

TLD USAGE AND OBTAINING PERSONNEL DOSE HISTORY	Identifier: MCP-188 Revision*: 12 Page: 1 of 15
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Companywide	Management Control Procedure	For Additional Info: http://EDMS	Effective Date: 05/12/14
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Manual: 15B – Radiation Protection Procedure

USE TYPE 3Change Number: 342005

*The current revision can be verified on EDMS.

1. INTRODUCTION

1.1 Purpose

This procedure assures that for individuals who are monitored for radiation exposure in accordance with PRD-183, Article 511 (i.e., 10 CFR 835.402) sufficient information is obtained for proper identification and reporting of their exposure. The procedure also assures that a person's occupational radiation dose history from a non-Idaho National Laboratory (INL) location (NRF is considered a Non-INL location) is obtained in accordance with 10 CFR 835.702 (d) and (e). Personnel dosimeters are issued, returned and personnel dose history obtained in order to demonstrate that personnel exposures are below regulatory limits in accordance with the requirements of *Title 10 Code of Federal Regulations (CFR) Part 835*.

1.2 Scope and Applicability

This procedure provides guidance for issuing and returning TLDs required by radiological postings, Radiation Work Permit (RWP), Technical Work Documents as approved by Radiological Control (RC), and for the use of tour TLDs, as directed by project RC manager or RC Director.

NOTE 1: *RadCon personnel will specify on a Radiological Work Permit when additional TLDs are to be worn on the body or extremities, in accordance with MCP-189, "Multiple, Neutron and Extremity TLD Dosimeters."*

NOTE 2: *MCP-145, "Radiation Protection for Embryo/Fetus," discusses the use of additional TLDs for declared pregnant workers.*

2. RESPONSIBILITIES

Performer	Responsibilities
Project Radiological Control Manager/Designee	Exercise control over the issuance and return of TLD's and monitor the effectiveness of the program. Approve TLD issuers. For tours of non-INL personnel, determine if a TLD is required and specify any additional briefing topics for tour members.
Employee's Manager	Ensure employees return TLDs to a designated storage/exchange location at the end of a prescribed wear period and for routine storage of TLDs. Ensure terminating employee's TLD is returned to RDR or the FDC.

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Performer	Responsibilities
Facility Dosimetry Coordinator (FDC)	Control, issue and assist personnel in obtaining and returning the appropriate TLD in accordance with procedures. Notify RDR to transfer a permanent TLD to another designated storage/exchange location or when a permanent TLD is no longer required. Ensure appropriate forms are completed prior to issuing a TLD. Forward original hardcopy forms to RDR. Issue and Return Temporary/Visitor TLD's into SENTINEL. Issue and Return HPR (Special Processing Dosimetry).
Radiation Dosimetry and Records (RDR) Dosimetry Technician	Control and issue permanent dosimetry upon request to INL radiation workers in accordance with procedures.
Monitored Individual	Complete and return required forms, wear TLD in the prescribed manner, return TLDs to designated storage/exchange location for monthly and quarterly exchange and for routine storage of TLD.
RW trained escort or issuer of tour TLD	Coordinate visitor or tour dosimetry with the FDC, ensure all required forms are completed and returned by the visitor(s) prior to issuing dosimetry; ensure dosimetry issued to the visitor(s) is returned prior to departure; ensure tour members are briefed to the radiological requirements of the area to be entered; maintain a written log of personnel covered by tour TLD.
Subcontractor Technical Representative (STR) or CWI manager of staff augment subcontractor	Notify FDC of subcontractor terminations and request FDC to complete and submit Form 441.11 to terminate permanently assigned TLDs for subcontractor personnel when TLD is no longer needed.

3. PREREQUISITES

Issuers of TLDs are trained Radiological Control personnel or have been approved by the Project Radiological Control Manager.

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4. INSTRUCTIONS**4.1 Issuing TLDs**

NOTE 1: *Individuals will not be issued dosimetry or allowed entry into areas requiring dosimetry if he or she has received radiopharmaceutical treatments that would prevent effective monitoring for personnel exposure or radioactive contamination. See MCP-92, “Radiological Control of Personnel Administered Radiopharmaceuticals,” for additional information.*

NOTE 2: *Tours normally consist of non-INL personnel who enter RBAs infrequently and for short time periods when compared to site workers and are not likely to exceed the monitoring thresholds of PRD-183, Article 511. Minors, students, visitors and members of the public rarely receive measurable exposure during visits to ICP facilities and monitoring in accordance with 10 CFR 835.402 is generally not necessary. Therefore, the requirement for a TLD is handled on a case-by-case basis. If a TLD is necessary, these individuals may be badged individually with a Visitor TLD or may be covered using a “tour” badge assigned to the tour escort(s).*

NOTE 3: *Tours may consist of assigned INL personnel. The need for a TLD for assigned INL personnel must be assessed taking into consideration the potential for more frequent entries and for longer time periods when compared to tours of non-INL personnel vs. the likelihood for exceeding the monitoring thresholds of PRD-183, Article 511.*

NOTE 4: *Due to more restrictive reporting requirements, Special Individuals (e.g., DNFSB personnel) should be issued an individual Visitor TLD and not be covered under a Tour TLD when entering radiological areas.”*

NOTE 5: *RBA radiological postings include a statement “TLD required for unescorted access”. This statement is intended to be used in conjunction with the Project Radiological Control Manager review and approval for no TLD with a Radiological Worker escort.*

4.1.1 Project Radiological Control Manager/Designee: Control the issuance and return of TLDs.

4.1.1.1 Designate a FDC to issue and collect TLDs.

4.1.1.2 Approve designation of non-Radiological Control TLD issuers after ensuring appropriate training to comply with this procedure.

4.1.1.3 Ensure that TLDs and control TLDs are returned to RDR at the scheduled intervals.

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4.1.1.4 Ensure TLD storage areas are located in low background areas.

4.1.1.5 For tours with personnel entering a RBA, determine if (1) temporary TLDs are required for all tour participants, (2) a tour TLD is required for the tour (to be worn by Site personnel, or (3) TLD(s) are not required for tour members and document information in either a TLD issue log or tour log.

4.1.2 Employee's Manager: Initiate TLD requests and monitor employee TLD protocol.

NOTE: *Form #441.09 or equivalent must be completed in its entirety **PRIOR** to a permanent or temporary TLD being issued.*

4.1.2.1 To request a permanent TLD for an employee, request the area FDC to complete Form 441.11, "Permanent TLD Request."

NOTE: *Permanent TLDs can only be issued to an employee who is Rad Worker I or Rad Worker II trained or has been approved by the Project Radiological Control Manager/Designee.*

4.1.2.2 To request a temporary TLD, contact the FDC.

NOTE: *When issuing a temporary TLD and there is no INL site Security Number (S#) or International Passport Number (IPN) available, then have written on the back of the identification card the individual's Social Security Number (SSN). Insert the completed ID card into the temporary TLD where the back of the card is non-visible and the badge case becomes secured.*

4.1.2.3 Request FDC to notify RDR, by completing and submitting Form 441.11, to transfer a permanent TLD to a designated storage/exchange location based on the employee's assigned work location.

4.1.2.4 Ensure employees return TLDs to the designated storage/exchange location at the end of a prescribed wear period.

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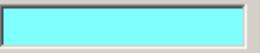
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- 4.1.2.5 Ensure a terminating employee's TLD is returned to RDR or the FDC within a week of termination. Request the FDC to terminate the employee's TLD in the system by completing and submitting Form 441.11.
- 4.2 Facility Dosimetry Coordinator / Designee: When a TLD is requested, control, issue and assist personnel in obtaining and returning the appropriate TLD.
- 4.2.1 Due to more restrictive reporting requirements, Special Individuals (e.g. DNFSB personnel) should be issued an individual Visitor TLD and not be covered under a Tour TLD when entering radiological areas.”
- 4.2.2 Issue a temporary (beta-gamma or beta-gamma-neutron) dosimeter by using the following steps.
- 4.2.3 In Sentinel, select the Rad Worker Management tab .
- 4.2.4 Select the “Open Individuals” tab .
- 4.2.5 Enter individuals S# or SSN.
- NOTE 1:** *FDC must verify that 441.09 has been completed and sent to Radiation Dosimetry and Records in order for the individual to receive a temporary TLD.*
- NOTE 2:** *If entering SS# change the “Search” tab to SSN/Other.*
- NOTE 3:** A permanent TLD is requested for an INL/Subcontracted employee who routinely enters radiation areas.
- NOTE 4:** A temporary TLD is issued to an INL/Subcontracted employee who does not routinely enter radiation areas.
- NOTE 5:** A visitor TLD is issued to a Non-INL/Non-Subcontracted employee.
- 4.2.6 Click the TLD Data tab to initiate TLD assignment



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4.2.7 Double click individual to populate the Site Info panel and then select the “TLD ASN” tab .

4.2.8 This will open up the TLD Assignment panel where you enter the TLD Number that you are issuing . Enter the

“Exposure Begin Date and time and the “Exposure End Date and time

Exposure Begin Date: 6 /18/2020 12:59:59 PM
Exposure End Date: 6 /30/2020 11:59:59 PM

. Then select “Assign”.  to issue TLD

NOTE: For temporary TLD’s the End Date will be the end of the month.

4.2.8.1 Insure that the TLD Type shown is either a BG (Beta-gamma) or BGN (Beta-Gamma-Neutron) as appropriate to the type of dosimeter being assigned to the employee.

4.2.8.2 When issuing a beta-gamma-neutron dosimeter manually document the assignment of the assigned FNCF on Form 441.12, “Request For Special Dosimetry Processing,” for each individual.

4.2.8.3 Record the Panasonic dosimeter ID#, facility where neutron dosimeter is being issued and worn, and employee S# in programmed application for assigning FNCFs for a temporary BGN assignment in Sentinel.

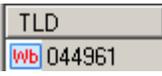
4.2.9 HPR Processing

4.2.9.1 For Special Processing the FDC must return the permanent Dosimetry and re-issue a new dosimeter using the following steps.



4.2.9.2 In Radworker Management Panel , select the “Open Individuals” tab , and enter the individuals S# and double click on their name.

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4.2.9.3 Select TLD Data  and double click the TLD that is being returned. At the top of the screen select RTN tab .

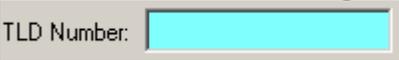
4.2.9.4 Enter the Return Date and Time, Comments if necessary, and Return Type .

4.2.9.5 Click on RETURN TLD .

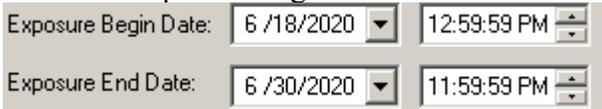
NOTE: *All facilities are issued 5 dosimeters to be used during the quarter as replacement TLD's for permanently badged individuals who require special processing.*

4.2.9.6 Issue a replacement TLD by Selecting ASN  a TLD Assignment box will pop open.

4.2.9.7 Enter the TLD number of the replacement

TLD 

4.2.9.8 Enter the Exposure Begin and End Date



, then select “Assign”  to issue TLD

NOTE: *Permanently badged individuals are on a quarterly wear period so the End Date should be for the quarter.*

4.2.10 Permanent/Temporary TLD Request.

4.2.10.1 Verify ICP employees requesting a Permanent/ Temporary TLD be trained as Rad Worker I or Rad Worker II, or have been approved by the Project Radiological Control Manager/Designee.

4.2.10.2 Request the employee complete ICP form 441.09 or equivalent, review for completeness and forward the original to RDR.

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- 4.2.10.3 Request the employee complete ICP form 441.A10 (or equivalent), review for completeness and forward the original to RDR.
- 4.2.10.4 If the individual will require a *neutron ALBEDO TLD* (see def.), a *facility neutron calibration factor (FNCF)* (see def.) must be established for the appropriate area/source prior to issuing the TLD. If a FNCF has not been established for a neutron source configuration, arrangements can be made with the RDR organization for assistance in determining a FNCF for that neutron area/source. A *Permanent TLD* (see def.) may be issued to an individual who is expected to receive radiation exposure upon meeting all of the following criteria:
- Authorized by their manager to receive a TLD by completion and approval of Form 441.11
 - Rad Worker I or II qualified or has received authorization from the Project Radiological Control Manager/Designee in lieu of training
 - Form 441.09 completed and forwarded to RDR.
- 4.2.10.5 If 441.09 indicates internal exposure, verify 441.A10 has been completed.
- 4.2.11 A *Temporary TLD* (see def.) may be issued to an INL employee or INL subcontracted employee who requires short-term or temporary access to a facility. A temporary TLD is issued for limited duration (normally one day or as authorized by the Project Radiological Control Manager/Designee) upon meeting all of the following criteria:
- Authorized by their manager to receive a TLD
 - Rad Worker I or Rad Worker II qualified or as authorized from the Project Radiological Control Manager/Designee to use an escort in lieu of training
 - Form 441.09 has been completed or is on record at RDR or Project dosimetry office that accurately reflects occupational exposure history.
- 4.2.11.1 A “Tour” TLD may be issued to a Site employee for additional documentation that touring individuals are not

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likely to exceed the monitoring thresholds of PRD-183, Article 511.

4.2.11.2 A “Tour” TLD is issued for limited duration (normally one day or as authorized by the Project Radiological Control Manager/Designee) upon meeting all of the following criteria:

- Authorized by the Project Radiological Control Manager/Designee to receive a TLD
- Rad Worker Escort is available or identified to the issuer
- For the Site employee wearing the “Tour” TLD, Form 441.09 has been completed or is on record at RDR or Project dosimetry office that accurately reflects occupational exposure history. Any previously assigned dosimetry should be removed while the employee wears the “Tour” TLD.
- Tour members have completed entry of their information on Form 441.A15 “Dosimetry Tour Log” (See Appendix A for example) or equivalent
- Note “Tour” at the top of the Temporary TLD card insert. Do not obscure personnel identification
- Tour member receive orientation from an escort knowledgeable of radiological controls following radiological control checklist for tours 441.A28.

4.2.11.3 Initiate Form 441.11 to terminate an employee’s TLD upon request of the individual or their management. Return any terminating employee’s TLD submitted to the FDC to RDR within a week of termination notification.

4.2.11.4 Upon notification that a TLD has been lost, return it in SENTINEL.

4.2.12 Visitor TLD request.

4.2.12.1 If the individual is a “Visitor” (Non-INL/Non-Subcontracted employee), complete Form 441.09A. The “Visitor” TLD may be issued with additional documentation that individuals are not likely to exceed the monitoring

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thresholds of PRD-183, Article 511. A “Visitor” TLD is only issued for limited duration (normally one day or as authorized by the Project Radiological Control Manager/Designee).

4.2.12.1.1 For Visitor’s (Non-INL/Non-Subcontracted employees) the SSN, IPN or previous S# is the only acceptable identifying numbers allowed. Visitor security badge numbers are not acceptable since they are reused.

4.2.12.1.2 If a visitor obtaining a visitor TLD refuses to provide a SSN, IPN or previous S#, do not issue the TLD. Notify the visitor that the areas to be visited will have to change since a TLD cannot be issued.

4.2.13 Radiation Dosimetry and Records (RDR) Dosimetry Technician:
Control and issue dosimetry.

4.2.13.1 Verify that the individual’s exposure history form 441.09 is adequately completed and enter into SENTINEL per MCP-9324.

4.2.13.2 Issue permanent dosimetry only to those who have satisfactorily reported previous non INL occupational radiation exposure history or an estimate of that exposure has been provided.

4.2.13.3 Prepare the TLD, and send the completed TLD to the appropriate facility for placement in the designated storage rack.

4.2.13.4 Initiate, receive and maintain prior occupational radiation exposure information received from previous employers per MCP-9324, “Offsite Dose Recording”.

4.2.14 Monitored Individual: Comply with the following:

4.2.14.1 Complete and return required forms to requestor.

4.2.14.2 When entering an area requiring a TLD, wear the TLD facing away from, and on the front of, the body between the neck and waist, unless RadCon personnel specify a different location.

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4.2.14.3 Notify RDR of any additional occupational exposure received from non-INL facilities either; while employed at the INL, or upon returning to the INL from a break in employment.

4.2.15 Rad Worker Trained Escort and/or TLD issuer

4.2.15.1 Coordinate visitor or tour dosimetry with the FDC or approved issuer of tour TLD.

4.2.15.2 Ensure all required forms (441.09 and 441.A15) are completed and returned by the visitor (s).

4.2.15.3 For a minimum of one year, maintain a written log of all personnel escorted under the tour TLD that provides the necessary detail to contact individuals in the event TLD results of the tour TLD are to be assigned to the tour members. Appendix A provides an example of the information required.

4.2.15.4 Ensure tour members are briefed on the radiological requirements of the area to be entered using Form 441.A28.

4.2.15.5 Ensure dosimetry issued to the visitor(s) is returned prior to departure. Return dosimetry to RDR within a week.

4.3 Storage and Return of Dosimetry

NOTE: *Control TLDs are used to correct an individual's TLD for non-occupational background exposure for times when the TLD is not worn. Return of dosimetry to the same exchange/storage location allows for a more accurate non-occupational dose adjustment.*

4.3.1 Employee: During a wear period, return the TLD at the end of each day, to an approved TLD exchange/storage location (i.e., badge rack, exchange suitcase). However, if the TLD is NOT a neutron TLD and needs to be used at another facility the next day, it is acceptable for the employee to take the TLD home to be used at the other facility.

4.3.2 Employee Manager: Recognize TLD exchange frequencies and take necessary measures to ensure employees return TLDs at the end of a wear period.

4.3.3 Employee Manager: Notify the FDC when an employee has terminated or no longer requires a TLD. Ensure the terminating employee's TLD is returned to RDR or the FDC within a week of termination.

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5. RECORDS

Form 441.09, “TLD Request Questionnaire”

Form 441.09A, “Visitor TLD Request Questionnaire”

Form 441.A10, “New Hire Baseline Bioassay Screening Worksheet”

Form 441.11, “Permanent TLD Request”

Form 441.12, “Request for Special Dosimetry Processing”

Form 441.A15, “Dosimetry Tour Log”

NOTE: [MCP-557, “Records Management,”](#) the [INL Records Schedule Matrix](#), and associated [record types list\(s\)](#) provide current information on the storage, turnover, and retention requirements for these records.

6. DEFINITIONS

Facility Neutron Calibration Factor. A source specific calibration factor is established through neutron instrumentation field measurements that have been taken in proximity and in geometry/scatter conditions where an individual is likely to become exposed to a neutron source.

Member of the Public. An individual who is not a general employee. An individual is not a “member of the public” during any period in which the individual receives an occupational dose.

Neutron ALBEDO TLD. An additional thermoluminescent dosimeter attached to the Top of the Panasonic case. The ALBEDO dosimeter together with a facility neutron calibration factor (FNCF) is used to interpret neutron dose.

Permanent TLD. A thermoluminescent dosimeter issued by Dosimetry and assigned to the individual.

Special Individuals. A person employed by DOE Headquarters, a contractor supporting DOE Headquarters or Field Office activities, a Defense Nuclear Facilities Safety Board employee or contractor, or an International Atomic Energy Agency inspector who visits a DOE or DOE contractor site or facility to conduct Department – related business (DOEM231.1-1A, “Environment, Safety and health Reporting Manual”)

Temporary TLD. A thermoluminescent dosimeter issued by the FDC at the facility using the “Temporary Dosimetry Card”. The temporary TLD is normally issued for the duration of that day, but may be authorized for the duration of the month or quarter by

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the Project Radiological Control Manager/Designee. Temporary TLD use should be restricted to as short of duration as possible.

Tour TLD. A thermoluminescent dosimeter issued to and worn by the trained escort assigned to the tour. Non-employee individual who will access areas controlled for radiological purposes.

Visitor TLD. A thermoluminescent dosimeter issued to a person not employed or subcontracted by an INL entity that will access areas controlled for radiological purposes.

7. REFERENCES

Title 10, Code of Federal Regulations, Part 835, Occupational Radiation Protection

Form 441.A28, Radiological Orientation Checklist for Members of the Public

ICP Radiological Control Manual, PRD-183, Current Revision

8. APPENDIXES

Appendix A, Example Tour Log

Appendix B, Procedure Basis

9. ATTACHMENTS

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Appendix A

Example Tour Log

441.A15
09/30/2008
Rev. 00

DOSIMETRY TOUR TLD LOG

For Use With MCP-188

When completed, this form contains Privacy Act Information

DATE:	ESCORT NAME:	ESCORT SIGNATURE:	ESCORT S#		
THE INFORMATION BELOW IS REQUIRED FOR ALL INDIVIDUALS ON A TOUR REQUIRING A TLD					
Facility Dosimetry Coordinator (FDC) Name:		FDC Phone #			
Tour #	Tour Contact Name:	Contact Phone #:			
Name Last, First, MI (please print) Individual who wore TLD place in row # one and TLD #	Social Security Number, INL S Number or International Passport No.	DOB	Gender	U.S. Citizen Y/N	Individual's Personal Mailing Address (no Company addresses allowed)
1. Escort:	TLD #				
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
Comments					

THIS FORM IS REQUIRED FOR ALL TOUR GROUPS REQUIRING A TLD AND MUST BE SENT TO DOSIMETRY AT MS 4147.
This information is subject to the Privacy Act of 1974 (5 USC Sec. 552a). Further distribution or release, except as permitted or required by the Act, could result in criminal penalties.

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Appendix B

Procedure Basis

Step	Basis	Source	Citation
4.1	Issuing thermoluminescent dosimeters (TLDs)	10 CFR 835.402 ICP RCM, Article 511	
4.2	Obtaining Personnel Dose History	10 CFR 835.202, 835.205 § 835. 702 ICP RCM, Article 721	
4.3	Storage and Return of Dosimetry	ICP RCM, Article 511	