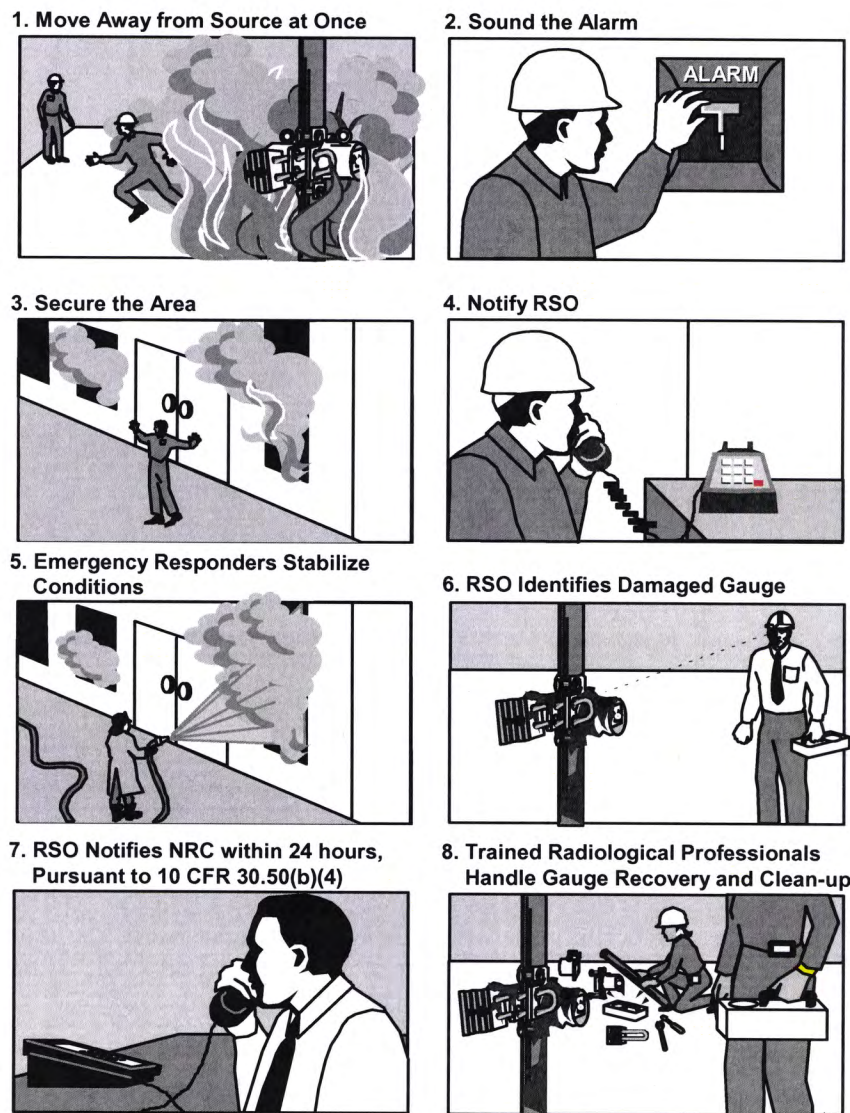
**Discussion:** NRC will permit an applicant greater flexibility when licensing certain types of gauges. For each gauge that is requested, if one or more of the following safety conditions are met, the applicant must develop, implement, maintain, and distribute operating and emergency procedures but need *not* submit these procedures for NRC review:

- The air gap between the radiation source and detector of the device is less than 45 cm (18 inches)
- The air gap of the device would not allow insertion of a 30 cm (12 inches) diameter sphere into the radiation beam of the device without removal of a barrier
- The radiation dose rate in the radiation beam of the device at 45 cm (18 inches) from the radiation source with the device shutters, if any, in the open position does not exceed 1 mSv/hour (0.1 rem/hour)
- Entry into vessels (e.g., bins, tanks, hoppers, or pipes) with a gauge installed is not necessary under any foreseeable circumstances and is prohibited.

Operating and emergency procedures should be developed, maintained, and implemented to ensure that gauges are used only as they were designed to be used, control and accountability are maintained, and radiation doses received by occupational workers and members of the public are ALARA. Copies of operating and emergency procedures should be provided to all gauge users. In addition, licensees must post current copies of operating and emergency procedures applicable to licensed activities at each site. If posting of procedures is not practicable, the licensee may post a notice which describes the documents and states where they may be examined.

Improper operation could lead to the damage or malfunction of a gauge and elevated exposure rates in the gauge's immediate vicinity. A list of specific items that should be addressed in operating and emergency procedures is contained in Appendix L. Figure 8.6 illustrates proper response to fire involving a fixed gauge. Emergency procedures should be developed to address a spectrum of incidents (e.g., fire, explosion, mechanical damage, flood, or earthquake).





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102197

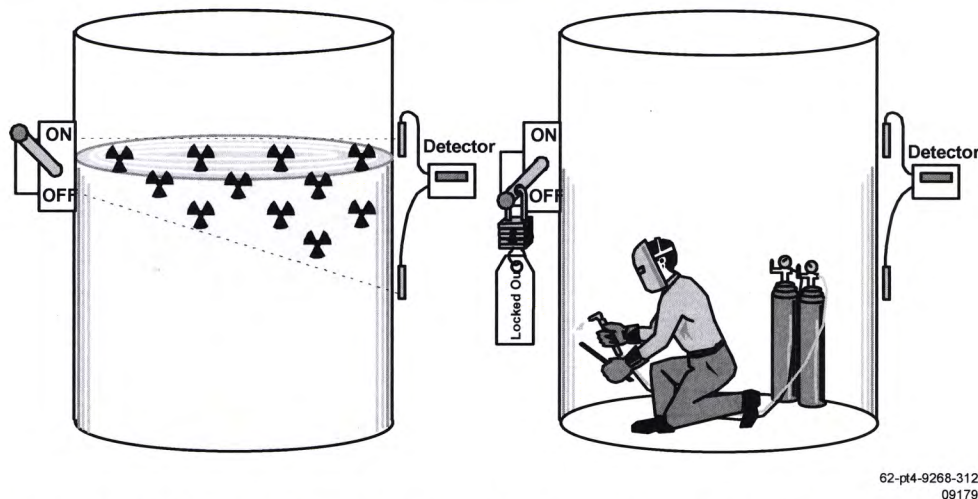
**Figure 8.6 Proper Handling of Incident.** *Licensee personnel implement emergency procedures when a fire melts the lead shielding of a gauge producing the potential for elevated exposure levels.*

NRC considers security of licensed material extremely important and lack of security is a significant violation for which licensees may be fined. Although most fixed gauges are difficult to move, the licensee must prevent unauthorized access, removal, or use of the gauge. Licensees are responsible for ensuring that gauges are secure and accounted for at all times (e.g., during plant modifications, change in ownership, staffing changes, or after termination of activities at a particular location).

## CONTENTS OF AN APPLICATION

The NRC must be notified when gauges are lost, stolen, or certain other conditions occur.

The RSO must be proactive in evaluating whether NRC notification is required. Refer to Appendix P and the regulations (10 CFR 20.2201-20.2203, 10 CFR 30.50, 10 CFR 21.21) for a description of when and where notifications are required.



**Figure 8.7 Lock-out Procedures.** *Typical lock-out procedures include locking the shutter into the “off” position and tagging the shutter control mechanism to indicate the gauge is locked-out.*

When the distance or air gap between the source and detector permits entry of all or a portion of a person’s body into the primary radiation beam, licensees must develop lock out procedures. Lock-out procedures encompass locking the on-off or shutter mechanism into the off position or otherwise controlling the radiation beam or using any other means of preventing an individual or a portion of an individual’s body from entering the radiation beam during maintenance, repairs, or work in, on, or around the process line (e.g., bin, tank, hopper, pipe, or conveyor belt) where the device is mounted. The on-off or shutter control mechanism should be tagged to indicate that the gauge is locked out. A warning sign should be posted at each entryway to an area where it is possible to be exposed to the primary beam. In addition to providing a warning, the sign should give safety instructions, e.g., “contact the RSO before entering this vessel.” Lock-out procedures should specify who is responsible for performing them.

**Response from Applicant:** Provide either of the following:

- If the gauge meets one or more of the safety conditions specified in “Discussion,” provide either of the following:
  - A statement that: “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,



## Information Needed to Support Applicant's Request to Perform Non-Routine Operations

Applicants should review the section in this document on "Maintenance," which discusses, in general, licensee responsibilities before any maintenance or repair is performed.

Non-routine operations include installation of the gauge, initial radiation survey, repair or maintenance involving or potentially affecting components, including electronics, related to the radiological safety of the gauge (e.g., the source, source holder, source drive mechanism, shutter, shutter control, or shielding), gauge relocation, replacement, and disposal of sealed sources, alignment, removal of a gauge from service, and any other activities during which personnel could receive radiation doses exceeding NRC limits. See Figure 8.9.

Any non-manufacturer/non-distributor supplied replacement components or parts, or the use of materials (e.g., lubricants) other than those specified or recommended by the manufacturer or distributor need to be evaluated to ensure that they do not degrade the engineering safety analysis performed and accepted as part of the device registration. Licensees also need to ensure that, after maintenance or repair is completed, the gauge is tested and functions as designed, before the unit is returned to routine use.

If non-routine operations are not performed properly with attention to good radiation safety principles, the gauge may not operate as designed and personnel performing these tasks could receive radiation doses exceeding NRC limits. Radionuclides and activities in fixed gauges vary widely. For illustrative purposes in less than one minute, an unshielded cesium-137 source with an activity of 100 millicuries can deliver 0.05 Sv (5 rems) to a worker's hands or fingers (i.e., extremities), assuming the extremities are 1 centimeter from the source. However, gauges can contain sources of even higher activities with correspondingly higher dose rates. The threshold for extremity monitoring is 0.05 Sv (5 rems) per year.

Thus, applicants wishing to perform non-routine operations must use personnel with special training and follow appropriate procedures consistent with the manufacturer's or distributor's instructions and recommendations that address radiation safety concerns (e.g., use of radiation survey meter, shielded container for the source, and personnel dosimetry (if required)).

Accordingly, provide the following information:

Provide additional information as noted:

Describe the types of work, maintenance, cleaning, repair that involve:

- Installation, relocation, or alignment of the gauge
- Components, including electronics, related to the radiological safety of the gauge (e.g., the source, source holder, source drive mechanism, shutter, shutter control, or shielding)
- Replacement and disposal of sealed sources
- Removal of a gauge from service



## APPENDIX N

- A potential for any portion of the body to come into contact with the primary radiation beam; or
- Any other activity during which personnel could receive radiation doses exceeding NRC limits.

The principal reason for obtaining this information is to assist in the evaluation of the qualifications of individuals who will conduct the work and the radiation safety procedures they will follow.

~~A licensee may initially mount a gauge, without specific NRC or Agreement State authorization, if the gauge's SSD Certificate explicitly permits mounting of gauges by users and under the following conditions:~~

- ~~• The gauge must be mounted according to written instructions provided by the manufacturer or distributor;~~
- ~~• The gauge must be mounted in a location compatible with the "Conditions of Normal Use" and "Limitations and/or Other Considerations of Use" in the certificate of registration issued by NRC or an Agreement State;~~
- ~~• The on-off mechanism (shutter) must be locked in the off position, if applicable, or the source must be otherwise fully shielded;~~
- ~~• The gauge must be received in good condition (package was not damaged); and~~
- ~~• The gauge must not require any modification to fit in the proposed location.~~

~~Mounting does not include electrical connection, activation, or operation of the gauge. The source must remain fully shielded and the gauge may not be used until it is installed and made operational by a person specifically licensed by the Commission or an Agreement State to perform such operations.~~

- Identify who will perform non-routine operations and their training and experience. Acceptable training would include manufacturer's or distributor's courses for non-routine operations or equivalent.
- Submit procedures for non-routine operations. These procedures should ensure the following:
  - doses to personnel and members of the public are within regulatory limits and ALARA (e.g., use of shielded containers or shielding);
  - the source is secured against unauthorized removal or access or under constant surveillance;
  - appropriate labels and signs are used;
  - manufacturer's or distributor's instructions and recommendations are followed;
  - any non-manufacturer/non-distributor supplied replacement components or parts, or the use of materials (e.g., lubricants) other than those specified or recommended by the



- manufacturer or distributor are evaluated to ensure that they do not degrade the engineering safety analysis performed and accepted as part of the device registration; and
  - before being returned to routine use, the gauge is tested to verify that it functions as designed and source integrity is not compromised.
- Confirm that individuals performing non-routine operations on gauges will wear both whole body and extremity monitoring devices or perform a prospective evaluation demonstrating that unmonitored individuals performing non-routine operations are not likely to receive, in one year, a radiation dose in excess of 10% of the allowable limits.
  - Verify possession of at least one survey instrument that meets the criteria in “Radiation Safety Program - Instruments in NUREG-1556, Vol. 4, ‘Consolidated Guidance about Materials Licenses: Program-Specific Guidance about Fixed Gauges Licenses,’ dated October 1998.”
  - Describe steps to be taken to ensure that radiation levels in areas where non-routine operations will take place do not exceed 10 CFR 20.1301 limits. For example, applicants can do the following:
    - commit to performing surveys with a survey instrument (as described above);
    - specify where and when surveys will be conducted during non-routine operations; and
    - commit to maintaining, for 3 years from the date of the survey, records of the survey (e.g., who performed the survey, date of the survey, instrument used, measured radiation levels correlated to location of those measurements), as required by 10 CFR 20.2103.

**Forster, Sara**

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**From:** Forster, Sara  
**Sent:** Thursday, July 23, 2015 3:25 PM  
**To:** 'Marshall W. Lowe'  
**Subject:** Additional Information Request No. 2 for T.E.S. Filer City Station Limited Partnership, NRC Lic. 21-26079-01, CN586122  
**Attachments:** 03120.586122.21-26079-01telecon2signed.pdf

Dear Mr. Lowe:

We have received the additional information noted below. Additional questions remain concerning Authorized User training requirements, Operating & Emergency procedures, and non-routine maintenance. I will call you tomorrow morning to discuss the attached request for clarification further. Do not hesitate to call me with any questions you may have.

Sincerely,

Sara A. Forster, Health Physicist Licensing Reviewer U.S. Nuclear Regulatory Commission - Region III  
Division of Nuclear Materials Safety  
2443 Warrenville Rd. - Ste. 210  
Lisle, IL 60532-4352  
[sara.forster@nrc.gov](mailto:sara.forster@nrc.gov)  
Direct: (630) 829-9892

-----Original Message-----

From: Marshall W. Lowe [<mailto:MARSHALL.LOWE@cmsenergy.com>]  
Sent: Thursday, July 23, 2015 12:22 PM  
To: Forster, Sara  
Subject: [External\_Sender] FW: NRC License Documents

-----Original Message-----

From: Dawn F. Wittlief  
Sent: Thursday, July 23, 2015 1:17 PM  
To: Marshall W. Lowe  
Subject: NRC License Documents

Marshall,  
Attached are the scanned documents regarding our NRC license renewal.

Dawn Wittlief  
T.E.S. Filer City Station  
231-723-6573 ext 101  
231-723-4766 fax