



U.S. DEPARTMENT OF
ENERGY

Nuclear Energy

DOELAP Requirements For An Amendment Request To Add The Landauer Saturn Ring To A Program's Laboratory Accreditation

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■ Introduction

- DOELAP Administrative Standard, DOE-STD-1111-2013, provides the basis and requirements for a change in the scope of an accredited dosimetry program.
- The standard is very limited in requirements with respect to an amendment or change in the scope of an accredited dosimetry program.
- DOE-STD-1111-2013, *DOELAP Administration*, Section 8.2, *Amendment*, paragraph 8.2.1, "A change in the scope of an accredited or qualified program, e.g., an expanded capability, shall be authorized **by an amendment to the Conditions of Accreditation (or Vendor Qualification) prior to the change going into effect.**"

A request for an amendment should be received by the DOELAP Senior Technical Manager (STM) **no less than 45 calendar days before the proposed date of the change** for issuance of a timely response."

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■ Introduction “continued”

- Who submits the amendment request to DOELAP?
- What information is required to be included in the amendment request?
- Does the request require approval of dosimetry program management?
- Does the request require approval/concurrence from the DOE site office representative?
- Who grants approval of an amendment scope, i.e., the Conditions of Accreditation?
- When does the amendment request go into effect?

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■ Background

- Test session 2014-B a DOELAP accredited dosimetry program certified to use the Landauer U-Ring desired accreditation for use of the Landauer Saturn Ring
- Performance test results were acceptable; **demonstrating technical equivalence** for the Saturn Ring

Table 1. Landauer U-Ring

Sub Category	SubCategory Description	Bias (B)	Std. Dev. (S)	B^2+S^2	L^2	Pass/Fail $B^2+S^2 \leq L^2$
IA	High-Dose Photons, General	-0.036	0.071	0.006	0.058	Pass
IIA	Photons, General	0.000	0.082	0.007	0.123	Pass
IIIA	Betas, General	-0.130	0.100	0.027	0.123	Pass
IIID	Betas, Uranium Slab	0.029	0.054	0.004	0.123	Pass

Table 2. Landauer Saturn Ring

Sub Category	SubCategory Description	Bias (B)	Std. Dev. (S)	B^2+S^2	L^2	Pass/Fail $B^2+S^2 \leq L^2$
IA	High-Dose Photons, General	-0.028	0.076	0.007	0.058	Pass
IIA	Photons, General	-0.027	0.142	0.021	0.123	Pass
IIIA	Betas, General	-0.129	0.096	0.026	0.123	Pass
IID	Betas, Uranium Slab	-0.009	0.117	0.014	0.123	Pass



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■ Background "Continued"

- Summer 2016 – Landauer notified DOE customers/clients that they will begin phasing out the U-Ring in CY2017 to be replaced with the Saturn Ring
- October 2016 - one DOELAP accredited dosimetry program presented an amendment request to the STM to consider adding the Saturn Ring to their current DOELAP scope of accreditation, i.e., Conditions of Accreditation
- The dosimetry program submitted the amendment request to the STM within 45 calendar days before the proposed date of the change to the scope of accreditation in accordance with DOE-STD-1111-2013 §8.2
- November 2016 – DOELAP presented the Landauer notification letter and the dosimetry program's amendment request letter and the Saturn Ring dosimeter specifications to the External Dosimetry Oversight Board

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■ DOELAP Oversight Board Evaluation

- There are minimal technical differences between the two dosimeters
- The transition from the U-Ring to the Saturn Ring appears to be straight forward with little potential for adverse impact on quality of dose results
- Before an amended Conditions of Accreditation is issued to an affected dosimetry program, the board recommended that DOELAP requires a letter from those programs certifying the following:
 - Technical basis documents and procedures will be updated
 - Training will be performed and documented



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■ Test Session 2017-A Performance Testing

- January through March 2017 – U-Ring and Saturn Ring are currently undergoing performance testing in all the subcategories in Tables 1 and 2 plus subcategory IID, *Narrow Spectrum Photons*
- May 2017 – Report U-Ring and Saturn Ring performance test results to Landauer and DOELAP accredited programs who use the U-Ring dosimeter for personnel dose monitoring



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■ Requirements for Amendment Request Letter Submission

- The dosimetry program's letter from the affected accredited dosimetry program's management to the DOE field/site office representative requesting an amendment to the scope of accreditation **must include** the following:
 - Clearly state the reason for submitting the amendment request
 - State your current accredited extremity dosimeter type (Landauer U-Ring) and the subcategories it is accredited for use at your site/facility
 - State your request to have the Saturn Ring added to the current scope of accreditation and for the same subcategories as the currently accredited extremity dosimeter
 - If applicable, state your desire to have the U-Ring remain listed on the revised scope of accreditation in case there may be unforeseen issues with the Saturn Ring



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■ Requirements for Amendment Request Letter Submission “Continued”

- Indicate when you expect the U-Ring/Saturn Ring exchange to occur and the expected date the Saturn Ring will be used to monitoring individuals
- Letter must certify that the dosimetry program's technical basis document(s), procedures and training will be performed and updated prior to issuing dosimeters to individuals
- The letter must also certify that the dosimetry program's existing contractual agreements and appropriate technical documentation, including Lower Limit of Detection (LLD), angular dependence studies, dosimetric and ring holder specifications, etc. will be received from the vendor prior to issuing dosimeters to individuals
- Provide a statement of similarities/differences between the two extremity dosimeter types, e.g., TLD readout equipment, processing procedures, dosimetric specifications, ring holder specifications, dose algorithms, etc.
- The DOE field/site office representative must concur with the dosimetry program's amendment request before submitting it to the STM



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■ Summary

- Nine DOELAP accredited dosimetry programs use the Landauer U-Ring for extremity monitoring
- The Saturn Ring has previously demonstrated technical equivalence with the U-Ring dosimeter in subcategories IA, IIA, IIIA, and IIID
- The Saturn Ring is currently undergoing performance testing in subcategories IA, IIA, IID, IIIA, and IIID
- Letter must be signed by the affected accredited dosimetry program's management
- DOE field/site office representative must concur with the amendment request before submitting it to the STM
- STM reviews the amendment request to ensure it is complete
- DOELAP administrator issues an amended Conditions of Accreditation
- Affected dosimetry programs **must not issue** the Saturn Ring dosimeters to individuals until the program received the revised Conditions of Accreditation from the DOELAP Administrator



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