

Participant: \_\_\_\_\_

**Part 1 - General and Programmatic**

General Requirements	Fulfilled? Y, N, N/A	Evidence of Conformance and Notes
G.1 (G.3) Latest version of TBM and QA manual		
G.2 (R.1) The QA manual must outline practices for handling and resolving contested dosimetry data and test reports.		
G.3 (G.1) Latest version of protocols or procedures		
G.4 (G.2) Latest version of dosimeter specifications		
G.5 (G.4) Latest version of equipment manuals		
G.6 (E.1) List of equipment and facilities available for review		
G.7 (G.5) Other pertinent documentation		LLC angular dependency studies etc
G.8 (P.1) Functional organization consistent with organization chart for personnel dosimetry		May be some questions when part of a person's time is matrixed to the program.
G.9 (P.9) No apparent conflicts of interests in organizational structure		QC person should report to upper management and not to the program lead.

**DOELAP On-Site Assessment Requirements Checklist**

**Participant:** \_\_\_\_\_

General Requirements	Fulfilled? Y, N, N/A	Evidence of Conformance and Notes
<b>Proficiency Testing</b>		
G.10 (T.1) Protocols for proficiency testing in accordance with the DOE Standard must be defined and be consistent with routine processing procedures.		Test dosimeters are to be taken randomly from the general pool of badges to be issued and are to be processed according to routine processes. Procedures for each require processing in the same manner.
G.11 (T.2) A written test plan for each radiation category for which accreditation is sought must be available to the processing staff.		

## DOELAP On-Site Assessment Requirements Checklist

Participant: \_\_\_\_\_

Calibration	Fulfilled? Y, N, N/A	Evidence of Conformance and Notes
C.1 (C.1) Calibration and verification practices for dosimetry systems must be outlined in the QA manual (or supporting documents) identifying the calibration services, reference materials and measurement assurance programs. Including responsible person(s).		Documents should define calibration frequency, calibration acceptance criteria, procedures for performing calibrations. Also look for sign off by lead or manager. Is there a maintenance logbook for each piece of equipment?
C.2 (C.2) Dosimetry systems must be calibrated to known doses in standard source geometries which are traceable to national standards by instrument calibrations or source activity.		Is there documentation for the irradiation source. Cal freq of source should be documented
C.3 (C.3) Calibration protocols must be appropriate for the sources of radiation at the facility and potential exposure levels.		Calibration process and tech basis behind it.
C.4 (C.4) Energy response of each type or model of dosimeter must be characterized through calibrations and the response determined over the exposure range for which it is to be used.		Do they do this for each type of dosimetry used at the site?
C.5 (E.12) Calibration verified at regular intervals and equipment reliability verified (processor w/ oversight)		Are there maintenance contracts in place or regular servicing done? Are cals verified during reading sessions?

## DOELAP On-Site Assessment Requirements Checklist

Participant: \_\_\_\_\_

Calibration	Fulfilled? Y, N, N/A	Evidence of Conformance and Notes
C.6 (E.7) Controls ensure that accuracy and precision maintained and corrected in a timely manner when out of specifications (includes oversight)		Are controls / blanks run in every batch? What flags or notifies when out of spec? Who checks?
C.7 (E.6) Equipment identified sufficiently to correlate calibration records		Unique Name or number used to identify which reader results came from.
C.8 (E.8) Maintenance/repair records available for each piece of equipment		Logbook for each piece of quip or database?
C.9 (E.11) Calibration records include: Equipment description; Mfr's name; model, s/n, etc.; calibration; range of doses for calibrations; allowable error; schedule for maintenance; date of last calibration; ID of responsible person; ID of reference standard. (processor – but must have oversight)		Look at calibration report to verify.
C.10 (E.12) Calibration verified at regular intervals and equipment reliability verified (processor w/ oversight)		Signed off by QA mgr or team lead? Not signed by operator that performed.

Participant: \_\_\_\_\_

**Part 2 - Staff Interviews and Demonstrations**

<b>Program Lead / Senior Technical Manger</b>	<b>Fulfilled? Y, N, N/A</b>	<b>Evidence of Conformance and Notes</b>
PL.1 (P.3) Technically responsible person exhibits adequate technical knowledge and management control		
PL.2 (P.2) Qualifications for the technically responsible person consistent with position description		Look at PD
PL.3 (P.10) Individual designated to assign duties and ensure timely processing		Is this control within the group? Or needs upper mgt approval?
PL.4 (P.11) Responsibility for maintenance and calibration must be clearly assigned (If applicable)		Everyone should know who does this
PL.5 (P.16) Routine competence review based on performance and/or written examinations (should be annual)		STM should be performing these reviews (ideally). How do you track it?
PL.6 (P.17) Competency review records available		
PL.7A (PR5) The individual technically responsible for dosimetry processing (or delegate) must approve dosimetry data and make decision regarding questionable data. (When processing is done in house or GOTO PL.7B below)		Is it documented who makes the call? What is the approval process?

**DOELAP On-Site Assessment Requirements Checklist**

**Participant:** \_\_\_\_\_

<b>Program Lead / Senior Technical Manger</b>	<b>Fulfilled? Y, N, N/A</b>	<b>Evidence of Conformance and Notes</b>
<p>PL.7B (P.4) The technically responsible person ensures that dosimetry data are approved (includes oversight)</p>		<p>Lead or STM reviews dose records before assigning dose to worker (even if vendor supplied results)</p>
<p>PL.8 (R.1) The QA manual must outline practices for handling and resolving contested dosimetry data and test reports. (Also on QA/QC interview list)</p>		<p>What is the process? Who investigates? Who makes final decision? Different than questionable results from process. (Contested by worker, org., vendor etc.)</p>

**DOELAP On-Site Assessment Requirements Checklist****Participant:** \_\_\_\_\_

<b>Technicians</b>	<b>Fulfilled? Y, N, N/A</b>	<b>Evidence of Conformance and Notes</b>
TE.1 (Q.1) Technicians familiar with and implement quality control program		
TE.2 (PR2) Processing personnel must adhere to procedures.		
TE.3 (P.12) Staff must be knowledgeable regarding equipment and must be competent in performing duties (processor)		
TE.4 (P.8) Communications between technical and supervisory staff adequate		

**DOELAP On-Site Assessment Requirements Checklist****Participant:** \_\_\_\_\_

<b>QA/QC Manager and Program</b>	<b>Fulfilled? Y, N, N/A</b>	<b>Evidence of Conformance and Notes</b>
Q.1 (P.5) Qualifications for person with QA responsibilities consistent w/ position description		
Q.2 (Q.6) QA system clearly describes records and practices through entire dosimetry cycle		
Q.3 (P.6) Responsibility for maintaining and revising QA Manual clearly assigned		
Q.4 (Q.4) Records of laboratory's participation in intercomparison programs/external measurement assurance programs consistent with QA manual		
Q.5 (Q.8) QA program incorporates external checks including: processing controls, blind-audit dosimeters, unexposed dosimeters		
Q.6 (Q.2) Quality control program organized to assess variability of test results among staff (processor) – if applicable to the system		
Q.7 (Q.9) Comprehensive records of processing activities exist		
Q.8 (Q.5) Comparative tests assess consistency of dosimetry data		

**DOELAP On-Site Assessment Requirements Checklist**

**Participant:** \_\_\_\_\_

<b>QA/QC Manager and Program</b>	<b>Fulfilled? Y, N, N/A</b>	<b>Evidence of Conformance and Notes</b>
Q.9 (Q.3) Supervisor examines all required QA system audit results, takes action to correct deficiencies (processor and oversight)		
Q.10 (R.1) The QA manual must outline practices for handling and resolving contested dosimetry data and test reports. (Also on Tech Mgr/ Prog Lead interview list)		
Q.11 (Q.7) Records of deviations from documented processing procedures, equipment or facilities demonstrate no degradation of performance		
Q.12 (P.7) PD staff implement documented QA program (judgment call based on observation)		

**DOELAP On-Site Assessment Requirements Checklist**

**Participant:** \_\_\_\_\_

<b>Training Coordinator/Responsible Staff (cross ref to STM and Tech interview)</b>	<b>Fulfilled? Y, N, N/A</b>	<b>Evidence of Conformance and Notes</b>
TR.1 (P.13) QA manual (or other controlled document*) describes practices for ensuring staff competence		
TR.2 (P.14) QA manual* describes training program		
TR.3 (P.18) Training program includes: supervision while training; progress evaluation and communication and correction of performance deficiencies (processor)		
TR.4 (P.19) Training consistent with assigned responsibilities		
TR.5 (P.15) QA manual* provides for retraining when procedures are revised		
TR.6 (P.20) Training records must be available		
<i>* Note that the QA Manual describes the overall training program, but another controlled document may have the detailed requirements</i>		

Participant: \_\_\_\_\_

**Part 3 - Technical Assessment**

<b>General Dosimeter Practices (Applies to all programs)</b>	<b>Fulfilled? Y, N, N/A</b>	<b>Evidence of Conformance and Notes</b>
D.1 (D.5) Dosimetry system documentation includes a design specification		Y/N
D.2 (D.11) Screening procedure used to ensure dosimetry materials are consistent with dosimeter design		Do they have a procedure? What are acceptance criteria?
D.3 (PR13) The useful dose range for the dosimetry system must be established and documented in each radiation category of interest.		Look for documentation
D.4 (D.13) Same dosimeter type/model and sensitive elements used during proficiency testing used to assess occupational exposures. This should be CAREFULLY verified. Ask the STM for photographs if necessary.		Performance Testing dosimeters are supposed to come from the pool to be issued to workers
D.5 (D.1) Practices and procedures for receiving, handling and storing dosimeters before they are issued are consistent with QA manual	Note for Dave: Get photos of internals or have participant send one	Look at documentation and look for holes in the process.
D.6 (D.6) Procedure for checking proper assembly of dosimeter cards or film packets documented??? (badge assembly and break down inspection / acceptance criteria etc)		Are acceptance criteria established, how many do they check, how often is this done? Should include verifying configuration.

## DOELAP On-Site Assessment Requirements Checklist

Participant: \_\_\_\_\_

General Dosimeter Practices (Applies to all programs)	Fulfilled? Y, N, N/A	Evidence of Conformance and Notes
D.7 (D.2) Positive system for identifying and tracking all dosimeters must be in use		Look at their system, database, etc.
D.8 (D.4) Sufficient information contained in dosimeter identification code to allow correlation with record system		How is it matched to the wearer?
D.9 (D.16) Location of dosimeters within the laboratory must be documented	End point	(are the approved storage location appropriate-bkg, segregated according to stage of process, anneal etc) Y/N
D.10 (D.10) Dosimeters placed in service are checked according to defined schedule or frequency to ensure all necessary components are in place		Screening process? DISCUSS
D.11 (D.17) Environmental parameters including background radiation, must be monitored to ensure adequate storage conditions (contractor, vendor and oversight)		Environmental dosimeters as well as control badges

**DOELAP On-Site Assessment Requirements Checklist**

**Participant:** \_\_\_\_\_

<p align="center"><b>General Dosimeter Practices (Applies to all programs)</b></p>	<p align="center"><b>Fulfilled? Y, N, N/A</b></p>	<p align="center"><b>Evidence of Conformance and Notes</b></p>
<p>D.12 (R.2) The dose report (initial report from dosimetry processor or other records) must include: Processor name and address if different from contractor; name of contractor; pertinent dates and identification of dosimeters, including processor and contractor identification codes; an explanation of any deviation from routine processing procedures if the deviation could affect the reported dose and the signature of or reference to the person with technical responsibility.</p>		<p>Observe the dose report record for all parameters. Pertinent dates would be the wear period or the quarter, etc.</p>

**DOELAP On-Site Assessment Requirements Checklist**

**Participant:** \_\_\_\_\_

<p align="center"><b>Dosimeter Processing and Vendors (Applies only to processors)</b></p>	<p align="center"><b>Fulfilled? Y, N, N/A</b></p>	<p align="center"><b>Evidence of Conformance and Notes</b></p>
<p>D.13 (E.2) Dosimetry equipment appropriate (processor)</p>		
<p>D.14 (E.4) Means for acquiring and maintaining processing resources</p>		<p>Who is authorized? Purchasing process, etc.</p>
<p>D.15 (E.9) Service contracts or in-house maintenance and spare parts capabilities ensure continuity of service (see E.5)</p>		<p>How often is equipment serviced, are there back up equipment and parts? Does equipment need to be shipped off site for repairs?</p>
<p>D.16 (D.3) Satisfactory acceptance criteria for all dosimetry materials established and documented in QA manual</p>		<p>Y/N What is turnaround time if a batch is rejected?</p>
<p>D.17 (D.8) Procedure established to verify dosimeter holders meet required specifications (one-time type test for new holders)</p>		<p>New holders would need to be tested to demonstrate technical equivalency according to scope of accreditation</p>
<p>D.18 (D.7) Documented procedures to verify: filter materials are consistent with the dosimeter design and filters are properly placed (one time type test for new dosimeters)</p>		<p>Look at procedures and record of results</p>
<p>D.19 (D.12) Identification system adequate to ensure correct identification of both demountable and fixed TL elements. Also, identify association of each TL element with position or filter in dosimeter.</p>		<p>DISCUSS</p>

**DOELAP On-Site Assessment Requirements Checklist**

**Participant:** \_\_\_\_\_

<p align="center"><b>Dosimeter Processing and Vendors (Applies only to processors)</b></p>	<p align="center"><b>Fulfilled? Y, N, N/A</b></p>	<p align="center"><b>Evidence of Conformance and Notes</b></p>
<p>D.20 (D.15) Person must be assigned responsibility for receipt of dosimeters. Procedure includes: dosim. identification, dosim. type, processing protocol, identification of internal and external control dosimeters, mechanism for tracking individual dosimeters and sensitive elements through the process cycle, mechanism for identifying missing and lost dosimeters, method for screening for contamination prior to readout, method for identifying mishandled control dosimeters</p>		<p>Accountability? Chain of custody? System flags for missing badges? Etc.</p>
<p>D.21 (E.5) Written backup plan must exist. Procedures for backup equipment should be in place ensure continuity of service in event of system failure. Testing is desirable.</p>		<p>If backup processor is off site, are there procedures for shipping dosimeters? How do they get data? Input data back into their system? QA checks? Has it been tested?</p>
<p>D.22 (PR7) Computational models must be adequate for the processor's dosimetry system.</p>		<p>DISCUSS</p>
<p>D.23 (PR6) The dosimetry algorithm must be documented including: retrievable fundamental data; uncertainty analysis; process controls and attributes and limitations.</p>		<p>Documented and named so we can identify that it is the algorithm used for testing/accreditation also is it periodically hand checked for accuracy?</p>

## DOELAP On-Site Assessment Requirements Checklist

Participant: \_\_\_\_\_

<b>Dosimeter Processing and Vendors</b> <b>(Applies only to processors)</b>	<b>Fulfilled?</b> <b>Y, N, N/A</b>	<b>Evidence of Conformance and Notes</b>
D.24 (PR9) Use of quality control dosimeters shall include: calibration traceability; sources; reproducibility; evaluation of QC data at the appropriate management level; frequency of blank and QC dosimeter placement. Every run should have blind audit dosimeters – or some mechanism to identify problems routinely.		Are QC irradiations done with traceable source? Signed off by mgt? Blanks and controls run with each batch?
D.25 (P10) Dose of QC dosimeters must be traceable to a national reference standard.		Who performs? Source certificate?
D.26 (PR11) Procedure exists for a review of data produced between the last successful QC dosimeter and the first QC dosimeter failing to meet control limits.		Look at method as well as notification process
D.27 (PR8) All protocols must be audited to ensure no degradation of performance occurs.		Internal audits? Records? Frequency
D.28 (PR14) Control limits to accept dose measurement data from in-service dosimeters must be defined and implemented.		Documentation System flags?
D.29 (PR1) Processing protocol must be documented in sufficient detail that it can be followed by a competent technician.		Documentation. Is it readily available where processing is taking place?

**DOELAP On-Site Assessment Requirements Checklist****Participant:** \_\_\_\_\_

<b>Dosimeter Processing and Vendors (Applies only to processors)</b>	<b>Fulfilled? Y, N, N/A</b>	<b>Evidence of Conformance and Notes</b>
D.30 (PR3) A comprehensive record of processing activities must be maintained. The record must provide correlation with calibration and control system records and must be available for inspection.		
D.31 (PR12) Dose measurements must be identified and recorded at the time of measurement.		
D.32 (D.14) Information available concerning processed dosimeters includes: radiation type, dose definition, responsibility for handling dose of record, calibration procedures used in dose determination, quality control, special processing procedures used as part of dosimetry service, directions for handling and using background control dosimeters and identification of anomalies		
D.33 (PR15) The technical director or designee must review dosimeter data for anomalies before reporting the dose.		Sign off sheet / official record

Participant: \_\_\_\_\_

**Part 4 - Specific Dosimeter Types**

<b>Luminescent Dosimeters</b>	<b>Fulfilled? Y, N, N/A</b>	<b>Demonstration of Conformance</b>
TD.1 Processing and annealing equipment appropriate		
TD.2 Written procedures exist and responsibility designated for verifying appropriate instrument operating conditions		
TD.3 Method for removing sensitive elements from the dosimeter case implemented and documented		
TD.4 TLD/OSL reader operation and stability verified daily using exposed dosimeters or light source. Records indicate that dose measurements made only with stable equipment.		
TD.5 Sufficient measurements to establish relationship between TL/OSL emission and dose		
TD.6 Technicians understand operating conditions and critical functions of TLD/OSL processing equipment		
TD.7 Procedures for loading and unloading TL/OSL reader implemented		

**DOELAP On-Site Assessment Requirements Checklist**

**Participant:** \_\_\_\_\_

<b>Luminescent Dosimeters</b>	<b>Fulfilled? Y, N, N/A</b>	<b>Demonstration of Conformance</b>
TD.8 Processing protocol includes reviewing selected dosimetry data during processing (can be automated)		
TD.9 Phosphors subject to adequate annealing cycle and annealing cycle reproducible		
TD10 Background readings checked according to established procedure before dosimeters issued (anneal issue)		
TD11 Precautions taken to minimize exposure of light-sensitive luminescent materials to light		
TD12 Precautions taken to avoid element contamination		
TD13 Loading sensitive elements carried out in a well-defined order		
TD14 TLDs/OSLs packaged to prevent damage and unknown exposure during transit (during in-house transit as well as during long-distance shipment)		
TD15 Luminescent material fading under normal conditions documented and accounted for the period of intended use		

**DOELAP On-Site Assessment Requirements Checklist**

**Participant:** \_\_\_\_\_

<b>Luminescent Dosimeters</b>	<b>Fulfilled? Y, N, N/A</b>	<b>Demonstration of Conformance</b>
TD16 TL material capable of withstanding heat treatment required during processing		

**DOELAP On-Site Assessment Requirements Checklist****Participant:** \_\_\_\_\_

<b>Solid State Track Etch Dosimeters</b>	<b>Fulfilled? Y, N, N/A</b>	<b>Demonstration of Conformance</b>
S.1 Written procedures exist and are current for the acceptance testing, setup, calibration and processing of track etch foils and equipment		
S.2 Etching temperature accurately controlled or calibrated		
S.3 Etch chambers checked for proper seating (ECE)		
S.4 Etch chamber seals checked and replaced periodically (ECE)		
S.5 Etch information documented <ul style="list-style-type: none"> <li>a. Process Run ID</li> <li>b. Date</li> <li>c. ID # for each track etch foil</li> <li>d. Exposure information</li> <li>e. Processing technician (if applicable)</li> </ul>		
.6 Standard foils exposed to known neutron doses (including unexposed) in each etch batch		
S.7 Protective covers removed before etching (ECE)		

**DOELAP On-Site Assessment Requirements Checklist****Participant:** \_\_\_\_\_

<b>Solid State Track Etch Dosimeters</b>	<b>Fulfilled? Y, N, N/A</b>	<b>Demonstration of Conformance</b>
and ID #s transferred to ensure accurate records		
S.8 For electrochemical etch, QA assures low incidence of electrical shorts during etch runs		
S.9 Etch chamber assembled properly and consistently		
S.10 Etchant used at consistent normality and temperature and is replaced periodically or compensation is used		
S.11 Etching parameters are consistently monitored for uniformity		
S.12 Procedures exist for detection and recovery from failure during etch process		
S.13 Foils cleaned and dried prior to reading		
S.14 Track etch counting equipment properly calibrated and used		
S.15 Track etch foils consistently positioned at proper orientation when read and sufficient readings taken to assure accuracy		
S.16 QA records complete for etched foils		

**DOELAP On-Site Assessment Requirements Checklist****Participant:** \_\_\_\_\_

<b>Solid State Track Etch Dosimeters</b>	<b>Fulfilled? Y, N, N/A</b>	<b>Demonstration of Conformance</b>
S.17 Each batch of foil material tested for sensitivity and consistency		
S.18 Material acceptance procedures and dose assignment procedures used to maintain consistency within adequate limits of acceptability		

**DOELAP On-Site Assessment Requirements Checklist**

**Participant:** \_\_\_\_\_

<b>OSL Dosimeters</b>	<b>Fulfilled? Y, N, N/A</b>	<b>Demonstration of Conformance</b>
OSL.1 Processing and annealing equipment appropriate. Specific attention to light source spectrum and filtration of stimulation and emission light		
OSL.2 Written procedures exist and responsibility designated for verifying appropriate instrument operating conditions		
OSL.3 Method for removing sensitive elements from the dosimeter case implemented and documented		
OSL.4 Operation and stability of OSL readers verified prior to use with both exposed/unexposed dosimeters by measurement of the system internal parameters (i.e. PMT sensitivity, dark counts, and light source counts) . Records indicate that dose measurements are made after equipment has stabilized		
OSL.5 Sufficient measurements to establish relationship between OSL emission and dose		
OSL.6 Technicians understand operating conditions and critical functions of OSL processing equipment		

**DOELAP On-Site Assessment Requirements Checklist****Participant:** \_\_\_\_\_

<b>OSL Dosimeters</b>	<b>Fulfilled? Y, N, N/A</b>	<b>Demonstration of Conformance</b>
OSL.7 Procedures for loading and unloading OSL reader exist, are current and implemented		
OSL.8 Processing protocol includes reviewing selected dosimetry data during processing		
OSL.9 Phosphors subject to adequate annealing cycle and annealing cycle reproducible		
OSL.10 Background readings checked according to established procedure before dosimeter issued		
OSL.11 Precautions taken to minimize exposure of light-sensitive OSL materials to light after exposure		
OSL.12 Annealing system lights tested at defined intervals to ensure adequate annealing		
OSL.13 Annealing system lights contain adequate shielding of ultraviolet light		
OSL.14 Depletion of signal documented as a function of reads for all methods of counting		

**DOELAP On-Site Assessment Requirements Checklist**

**Participant:** \_\_\_\_\_

<b>OSL Dosimeters</b>	<b>Fulfilled? Y, N, N/A</b>	<b>Demonstration of Conformance</b>
OSL.15 OSL material fading under normal conditions documented and accounted for the period of intended use		
OSL.16 Verification of crossover point between stimulation light sources		
OSL.17 Control of ambient light spectrum in areas with un-protected dosimeter material enforced		
OSL.18 Document dosimeter material sensitivity determination and control		
OSL.19 Annealing effectiveness should be documented and verified on a defined frequency		

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Assessor

\_\_\_\_\_  
Date