



CONVERSATION RECORD

01/28/2016

NAME OF PERSON(S) CONTACTED OR IN CONTACT WITH YOU Tracy King, consultant		DATE OF CONTACT 01/28/2016	TYPE OF CONVERSATION <input checked="" type="checkbox"/> E-MAIL <input type="checkbox"/> TELEPHONE <input type="checkbox"/> INCOMING <input checked="" type="checkbox"/> OUTGOING
E-MAIL ADDRESS tking@mpcphysics.com		TELEPHONE NUMBER (734) 662-3197	

ORGANIZATION Botsford General Hospital	DOCKET NUMBER(S) 03002077
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LICENSE NUMBER(S) 21-08892-01	CONTROL NUMBER(S) 588667
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SUBJECT  
Request for additional information

SUMMARY  
We have reviewed your letter dated August 24, 2015, requesting renewal of your license and find that we will need additional information as follows:  
1. Your license currently has two different persons as RSOs, each providing coverage over a portion of the license. This is contrary to 10 CFR 35.24. You may only have one RSO who provides radiation safety program coverage for all of the license.  
In response, please specify who will serve as the sole RSO for this license. Please ensure that an updated "Delegation of Authority" accompanies your response, as well as evidence that the proposed RSO meets all of the requirements in 10 CFR 35.50.  
2. Your renewal letter, item 6.D., states that the HDR source may be used at 12 Ci installed activity. However, the shielding calculations you provided are based upon only 10 Ci installed activity. Please clarify which installed activity is correct.  
  
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ACTION REQUIRED (IF ANY)  
Please submit a written response within 15 days of the date of this record (by February 15, 2016) or contact me to make alternative arrangements. Address your response to my attention at the address below in my signature block and reference it as "additional information to control number 588667."  
  
Please respond directly to me for this case only; future new licensing requests should be addressed to the "Materials Licensing Branch Chief." Upon receipt of your written response we will continue our review.  
  
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NAME OF PERSON DOCUMENTING CONVERSATION Colleen Carol Casey
SIGNATURE 

## CONVERSATION RECORD (continued)

SUMMARY: (Continued from page 1)

Please resubmit your shielding calculations to include all of the information described on the attachment.

This is especially important because we noted that your shielding calculations, as attached to this renewal and as previously accepted, do not appear to contain sufficient information for us to fully understand your HDR use room and its shielding.

3. Your renewal letter states that you are not using PET materials. However, the attached diagram for the Botsford Cancer Center appears to show several PET rooms on the right side of the diagram.

Please clarify whether you are or will be using PET materials. If not, please explain your diagram, which shows PET rooms. If you are going to use PET materials, you will need to submit shielding calculations in order for us to approve such use on this license.

Please note that this request for additional information is preliminary as my complete review is not quite completed and additional issues may still arise. However, since we already had several issues identified, I wanted to communicate these to you as quickly as possible to arrange a more prompt response.

Please contact me via either telephone or email (email is probably quicker) to arrange a brief telephone call to discuss the issues above and ensure a correct and complete response. We will also need to discuss and agree on a response due date. I suggest 15 days from today, or February 15, 2016, at the very latest. We can discuss this and work something out.

Please be reminded of the provisions in 10 CFR 30.9(a), "Completeness and accuracy of information,"..."(a) Information provided to the Commission by an applicant for a license or by a licensee or information required by statute or by the Commission's regulations, orders, or license conditions to be maintained by the applicant or the licensee shall be complete and accurate in all material respects."

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this form will be available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

Colleen  
Colleen Carol Casey  
Materials Licensing Reviewer  
U.S. Nuclear Regulatory Commission  
Region III  
2443 Warrenville Road  
Suite 210  
Lisle, IL 60532-4352  
(630) 829-9841 Direct, Central time zone  
(630) 515-1078 Fax  
NRC 24 HR Operations Center  
(301) 816-5100, Eastern time zone

Gentle Reminders: Unless previously arranged with or requested by me directly, please do not submit any licensing requests, responses or correspondence via e-mail.

Please only submit one complete, signed copy of your correspondence to us.

Please prepare your licensing requests in accordance with NUREG 1556 Series Guidance, as appropriate.

Thank you very much!

Please also note that my full-time work schedule includes every other Friday off.

Ensuring the health and safety of  
our people, our nation and  
our environment  
<http://www.nrc.gov/>

1. Please clearly state and mark the street address for the HDR room on one of the diagrams and include with your response.

Please include:

- A. Show the functional identity of each room, space or area immediately surrounding the HDR room and whether they are restricted (R) or unrestricted areas (U); please do not use terminology such as "controlled" or "uncontrolled," as these terms have meanings different from restricted (R) or unrestricted areas (U) (see 10 CFR 20.1003);
  - B. Indicate clearly on the diagram where you anticipate the patient/"exposed source" to be located within the room;
  - C. For each barrier in each direction, including the floor and ceiling:
  - D. The specific composition (poured concrete, block concrete, Ledite (concrete with added metal aggregates enhancing shielding ability), lead, steel, gypsum board/drywall, etc.);
  - E. Thicknesses of barriers (individually and total, expressed in inches, feet or centimeters, consistently); and,
  - F. The distances from the patient/exposed source" to the opposite, occupiable places for barriers/walls/ceilings/floors in all directions.
  - G. We noted that you used Ledite XN-240 for your shielding. Please provide a copy of the literature for this product in your response that supports your use of the TVL for Ir-192 for Ledite as "3.7 inches." Your letter states that you "assumed" this value; it is best to use the most accurate value and the vendor or peer reviewed literature should provide that.
2. Please indicate clearly whether persons may gain access to any area adjacent to or above the HDR treatment room. Are administrative controls in place to prevent access to the roof during HDR exposures and treatments? Please describe.

If areas may be occupied during treatment, please either submit exposure rate calculations to demonstrate that the doses received will not exceed the limits in 10 CFR 20.1301 or describe the administrative controls (training, posting, surveillance, closed circuit television surveillance, lock-out, key control, etc.) that will be put in place to prevent occupation during HDR treatments or source exposures.

3. Please provide simple and complete shielding calculations, using traditional units (preferred), showing your work, barrier transmission factors (and calculation of them), detailed assumptions, defined terms, equations, constants, substitutions and parameters to demonstrate that radiation levels in all adjacent areas, including above and below the room, will not exceed levels in 10 CFR 20.1301.

I was unable to corroborate your results and conclusions with the minimal information given for your HDR room shielding calculations. (The reviewer who originally accepted your application for HDR left the agency many years ago.)

4. Please include the following details in your calculations:
  - a. expected radiation levels for each adjacent area, under the most adverse and typical source orientations and maximum installed source activity;

- b. all parameters used to perform the calculations, including: distance to each area of concern, the type and thickness of material(s) used as shields, especially if portable shields will be used;**
- c. the maximum "beam-on time" per hour and per week; the number of patients/treatments/exposures expected per week(i.e., workload);**
- d. occupancy factors used for all adjacent areas, including areas above and below;**
- e. demonstrate by calculation that the dose received by an individual member of the public likely to receive the highest dose from HDR procedures when present in unrestricted area (in mrem/hr and mrem/yr) will not exceed the limits specified in 10 CFR 20.1301(a);**
- f. sufficient information, in a readily understandable format, to permit us to independently evaluate the adequacy of shielding in your proposed room.**