


Date Received for Clearance Process (MM/DD/YYYY) <u>04/20/2011</u>	INFORMATION CLEARANCE FORM	S		
A. Information Category <input type="checkbox"/> Abstract <input type="checkbox"/> Journal Article <input type="checkbox"/> Summary <input type="checkbox"/> Internet <input type="checkbox"/> Visual Aid <input type="checkbox"/> Software <input type="checkbox"/> Full Paper <input type="checkbox"/> Report <input checked="" type="checkbox"/> Other <u>Site Wide Document</u>	B. Document Number <u>DOE-0358, Rev 0 (TPD-0047)</u>			
C. Title <u>Hanford Radiological Control Technician Training & Qualification</u>				
D. Internet Address				
E. Required Information (MANDATORY) 1. Is document potentially Classified? <input checked="" type="radio"/> No <input type="radio"/> Yes <u>M.E. Brown (See Pg. 2)</u> Manager Required (Print and Sign) If Yes <u>ADC Required (Print and Sign)</u> <input checked="" type="radio"/> No <input type="radio"/> Yes Classified 2. Official Use Only <input checked="" type="radio"/> No <input type="radio"/> Yes Exemption No. _____ 3. Export Controlled Information <input checked="" type="radio"/> No <input type="radio"/> Yes OOU Exemption No. 3 4. UCNi <input checked="" type="radio"/> No <input type="radio"/> Yes 5. Applied Technology <input checked="" type="radio"/> No <input type="radio"/> Yes 6. Other (Specify) _____	7. Does Information Contain the Following: a. New or Novel (Patentable) Subject Matter? <input checked="" type="radio"/> No <input type="radio"/> Yes If "Yes", OOU Exemption No. 3 If "Yes", Disclosure No.: _____ b. Commercial Proprietary Information Received in Confidence, Such as Proprietary and/or Inventions? <input checked="" type="radio"/> No <input type="radio"/> Yes If "Yes", OOU Exemption No. 4 c. Corporate Privileged Information? <input checked="" type="radio"/> No <input type="radio"/> Yes If "Yes", OOU Exemption No. 4 d. Government Privileged Information? <input checked="" type="radio"/> No <input type="radio"/> Yes If "Yes", Exemption No. 5 e. Copyrights? <input checked="" type="radio"/> No <input type="radio"/> Yes If "Yes", Attach Permission. f. Trademarks? <input checked="" type="radio"/> No <input type="radio"/> Yes If "Yes", Identify in Document. 8. Is Information requiring submission to OSTI? <input checked="" type="radio"/> No <input type="radio"/> Yes 9. Release Level? <input checked="" type="radio"/> Public <input type="radio"/> Limited			
F. Complete for a Journal Article				
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1. Title for Conference or Meeting _____				
2. Group Sponsoring _____				
3. Date of Conference _____				
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5. Will Information be Published in Proceedings? <input type="radio"/> No <input type="radio"/> Yes				
6. Will Material be Handed Out? <input type="radio"/> No <input type="radio"/> Yes				
H. Information Owner/Author/Requestor <u>Stephen Gulley / Stephen Gulley</u> (Print and Sign)				
Responsible Manager <u>Mary E Brown / Mary E Brown</u> (Print and Sign)				
Approval by Direct Report to President (Speech/Articles Only) _____ (Print and Sign)				
I. Reviewers	Yes	Print	Signature	Public Y/N (If N, complete J)
General Counsel	<input checked="" type="checkbox"/>	<u>Judy Chang</u>	<u>E-mail Pg. 3</u>	<input checked="" type="radio"/> Y / <input type="radio"/> N
Office of External Affairs	<input checked="" type="checkbox"/>	<u>Deanna L. Smith</u>	<u>E-mail Pg. 4</u>	<input checked="" type="radio"/> Y / <input type="radio"/> N
DOE-RL	<input checked="" type="checkbox"/>	<u>Cameron Hardy</u>	<u>E-mail Pg. 5</u>	<input checked="" type="radio"/> Y / <input type="radio"/> N
Other	<input checked="" type="checkbox"/>	<u>Mr. Spracklen</u>	<u>E-mail Pg. 6</u>	<input checked="" type="radio"/> Y / <input type="radio"/> N
Other	<input checked="" type="checkbox"/>	<u>T.P. Aardal</u>	<u>Janis Aardal</u>	<input checked="" type="radio"/> Y / <input type="radio"/> N
J. Comments				Information Clearance Approval
If Additional Comments, Please Attach Separate Sheet <u>1 of 6</u>				

Aardal, Janis D

From: Chang, Judy
Sent: Thursday, March 03, 2011 2:54 PM
To: Gulley, Stephen M
Subject: Approved for Public Release; Please review for approval to release TPD-0047, DOE-0358

Aardal, Janis D


From: Smith, Deanna L
Sent: Wednesday, March 02, 2011 4:08 PM
To: Gulley, Stephen M; Chang, Judy; Hardy, Cameron
Cc: Aardal, Janis D; Stevens, William H
Subject: RE: Please review for approval to release TPD-0047, DOE-0358

Approved.

DEANNA L. SMITH
MSA COMMUNICATIONS

Mission Support Alliance LLC, "A Lockheed Martin/Jacobs/WSI Company"

office 509-373-0857 | cell: 509-308-5476 | web site: msa.hanford.gov/msa

 Please consider the environment before printing this email.

From: Gulley, Stephen M
Sent: Wednesday, March 02, 2011 3:54 PM
To: Chang, Judy; Smith, Deanna L; Hardy, Cameron
Cc: Aardal, Janis D; Stevens, William H
Subject: Please review for approval to release TPD-0047, DOE-0358

The attached Hanford Site Core Radiological Control Technician Qualification Training Program Description was recently converted to a DOE Site Standard document (DOE-0358). This document needs to be available to all Hanford contractors and subcontractors some of which only have access on an external site. Please review and use the voting button for approval to externally release and make available via internet access. Please let me know if you have any additional questions.

Thanks,
Stephen Gulley



Emergency Services Training and Programs
372-1885, Pager 85-7046

"If we could read the secret history of our enemies, we should find in each man's life sorrow and suffering enough to disarm all hostility" – Henry Wadsworth Longfellow.

Aardal, Janis D

From: Hardy, Cameron
Sent: Thursday, April 07, 2011 4:00 PM
To: Gulley, Stephen M
Subject: RE: Please review for approval to release TPD-0047, DOE-0358

As long as these have been reviewed by security they are approved for public release.

From: Gulley, Stephen M
Sent: Thursday, April 07, 2011 3:57 PM
To: Hardy, Cameron
Subject: Please review for approval to release TPD-0047, DOE-0358

The attached Hanford Site Core Radiological Control Technician Qualification Training Program Description was recently converted to a DOE Site Standard document (DOE-0358). This document needs to be available to all Hanford contractors and subcontractors some of which only have access on an external site. Please review and use the voting button for approval to externally release and make available via internet access. Please let me know if you have any additional questions.

Thanks,
Stephen Gulley



Emergency Services Training and Programs
372-1885, Pager 85-7046

"If we could read the secret history of our enemies, we should find in each man's life sorrow and suffering enough to disarm all hostility" – Henry Wadsworth Longfellow.

Aardal, Janis D

From: Spracklen, Michael L
Sent: Friday, April 08, 2011 10:53 AM
To: Aardal, Janis D
Cc: Gulley, Stephen M
Subject: FW: Please review for approval to release TPD-0047, DOE-0358
Attachments: DOE_0358_Rad_Control_Tech_Trng.xdf; Hanford Site Core Radiological Control Technician Qualification DOE-0358.pdf; RE: Please review for approval to release TPD-0047, DOE-0358; Approved for Public Release: Please review for approval to release TPD-0047, DOE-0358; RE: Please review for approval to release TPD-0047, DOE-0358

Follow Up Flag: Follow up
Flag Status: Flagged

Categories: Green Category

No security concerns with DOE 0358, Rev. 0.

Mike Spracklen
MSC Classification Officer
(509) 376-3730

From: Gulley, Stephen M
Sent: Thursday, April 07, 2011 4:23 PM
To: Aardal, Janis D
Subject: Please review for approval to release TPD-0047, DOE-0358

The attached Hanford Site Core Radiological Control Technician Qualification Training Program Description was recently converted to a DOE Site Standard document (DOE-0358). This document needs to be available to all Hanford contractors and subcontractors some of which only have access on an external site. Attached are the release approvals from the three reviewers. Please completed the release request and provide the necessary stamp so it can be posted on the HAMMER external Web Page. Additionally I have been attaching the release sheet to the TPDs that are released for external viewing but Cameron Hardy questioned if the signature/release page should be posted on the TPD. Please let me know if you have any additional questions.

Thanks,

Stephen Gulley



Emergency Services Training and Programs
372-1885, Pager 85-7046

"If we could read the secret history of our enemies, we should find in each man's life sorrow and suffering enough to disarm all hostility" – Henry Wadsworth Longfellow.

HDNS# **TPD-0047 DOE-0358 R0**

TRAINING PROGRAM DESCRIPTION TITLE:

DOE-0358, Hanford Site Core Rad. Ctrl. Tech. Qual.

REVISION: **0**

DATE: **06/2010**

INTERPRETATIVE AUTHORITY: **Brian L Killand**

TECHNICAL AUTHORITY: _____

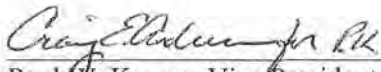
FUNCTIONAL AREA MANAGER: **Theodore P Giltz**

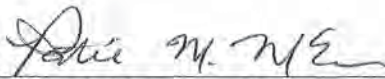
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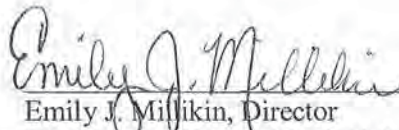
HANFORD STANDARDIZED RADIATION SAFETY TRAINING


Hanford Radiological Worker Training Program Description, Rev. 0, January 2010
Training Program Description for Hanford Site Core Radiological Control Technician
Qualification, Rev 0, June 2010

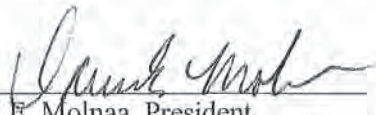
Site Wide Safety Standards
Senior Management Team
APPROVAL



Paul W. Kruger, Vice President
Mission Support Alliance, LLC
Mission Support Contract


Patrice M. McEahern, Vice President
CH2MHill Plateau Remediation Company
Plateau Remediation Contract


Emily J. Millikin, Director
Washington Closure Hanford, LLC
River Corridor Contract


Raymond J. Skwarek, Vice President
Washington River Protection Solutions, LLC
Tank Operations Contract


David E. Molnaa, President
Hanford Atomic Metal Trades Council


Dave Davis, President
Central Washington Building Trades Council

Training Program Description for Hanford Site Core Radiological Control Technician Qualification



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Hanford

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Rev. 0 June 2010**

**Training Program Description for
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Hanford Radiological Control Forum Representative
APPROVALS



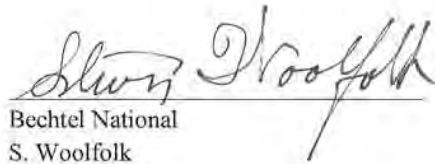
CHPRC Rad Con Director
K.W. McLain *J. Rolok for gms
6/20/10*

6/20/2010
Date



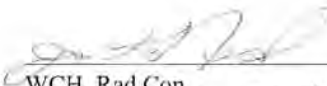
WRPS Rad Con Director
E.J. Adams *J.T. Rolok for*

6/2/2010
Date




Bechtel National
S. Woolfolk

6/2/10
Date



WCH Rad Con
G.A. Simiele *M. J. C. Neal*

6/3/10
Date



MSA Rad Con
W. Schofield

6/2/10
Date

*PNNL does not participate in the Hanford Site Core RCT qualification.

Training Program Description for Hanford Site Core Radiological Control Technician Qualification Rev. 0 June 2010

Functional Program Manager: T. P. Giltz
Technical Authority: Hanford Radiological Control Forum Members
Interpretive Authority: Brian Killand

1. PURPOSE

This document describes the Hanford Site Core Radiological Control Technician (RCT) qualification. This standardized site qualification is approved by voting members of the Hanford Radiological Control Forum.

NOTE: Radiological Control Technician (RCT) is equivalent to Health Physics Technician for purposes of supporting this TPD. For simplicity the acronym RCT is used throughout this TPD.

2. SCOPE

This TPD establishes a standardized and consistent Hanford Site Core RCT qualification process, as required by the *Hanford Radiological Health and Health Document*, [DOE-RL-2002/12](#) and several Hanford contracts. This TPD also supports the Mission Support Alliance (MSA) contract deliverable for standardized site-wide training and qualification programs established by the HAMMER Board of Directors.

Standardized site RCT qualification is based on *Radiological Control Technician (RCT) Training*, [DOE-HDBK-1122-2009](#) and completes Hanford Core RCT qualification requirements common to Bechtel National, Mission Support Alliance (MSA), CH2M Hill Plateau Remediation Company (CHPRC), and Washington River Protection Solutions (WRPS). WCH provides equivalent training and qualification based on WCH procedures and policies that fully satisfy this TPD. This TPD does not apply to qualification as a RCT at PNNL. Additional contractor or facility specific training is normally completed prior to job assignment or at the direction of the responsible project/facility Rad Con Manager.

This TPD describes the minimum requirements for RCT qualification, requalification, and continuing training as a Hanford Site RCT. HAMMER Radiation Safety Training implements the training described in this TPD for MSA, Bechtel, WRPS, and CHPRC. Additional contractor and facility training will be identified by the appropriate contractor management to meet the specific needs to support contractor and facility work activities.

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This TPD supports the guiding principles and core functions of the Integrated Environmental, Safety and Health Management System (ISMS) for each of the participating Hanford contractors.

Other RCT training required to support project/facility activities (e.g., HAZWOPER, Respiratory Protection) are outside the scope of this TPD and should be identified by the responsible manager and included in the individual's specific training plan or equivalent, as applicable.

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The following are links to specific sections of this TPD.

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3. ROLES AND RESPONSIBILITIES

a. Hanford Radiological Control Forum (HRCF)

- (1) Establish and maintain the necessary courses to support Hanford Site Core RCT initial qualification and continuing training (listed in Attachment 1).
- (2) Designate a contractor subject matter expert with authority and responsibility for approval of RCT training materials, exams, performance exams, and continuing training lesson plans.
- (3) The responsible contractor Rad Con Directors shall approve waivers, equivalencies, and other than written exams when recommended by HAMMER Radiation Safety Training Manager.
- (4) Resolve site consistency and standardization issues that arise regarding Hanford Site Core RCT qualification requirements as required by [DOE-RL-2002/12](#) and HRCF procedures and processes.

b. HAMMER Radiation Protection Safety Training Manager

- (1) Coordinate and implement the provisions of this TPD for MSA, Bechtel National, CHPRC and WRPS (and their subcontractors).
- (2) Keep the Hanford Radiological Control Forum informed of status and issues regarding the Hanford Site Core RCT qualification and training program.
- (3) Provide Radiological Subject Matter Experts (SME) to develop, conduct and maintain the RCT initial training, continuing training and requalification requirements established by this TPD. (Additional RCT radiological training support is obtained in accordance with established MSA agreements and procedures.)
- (4) Upon request review and recommend action for training equivalencies or waivers for portions of qualification and training based on previous training and/or experience per MSC-PRO-179, Obtaining Training Equivalencies, Waivers, and Extensions with concurrence of the responsible contractor radiological training SME. Contractor approval is required prior to finalizing approved equivalences or waivers.

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- (5) Coordinate, on an approximately six-month cycle, development and implementation of RCT continuing training topics. Topics and content will be approved by contractor representatives.
- (6) Provide course instruction and exams to support RCT qualification and continuing training in accordance with HAMMER procedures and this TPD.
- (7) Ensure auditable copies of training documentation performed by HAMMER staff are maintained by Training Records as radiological records in accordance with 10 CFR 835 and MSA Record procedures.
- (8) Ensure instructional staff members are trained and qualified in accordance with MSA procedures.
- (9) Assist managers with developing individual training plans (ITP) for RCTs, as requested.
- (10) Assist contractor organizations with the performance reviews of training effectiveness and field implementation upon request as an additional HAMMER provided service.

c. Contractor Subject Matter Expert/Training Point of Contact

- (1) Review training materials to verify compliance with contractor program requirements. Assist in resolution of comments as appropriate.
- (2) Coordinate and obtain contractor topical expert support to complete reviews of training materials, validate any recommendations/comments, and assist in resolution to support planned training objectives.
- (3) Approve RCT initial training and continuing training task/needs analysis, course materials, and exams as the contracting approval authority.
- (4) Coordinate approval of training equivalency and waiver requests with the Rad Con Director.
- (5) Coordinate project/facility requests and prioritize requests for HAMMER training support.
- (6) Participate and support labor academic certification boards or other labor agreement actions in accordance with the respective contractor agreements and procedures.

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- (7) Solicit and provide lessons learned, field performance feedback and other topic approximately every six months to support development of topics for the RCT continuing training program.
- (8) Inform HAMMER Radiation Safety Training of contractor program changes or procedure/policy changes that potentially affect RCT training materials and OJT/OJEs.

d. Washington Closure Hanford Rad Con Technical Support Manager

- (1) Maintain the WCH training and qualification program to provide reciprocity with this TPD for WCH and its subcontractors.
- (2) Keep the Hanford Radiological Control Forum informed of status and issues regarding the Hanford Site Core RCT qualification and continuing training program as it pertains to WCH.
- (3) Provide Radiological Subject Matter Experts (SME) to develop, conduct and maintain the RCT initial training, continuing training and requalification requirements. (Additional RCT radiological training support is obtained in accordance with established WCH policies and procedures.)
- (4) Authorize training equivalencies or waivers for portions of qualification and training based on previous training and/or experience per WCH's procedures for Obtaining Training Equivalencies, Waivers, and Extensions.
- (5) Coordinate development and implementation of RCT continuing training topics.
- (6) Provide course instruction and exams to support RCT qualification and requalification as required by 10 CFR 835.
- (7) Ensure auditable copies of WCH training documentation are maintained by Training Records as radiological records in accordance with 10 CFR 835 and WCH Record procedures.
- (8) Ensure instructional staff members are trained and qualified in accordance with WCH procedures.

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e. Contractor Radiation Protection Managers/Supervisors

- (1) Support completing initial and continuing training as required by this TPD or WCH procedures.
- (2) Verify individuals have completed required training and qualification prior to job or task assignment. Rad Con Managers/Supervisors are responsible for assuring that the assigned individual is capable of performing assigned duties or require that the RCT work under instruction.
- (3) When there has been a change in the individual's job assignment or duties, the manager should review the new assignment and associated training requirements and update the plan accordingly.
- (4) Ensure a new or modified ITP is developed when personnel changes occur, as required by contractor procedures.
- (5) Request assistance from HAMMER or WCH Radiation Protection Training for development support and assistance in performing additional or new training not covered by this TPD.
- (6) Provide management/supervisory support to assigned RCTs attending training or for remedial plans, when appropriate.
- (7) Provide input and suggested topics for the RCT continuing training program.

f. Radiation Protection Advisory Certification Board (ACB)

- (1) Members shall participate in the review remediation plans for RCTs demonstrating poor performance in the field or as a participant of the training program. HAMMER Rad Con Training may assist in the development and coordination of remediation plans.
- (2) Remedial plans shall be approved, at a minimum, by the individual or labor representative and the individual's supervisor.

4. Hanford Site Core RCT Qualification

a. Entry Level Requirements

- (1) Minimum entry requirements for the Radiological Control Technician position include:

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- High School diploma or equivalent
 - Fundamental knowledge of mathematics, physics, chemistry, and science
 - Systems and fundamentals of process, operation and maintenance
 - Reading and comprehension ability sufficient to read and follow procedures, write permits, prepare survey maps, write reports, and prepare shipping and transfer permits
 - Ability to work in a support role, including communicating verbal instructions to others
 - Physical ability to handle personal protective equipment, other equipment and assist others in work locations, commensurate with the assignment
 -
- (2) In addition, individuals selected as a SRCT must have three years of job related radiological experience, which should include 1 year DOE radiological experience, and 3 months onsite experience.
- (3) Registration by the National Registry of Radiation Protection Technologists (NRRPT) provides equivalency to the related experience and education requirements above.

b. General Qualification Requirements

- (1) Site Core RCT Qualification consists of four phases:
- RCT Fundamentals
 - Hanford Site Academics
 - Core OJT/OJEs
 - Final qualification oral board
- (2) Attachment 1 identifies the applicable initial qualification courses for completion of Hanford Site Core RCT qualification.
- (3) The Hanford Site Fundamental and Academic Exams have been previously approved by the HRCF and the equivalency is provided as information as Attachments 2 and 3.
- (4) The HRCF has previously approved the Hanford Site Core RCT OJT/OJE training program description which is being incorporated into this TPD as Attachment 4.
- (5) Individuals who do not possess the formal education or experience requirements specified for initial qualifications should not be automatically

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eliminated if other factors demonstrate their ability to fulfill the duties of this specific position. For Bechtel, MSA, CHPRC and WRPS these factors should be evaluated per MSC-PRO-179, *Obtaining Training Equivalencies, Waivers, and Extensions* and DOE STD-1107-97, *Knowledge Skills, and Abilities for Key Radiation Protection Positions at DOE Facilities*. WCH shall evaluate equivalencies in accordance with WCH procedures.

- (6) HAMMER Radiation Protection training will provide training and qualification based on the requirements of MSC-5173 *MSC Radiological Control Manual*, CHPRC-00073 *CHPRC Radiological Control Manual*, or HNF-5183 *WRPS Radiological Control Manual*. Requirements of contractor procedures will be considered during development of training materials.
- (7) This TPD approves a program equivalency for Radiological Worker Training (Rad Worker II) based on passing the DOE Core Fundamentals Academics, Site Academics, and completing the practical Radiological Worker II Performance Exam. Maintenance of RCT qualification and continuing performance as an RCT shall satisfy the Radiation Worker retraining requirement.
- (8) RCT qualification cannot exceed 24 months. Extensions shall be approved in writing.
- (9) The RCT Core Fundamentals exam is valid for a two-year period. Equivalency is granted permanently for those who are NRRPT registered. Equivalency has not been established with other DOE Sites but can be considered if desired by the sponsoring Hanford contractor.
- (10) The Hanford Site Academic exam is valid for a two-year period and can be waived if:
 - a) The person returns within the two-year period and
 - b) There have been no course technical revisions since the individual left the site. If changes have occurred then at a minimum gap training to address the change must be completed.
 - c) Equivalency has not been established with other DOE Sites.
 - d) Equivalency has not been established with other DOE Sites but can be considered if desired by the sponsoring Hanford contractor.

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- (11) Site Core OJTs can be waived if the individual returns within a three-year period. Individual OJTs must be re-performed if they were revised or initiated (new) during the period the individual was away from the site. A process for accelerated Site Core OJT/OJEs is established for senior experienced RCTs as described in Attachment 4 to this TPD).
- (12) Failure to achieve a score of 80% on any comprehensive written exam results in both RCT and Radiological Worker disqualification. These individuals may not perform RCT tasks even under direct supervision.

c. Examination Standards

(1) General

- (a) Examinations (written, performance, or oral) are required for the following portions of the initial training program:
 - DOE Fundamentals Academics (written examination)
 - RCT Site Academics (written examination)
 - Hanford Core OJT/OJEs (On the Job Performance Evaluation)
 - RCT Oral Examination Board
- (b) Students normally shall complete the DOE fundamental academics course either in a formal classroom setting with qualified instructors providing instruction, practice, feedback, and examination; or, with approval of the contractor Rad Con Director, the employee may study the materials at their own pace and take an examination to receive credit for the materials. The Contractor Rad Con Director shall approve alternatives in writing if an exam is not administered by HAMMER Rad Con training or WCH Rad Con Training.
- (c) The passing criterion for all courses requiring a written examination under this TPD is 80% to measure the achieving learning objectives for each course.
- (d) On-the-Job Training/Evaluations (OJT/OJE) activities are based on the specific Radiological Control task analysis. The course combines classroom and/or self-study and hands-on training, and includes performance evaluations for each task.
- (e) OJT/OJEs may be performed by the Functional Radiation Protection, facility/project Radiation Protection Organization and/or at the

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HAMMER/Hanford training facility, as applicable.

- (f) Criterion for OJT and oral board examinations will be satisfactory (Sat) or unsatisfactory (Unsat) completion.
- (g) Individuals performing OJT/OJEs shall be qualified to perform the task and be qualified as an job evaluator.
- (h) Off-site examinations will not be accepted for qualification unless an equivalency is approved by the responsible contractor Rad Con Director and HAMMER Radiation Safety Training Manager.
- (i) RCTs will be given credit for the DOE Fundamental Academics course if they are NRRPT registered, have completed Part 1 of the American Board of Health Physics (ABHP) certification examination, or pass the RCT pre-employment exam (DOE Fundamental Academics) administered by HAMMER Rad Con Training. Documents validating the qualification or registration are required in order to receive credit for the exam.

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- (2) Action for Exam Failures
- (a) If a student fails an oral or written examination an appropriate remediation program will be implemented as follows:
- **First exam failure:** The individual's line manager/supervisor and contractor training manager will be informed. Remedial training will be provided and the student will retake the examination within 15 working days. The retake will not occur on the same day as the exam failure.
 - **Second exam failure:** The student, the student's line manager/supervisor and the responsible contractor Rad Con training SME will evaluate the reasons for failure and develop an appropriate remediation plan, which will be documented. The plan will be provided to the contractor training manager for information. This action requires convening an Advisory Certification Board (ACB) to review the remediation plan.
 - **Third exam failure:** The contractor training SME, contractor training manager, contractor industrial relations, and responsible contractor Rad Con Director will determine if additional training effort is desired. An ACB is not required but may be convened to address unique situations or provide recommendation to the responsible contractor Rad Con Director.
- (b) A student who fails any qualification exam may request an ACB meeting to review their progress and assess a path forward.
- (3) For Bechtel, MSA, CHPRC and WRPS, oral Examination Boards packages are provided by HAMMER Rad Con Training. HAMMER staff or facility staff will conduct oral examinations upon request.
- a) When issued to the facility or project the contractor first line Rad Con Supervisor is responsible to maintain exam security of board package scenarios until returned to HAMMER.
- b) The oral examination board should assess the candidate's response to normal and emergency situations.

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- c) Final qualification oral exams must be completed within six months of completing the Hanford Site Core OJT/OJEs.
 - d) Oral examination board members shall review Attachment 5 prior to participation in the first oral examination board. Documentation of this review is not required.
- (4) OJT/OJEs may be performed by field radiological control personnel or HAMMER/Hanford/WCH Training staff. The OJT process combines classroom and/or self-study, hands-on training and includes performance evaluations (OJE) for each task.

d. Initial Qualification

- (1) Minimum Hanford Site Core RCT qualification courses are listed in Attachment 1. For training purposes, individuals will be considered an RCT trainee until minimum qualification courses are complete.
- (2) Qualification completion is required within six months of completing the final Site Core OJEs. As a guideline the initial qualification oral board normally will be scheduled between the 3rd and 5th month following completion of the final Site Core OJEs and after the RCT has received experience in the project or facility. Exceptions must be documented and approved by the contractor training SME/POC.

e. Biennial Requalification

- (1) As required by 10 CFR 835.901 each RCT must re-qualify every two years after completing their initial qualification. The requalification program is as follows:
 - (a) Requalification consists of successfully completing RCT continuing training, a comprehensive written exam, and a performance demonstration or oral board as specified by the contractor Rad Con Director.
 - (b) Course HR2000 [WCH 105700], RCT Biennial Requalification, is required every two years and is granted when all continuing training courses, practical evaluations, performance demonstrations and examinations offered during the biennium are successfully completed.
 - (c) Completing course 022123, *RCT Emergency Response*, is also required for requalification. (WCH 105696)

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- (d) WCH maintains a rolling requalification process. HAMMER provides a fixed schedule requalification process. The requalification exam process is completed during the last six months of the two-year qualification.
 - (e) For HAMMER provided training, the requalification exam occurs between April 1 and September 30 of even-numbered calendar years. The two-year qualification period begins on October 1 of even-numbered calendar years.
 - (f) RCTs that complete initial qualification during the period of April 1 to October 1 of even number years shall be considered fully qualified through the subsequent RCT requalification cycle as an RCT and Radiation Worker providing the individual maintains satisfactory participation the RCT continuing training program as discussed in this TPD. This provision does not apply to a WCH qualified RCT.
 - (g) RCTs that have not completed the requalification exam requirements within the specified time frame will be disqualified until the exam requirements are satisfactorily completed.
 - (h) Each biennial requalification period will have a minimum 80 hours of continuing training including the exam. Formally scheduled study time and taking the comprehensive exam count toward the 80-hour requirement. Facility training time may be included provided it is approved by the HAMMER Rad Con Manager.
 - (i) An extension of up to 30 days may be granted on a case-by-case basis based on the criteria contained in the contractor Rad Con Manual. Extensions are documented and approved in advance per MSC-PRO-179, *Obtaining Training Equivalencies, Waivers and Extensions* or the equivalent WCH procedure.
 - (j) RCTs that complete the initial training program are not responsible for “making up” continuing training classes that were provided (started) while they were in the initial training program. They are, however, responsible for those continuing training classes offered (started) after completing initial training.
 - (k) RCTs returning from Short- or Long-Term Disability (STD/LTD) or a leave of absence will be required to make up any missed training cycles.
- (2) Where applicable, requalification oral boards will be conducted using the same process as that used for initial qualification oral boards.

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f. Continuing Training

- (1) RCT Continuing Training is conducted to maintain proficiency. Topics will be determined from performance sources, the approved task analysis, and field input using the systematic approach to training (SAT) process.
- (2) Continuing training topics should cover equipment upgrades, industry events, lessons learned, procedure changes, work area hazards, as well as “over train” items from the task list. “Over train” items are those tasks that need periodic re-training because of their importance, complexity or infrequent occurrence. Topics should be, when possible, determined from field input. Performance deficiencies that can be corrected by training are a good example of field input.
- (3) Attendance records for continuing training will be maintained as radiological records.
- (4) A continuing training course may consist of varying modes of delivery including Computer- or Web-Based Training (CBT or WTB), exercises, demonstrations, classroom instruction, OJTs, and/or performance evaluations (PDs).
- (5) Required continuing training may include an evaluation (examination or Performance Demonstration), as appropriate, for the topic presented. Examinations will be controlled. Participation in evaluations and exercises are not job jeopardy. Mandatory participation in the requalification exam, oral board, or performance demonstration is considered job jeopardy and subject to the requirements of the labor agreement.
 - (a) A performance demonstration or oral examination will be completed for each RCT every 2 years.
 - (b) Performance demonstrations can be scheduled and performed at any time during the biennial requalification period. The evaluation will be based on OJTs the RCT is currently qualified to perform.
 - (c) Performance demonstrations will be developed in coordination with RCTs, Radiological Control exempt staff and training staff. Scenarios will be complex (i.e., three or more OJT tasks rolled together into a job assignment).
 - (d) RCTs will be given two days notice to prepare themselves for the performance demonstration. Evaluators will be briefed on the

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performance demonstration they will be observing. Radiological Control Instructors will monitor the third evaluation if one becomes necessary.

- (e) Performance demonstrations shall be considered a part of RCT continuing training.
- (6) No two performance evaluations or oral exams will be given within six months of each other for a given technician based on labor agreement.

g. Qualifying RCTs without Previous Hanford Training

- (1) For completion of the core RCT qualification process, individuals with less than two years of RCT experience will be considered junior RCTs; greater than two years experience will be considered a senior RCT.
- (2) Candidates must complete all courses of Hanford Core RCT qualification identified in Attachment 1.

h. RCTs Returning from Offsite to Hanford Contractors

- (1) **RCTs away from Hanford less 12 months:** Individuals away from the Hanford Site for less than 12 months and who were fully qualified upon departure remain qualified on return. At a minimum, these individuals should complete any missed performance demonstrations, requalification oral exams and written requalification exam. Additionally the individual should perform any OJEs that changed during their absence and review any procedure changes identified by the individual's supervisor.
- (2) **RCTs away from Hanford less than 24 months:** Individuals away from the Hanford Site for greater than 12 months and less than 24 months who were fully qualified upon departure remain qualified on return. At a minimum, these individuals should:
 - (a) Complete any missed performance demonstrations, requalification oral exams and written requalification exam. Additionally the individual should perform any OJEs that changed during their absence and review any procedure changes identified by the individual's supervisor.
 - (b) Perform any OJEs that changed during their absence
 - (c) Review any procedure changes identified by the individual's supervisor

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- (d) For individuals missing a complete training cycle, it is not necessary to perform continuing training practical training or exercises unless directed otherwise in their ITP.
- (3) Individuals who are absent from the Hanford Site for over 24 months must reperform initial qualification (022044) or complete accelerated RCT qualification (022044T).
- (4) Normally an ITP should be prepared and approved by the contractor training SME/POC and responsible Manager to verify all required training is up to date.

i. Contractor RCT Initial Qualification

Note: This section applies when contracted labor is used and does not apply in situations where the individual is considered a house technician.

- (1) Minimum Hanford Site Core qualification courses are listed in Attachment 1. Contract RCTs will not be considered qualified until minimum qualification courses are complete.
- (2) A contract RCT must pass a comprehensive exam representative of the DOE Core Fundamentals Academics exam. Passing the exam requires a minimum score of 80%. After passing the exam, credit will be given for 02204T (DOE Fundamentals Academics—accelerated). [WCH 105068]
- (3) Contract RCT initial training will include RCT Site Academics (022004 or 0220T4) and the Hanford Site Core OJTs. Additional OJTs will be determined by the facility Rad Con management. An ITP will be developed for each individual.
- (4) Qualification must be completed within six months of completing the final Site Core OJEs. The initial qualification oral board will normally be completed between the 3rd and 5th month following final Site Core OJE completion and after the RCT has received experience in the project or facility. Exceptions must be documented and approved by the contractor Rad Con Director.
- (5) Contract RCTs will participate in RCT continuing training after being on-site for six months.

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- (6) Facility-Specific qualification or partial Core RCT qualification will be performed only when a training waiver is approved by the responsible site contractor Rad Con Director.
- (7) A CRCT who works within MSA, Bechtel, CHPRC, or WRPS shall complete the biennial requalification exam as a part of the continuing training cycle.

5. MISCELLANEOUS

a. Personnel Reassignments between Hanford Contractors

The training status of House and Contract RCTs reassigned to a new facility will be evaluated by their new Rad Con Supervisor/Manager to assess their competencies against the new expected work scope.

b. Temporary Assignments

Rad Con Managers will ensure personnel working in a temporary capacity have, as a minimum, the qualifications required for the corresponding position in the next lower functional level.

6. RADIOLOGICAL TRAINING RECORDS

Initial training is documented on class rosters, training completion forms, qualification records, etc. Training plans may be documented in employee training field files, in ITEM under the employee's name, or in any other manner appropriate for the manager. Records generated as a result of the implementation of this TPD shall be maintained as radiological records and disposition in accordance with HAMMER or WCH Records Management Program, as applicable.

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7. REFERENCES

10 CFR 835.103, *Education, Training and Skills*

10 CFR 835.901, *Radiation Safety Training*

DOE/RL 2002-12, *Hanford Radiological Health and Safety Document*

DOE 5480.20A, *Personnel Selection, Qualification and Training Requirements for DOE
Nuclear Facilities*

DOE-STD-1107-97, *Knowledge, Skills and Abilities for Key Radiation Protection Positions at
DOE Facilities*

DOE-HDBK-1122-99, *Radiological Control Technician Training*

Appendix "A" Agreement(s), Radiological Control Technician, Seniority Group 054A, IBEW
Local 984

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**Attachment 1 — Hanford Site Core Radiological Control Technician
Minimum Initial Training**

The following table lists the minimum initial training requirements that must be completed that satisfy the Hanford Site Core RCT.

RCT INITIAL TRAINING		
HAMMER Course	WCH Course	Course Title
020001	020001	Rad Worker II
022004 or 0220T4	105070	RCT Site Academics
022040 or 02204T	105068	DOE Fundamental Academics
022045	105069	RCT Oral Examination Board
022110	No WCH Equivalent	Onsite Routine Radioactive Shipping Record (ORRSR)
022123	No WCH Equivalent	Provide RCT Support to the ICP - WBT
022301	Note 1	Count Rate Meters
022302	Note 2	Dose Rate Instrument Operation
022303	105067-2	Dose Rate Survey
022304	105067-6	Field Air Sampling
022305	105529	Portable Instrument Checks
022306	105067-10	Personnel/Effects Decontamination
022307	105067-7	Radiological Posting
022308	105067-3	Contamination Survey
022312	105067-1	Alarm/Emergency Response
022313	105067-4	Bench Counters
022314	105067-8	Documentation

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Note 1 PAM - Course #105753
GM - Course #105754
NE Electra - Course #105763
Ludlum 2000 Series - Course # 105760
Ludlum Model 3 & 12 - Course #10577

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Note 2 RO-20/RSO-50e/9-3 - Course #105757
Telescoping Instruments - Course #105131
Microrem - Course #105762
AMP-50/100 - Course #105786
RO-7 - Course #105128
RemBall - Course #105793

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RCT Site Fundamentals Exam Equivalency

Attachment 2

November 3, 2008

**Subject: Hanford Contractor Radiological Control Technical Training
Program Fundamental Knowledge Equivalency**

Background:

The Hanford Site is transitioning contract scope to new contractors. At a meeting conducted on October 27, 2008 with contractor Radiation Program Directors it was agreed that immediate provisions should be developed that allowed improved transition of qualified Radiological Control Technicians (RCT) between contractors. In particular, it was agreed that an equivalency for the RCT fundamental exam was appropriate and should be established between Hanford contractors to better support the anticipated redistribution (LAMP) of RCTs during FY09.

Purpose:

The purpose of this memo is to document Radiation Program Director concurrence that an individual who is a currently qualified Hanford RCT will be granted equivalency of the RCT Fundamentals exam upon transfer to another Hanford Contractor as an RCT.

Action:

An individual who is a currently qualified Hanford RCT will be granted equivalency of the RCT Fundamentals exam upon transfer to another Hanford Contractor as an RCT.

This equivalency is based on the individual previously satisfying the contractor requirement for completion of the RCT Fundamentals exam and continuing performance as a qualified RCT. As all Hanford contractors fundamental examinations are based on the DOE core material with questions based on questions from the DOE question bank the individual contractor exams are equivalent in content. Additionally RCT exam performance and field performance of site RCTs has not indicated a knowledge weakness with RCT fundamentals.

Qualification verification shall be met through a minimum of a verbal confirmation of qualification between contractor training representatives. Individuals with a gap of continuing qualification over 90 days or disqualification for other reasons shall be evaluated on a case-by-case basis.

This memo should be used as the basis for equivalency pending incorporation in individual contractor radiation protection program documents and/or training program descriptions.

This memo is superseded if it conflicts with individual contractor program requirements or DOE direction. This equivalency should be re-evaluated within 1 year of approval.

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November 3, 2008

**Subject: Hanford Contractor Radiological Control Technical Training
Program Fundamental Knowledge Equivalency**

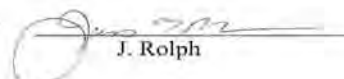
FH Radiation Safety Director


P. Lombardo

CHPRC Radiation Safety Director


T. Bratvold


WRPS Radiation Safety Director


J. Rolph

WCH Radiation Protection Program


G. Simiele

PNNL Radiation Safety Director


R. Ford

T. P. Giltz

 11/19/2008

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TRAINING AND EDUCATION CENTER

VOLPENTEST
HAMMER
TRAINING AND EDUCATION CENTER

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RCT Site Academic Exam Equivalency

Attachment 3

November 6th, 2009

Subject: Hanford Contractor Radiological Control Technical Training Program Site Academics Equivalency

Background:

The Hanford Site has transitioned contract scope to new contractors. At a meeting conducted on October 27, 2008, with contractor Radiation Program Directors, it was agreed that provisions should be developed that allowed improved transition of qualified Radiological control Technicians (RCT) between contractors. In November of 2009, the RP Directors granted equivalency for the RCT Fundamental Academics ("DOE Core"). With the creation of a new Site-wide "Core" OJT program, the Directors signed equivalency for eleven core OJT/OJEs in May, 2008. RCTs that LAMP (Labor Asset Management Program) between contractors are currently granted credit for the Fundamental Academics and the site Core OJT/OJEs.

The third major component of the initial qualification process is RCT Site Academics. PNNL has an independent Site Academics program and is not included in this equivalency. WCH has their own Site Academics and HAMMER/Hanford Training provides Site Academics for CHPRC, WRPS, and the MSA. In June of 2009 an analysis was completed that looked at the gap between the WCH and the HAMMER/Hanford Training Site Academics programs (Attachment 1). The analysis specifically compared learning objectives. The gap analysis indicated that both contractor's content are based on the DOE Guidelines and comparatively have the same curriculum. The core content is consistent.

The general concepts of applied health physics are the same across the site, the specific practices differ not only from one contractor to the next but in some cases differ from one facility to the next. There is less than an overall 15% delta in the learning objectives between the WCH and HAMMER/Hanford Training Site Academics programs. Other RCT training program elements address the differences in each contractor's implementing procedures, selection of instruments, and radiological control practices. This delta is summarized in Attachment 1 and is generally met by contractor or facility specific training and/or procedures.

Purpose:

The purpose of this memo is to document WCH, CHPRC, WRPS, and MSA Radiation Program Director's concurrence that reciprocity shall be granted between the WCH and HAMMER/Hanford Training's Site Academics. RCTs and RP Supervisors that are currently qualified at WCH will be granted equivalency of the RCT Site Academics examination upon transfer to WRPS, CHPRC, or MSA (and from these three contractors to WCH).

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Conclusion:

Currently qualified RCTs and RP Supervisors that transfer from WCH to WRPS, CHPRC, or MSA will be granted equivalency for the Site Academics and vice versa.

Basis:

This Site Academics equivalency is based on the individual previously satisfying the contractor requirement for completion of the RCT Site Academics examination and continuing performance as a qualified RCT or RP Supervisor. As all Hanford contractor Site Academics examinations were originally based on the DOE standardized training materials with the generic questions based on the DOE issued examination bank, the individual contractor examinations are similar in content. Additionally, RCT examination and field performance of site RCTs has not indicated a knowledge weakness with the RCT Site Academics.

This memo should be used as the basis for equivalency pending incorporation in individual contractor radiation protection program documents and/or training program descriptions.

Verification:

Qualification verification shall be met through a minimum of an email confirmation of qualification and date of qualification between contractor training representatives. Individuals with a gap of continuing qualification over 90 days or disqualification for other reasons shall be evaluated on a case-by-case basis.

Exceptions:

This memo is superseded if it conflicts with individual contractor program requirements or DOE direction.

Periodic Review:

This equivalency should be re-evaluated within one year of approval.



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WCH Radiation Protection Program *Gerald A. Simiele* 12/2/09
G. Simiele Date-

CHPRC Radiation Safety Director *T. Bratvoid* 11/20/09
T. Bratvoid Date

WRPS Radiation Safety Director *J. Rolph* 11/20/09
J. Rolph Date

MSA Radiation Safety Director *Peter R. Lombardi* 12/2/09
~~W. Schofield~~ Date
per Peter R. Lombardi

HAMMER/Hanford Training Rad Con Manager *T. Giltz* 11/20/2009
T. Giltz Date



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**Conducting Oral Examination Boards for
New-Hire Radiological Control Technicians
Attachment 5**

1. Requirements

1.1. Training. RCT training consists of three phases:

- Phase I—RCT Fundamentals and Site Academics
- Phase II—On-the-Job Training
- Phase III—Oral Examination Boards (OEB)

1.2. OEBs are required by DOE and the CHPRC Radiological Control Manuals:

1.2.1. "Article 644 — RCT Initial Qualification Oral Boards

1.2.1.1. An Oral Examination Board shall determine the qualification of candidates for Radiological Control Technician and Supervisor positions.

1.2.1.2. The Board should assess the candidate's response to normal and emergency situations. Questions should be of the type that are not normally covered in a written examination."

1.2.2. "Article 646 — Rad Con Supervisors

1.2.2.1. Rad Con Supervisors should initially qualify as Radiological Control Technicians and should participate in continuing radiological training programs

1.2.2.2. The Board constituted to evaluate RadCon Supervisor qualifications should not include peers or subordinates as voting members (Article 644.5).

1.2.2.3. Initial qualification OEBs should focus on the ability to analyze situations and supervise subordinates. The Rad Con Supervisor's depth of knowledge should exceed that expected of a Radiological Control Technician."

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2. Purpose

- 2.1. OEBs are designed to demonstrate an understanding of what the technician is expected to do. Specifically:
 - 2.1.1. the candidate's qualification for RCT positions
 - 2.1.2. the RCT's response to normal work place situations
 - 2.1.3. the RCT's response to emergency situations
- 2.2. The OEB is NOT a vehicle for board members to "show off" their own knowledge, or to intimidate the candidate. The board chairperson is responsible for ensuring a fair and equitable board takes place. If the chairperson feels this has not happened, the chairperson may invalidate the board.
- 2.3. A properly conducted board will not only build the RCT's confidence, but also ensure a high-quality RCT pool.

3. Responsibilities

- 3.1. Board Chairperson
 - 3.1.1. Prior to commencing the board, and prior to the candidate's arrival, the board chairperson will:
 - 3.1.1.1. Discuss the candidate's performance based on the candidate's Qualification Card.
 - 3.1.1.2. Assign areas in which to direct questioning.
 - 3.1.1.3. Discuss how the board will be conducted (i.e., questioning by each member on each round).
 - 3.1.1.4. Stress that questions must be consistent with the qualification standard, and should be used to determine knowledge level in the various areas of the oral exam grading sheet.
 - 3.1.1.5. Emphasize the board should last no longer than 1 hour.

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- 3.1.1.6. Stress that the original questioner should complete the main question, then allow additional pertinent questions.
 - 3.1.1.6.1. The candidate may be asked follow-on questions after making responses. For example, if a candidate references counting a smear with a scaler, they may be asked questions about scaler operation. Or if they say they requested a smear survey, they could be asked specifically how smear surveys are performed.
 - 3.1.1.6.2. Questions not relevant to the scenario, or leading questions, can not be asked. Example of a leading question: If the candidate stated he/she would make notifications, you could then ask, "Who would you call?" But you could not ask, "Would you call Dosimetry"? **You can't lead them to an answer.**
- 3.1.1.7. Ask if any board member has questions about board conduct and procedures.
- 3.1.2. Prior to commencing the board and with the candidate present, the board chairperson will:
 - 3.1.2.1. Greet and introduce the candidate to the board members.
 - 3.1.2.2. Introduce the board members to the candidate.
 - 3.1.2.3. Explain how the board will be conducted.
 - 3.1.2.4. Ensure the candidate understands:
 - 3.1.2.4.1. The importance of understanding the question.
 - 3.1.2.4.2. The candidate may ask for additional information or references that would

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normally be available to them in the work place.

3.1.2.4.3. All questions will be straightforward. There will be no hidden meanings or "trick" answers.

3.2. Board Members

3.2.1. Each board member will independently assess the candidate.

3.2.1.1. It is permissible to ask other board members about questions asked during the board for clarification purposes.

3.2.1.2. Questions between board members **WILL NOT TAKE PLACE DURING THE BOARD**. A "collaborative" effort to arrive at a grade is not acceptable.

3.2.2. During the board, board members will not indicate the quality or adequacy of the candidate's answers.

3.2.3. All questions should be clear, unambiguous, and based at the level of training the RCT or Rad Con Supervisor has received.

3.2.3.1. Leading questions will not be asked.

3.2.3.2. A board member may clarify a question, as necessary, if the candidate does not understand it.

3.2.4. Board members will independently assess the RCT using the grading sheet (Attachment 1) provided by the DOE standardized core material. To avoid subjective errors, the grading sheet has been enhanced to foster objective judgment of the candidate.

4. Board Conduct

4.1. The OEB will be held in a room that facilitates the oral exam board process. The board should be conducted in an area in which no distractions are expected to occur during the board.

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- 4.2. The oral examination board should last approximately 1 hour. The scenario should take about 1/2 hour and the anomaly 1/2 hour.
- 4.3. OEB members will meet prior to the assigned start time for the board.
 - 4.3.1. The chairperson and board members will select the scenario and anomaly.
 - 4.3.2. Sufficient time must be given to carefully review the scenario and anomaly.
 - 4.3.3. A specific location for the scenario and anomaly and a complete description of the radiological conditions and expected response should be discussed.
 - 4.3.4. The board chairperson should ensure each board member understands the specific scenario and how a board is conducted. This process generally takes approximately 30 minutes, more if there is a new board member who needs training.
 - 4.3.5. Document the chosen scenario number and anomaly letter on the individual Scenario and Anomaly Grading Forms (see Attachment A). The chairperson will also document these on the OEB Record Sheet (see Attachment B).
 - 4.3.6. To allow the candidate to keep track of details of the scenario response, a white board and dry erase markers will be provided.
 - 4.3.7. References such as the contractor Rad Con Manual, radiological control procedures, site emergency plan, and any other reference material appropriate to the board questions will be made available to the candidate.
 - 4.3.8. ALL PAGERS, CELL PHONES, AND RADIOS WILL BE TURNED OFF to minimize distractions during the board. This is the candidate's board, and it is very important to the candidate. It should be equally important to *board members*.
 - 4.3.9. After the candidate is brought into the room, the chairperson will introduce the candidate and the board members and briefly explain the OEB procedure (see Attachment C). The scenario leading into the

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problem or emergency may be introduced by the chairperson or a designee.

4.3.9.1. Hand the candidate the scenario information sheet and review it with the candidate line by line and in detail.

4.3.9.2. Review the grading guidelines (reference guideline sheet). Ensure the candidate understands they are to conclude with documentation/turnover and they need to give a final analysis.

4.3.9.3. The candidate must answer a large majority of the questions and make the correct expected responses to pass.

4.3.9.4. Ensure the candidate knows **the situation must get progressively better over time and they must show adequate control to successfully pass the exam.**

4.3.10. The candidate will be required to evaluate the initial data for the scenario and provide recommendations for job preparation. When the anomaly is introduced, the candidate will be required to evaluate the initial symptoms, state the required immediate actions, state any additional measures, and conduct a final analysis of the scenario response. Anomalies may contain multiple situations that are not directly related to each other. The candidate may be required to perform calculations and determine the magnitude of the problem presented. The final analysis may be in the form of an oral turnover to the appropriate manager or supervisor assigned to relieve the RCT at the scene. The candidate must be able to explain the radiological consequences of the situation.

4.3.11. During the course of the candidate's presentation, board members will provide radiological data when asked.

4.3.12. If an unavoidable emergency or interruption requires a board member to leave, the chairperson will consider a recess or rescheduling the board, depending on the anticipated length of the delay.

4.3.13. Following the candidate's presentation, the chairperson may solicit additional specific questions from the board. Each board member

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should ensure that sufficient information has been presented to evaluate the performance of the candidate.

- 4.3.14. The candidate will leave the room while board members evaluate the candidate's performance.
- 4.3.14.1. Members should first discuss questions concerning any point of fact about the candidate's actions. This is intended to prevent erroneous grading by a single board member who did not hear or who misunderstood specific responses.
- 4.3.14.2. After this discussion, each board member independently compiles any comments or weaknesses noted, and assigns a grade for the performance.
- 4.3.14.3. Once the grade has been assigned, it should not be changed unless a board member discovers he or she has made an error.
- 4.3.14.4. The grade change and the error will be documented on the OEB record sheets.
- 4.3.15. The overall grade shall be recorded on the OEB record sheet. If a majority of the board members have given a satisfactory grade, the overall grade is satisfactory. If less than a majority of the board members have given a satisfactory grade, the overall grade is an unsatisfactory. The candidate will be required to take a reboard if an unsatisfactory grade is received.
- 4.3.16. Board results will be reviewed with the candidate by board members. The candidate and the chairperson sign the OEB record sheet. Records of the board results will be filed in the candidate's training record. Any significant addition to the scenario and anomaly should be documented on the grade sheet.

4.4. Amplifying Questions

- 4.4.1. Oral Board scenarios focus on job performance. Scenarios assume the job planning package has been approved and the pre-job briefing is about to begin. The scenario packages provide questions and representative

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answers. Candidates may address these questions, without prompting, as they describe their actions to prepare, perform and complete job coverage. If a candidate does not address those minimum areas, the examiner is expected to ask the question. Answers will be marked on the scenario grading form. The board should grade the examinee on their thoroughness and consideration of these questions.

4.4.2. In addition to the questions listed in the scenario, the examiner may choose from the following areas to explore the candidate's knowledge. The additional topics will be marked on the Scenario Grading Form. The examinee should address each chosen topic thoroughly for the task they have been given. For each topic, possible areas of discussion have been listed as guidance for the board to prompt the examinee. It is not required that all areas of discussion be covered in each topic.

4.4.3. **ALARA Considerations.** Possible areas of discussion include:

- Engineering Features
- Area Arrangement
- Conduct of the Job
- Maintenance Needs
- Radiological Control Needs
- Collective vs. Individual Dose
- ALARA reviews and Trigger Levels
- Tool and Equipment Requirements
- Stop Work Authority

4.4.4. **External Exposure Control Methods.** Possible areas of discussion include:

- Time Saving Techniques: Mock Ups, Pre-Job Briefings, Pre-Stage all Tools and Equipment, Communication Devices, Experienced Personnel
- Distance Techniques: Remote Handling, Extendable Instruments, etc.
- Shielding
- Source Reduction Techniques: Natural Decay, Decon or Flushing, etc.

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4.4.5. **Internal Exposure Control Methods.** Possible areas of discussion include:

- Modes of Entry: Inhalation, Ingestion, Absorption, Injection
- Discussion of ALI/DAC
- Posting at .1 DAC

4.4.6. **Instrumentation Considerations.** Possible areas of discussion include:

- Portable alpha instrument, if alpha is present
- Geiger-Mueller, if beta-gamma contamination is present. Must be aware of background considerations
- Ion chamber type instrument for mixed beta-gamma field measurements. Must consider application of a correction factor for accurate readings of beta dose rates

4.4.7. **Dosimetry Considerations.** Possible areas of discussion include:

- DOE Limits
- Administrative Control Limits
- Advantages and Disadvantages of TLD
- Types of Record Dosimeters
- Supplemental Dosimetry
- Non-Record Dosimetry

4.4.8. **Contamination Control Methods.** Possible areas of discussion include:

- Access/Administrative Controls
- Engineering Controls
- Personal Protective Measures
- Decontamination
- Type and Form of Contamination
- Levels of Contamination
- Type of Work Being Performed

4.4.9. **Airborne Sampling Methods.** Possible areas of discussion include:

- Air sampler placement
- Possibility for changing conditions

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- When to pull air sample
- Maximum concentration level allowed for respiratory protection worn
- How to pull a representative sample
- Volume of sample to be pulled
- CAM set-up at work location, if needed
- Discussion of airborne potential

4.4.10. **Respiratory Protection.** Possible areas of discussion include:

- Advantages/disadvantages of each type
- Limitations of each type
- Protection FACTORS
- The nature of the hazard — physical and chemical properties
- Activity of the workers
- Respirator selection

4.4.11. **Access Control and Work Area Set-up.** Possible areas of discussion include:

- Information on RWP
- Limiting Conditions
- Work Package Hold Points
- Posting Requirements
- Protective Clothing
- Barrier Set-Up
- Containment Devices
- Ventilation Systems
- Monitoring Equipment
- Material/Personnel Release
- Work Area Clean-Up

4.4.12. **Radiological Work Coverage.** Possible areas of discussion include:

- Continuous versus Intermittent Coverage
- Consideration of Job Scope
- Exposure Control During the Job
- In-Progress Surveys
- Stop Work Criteria

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- Minimizing Contamination Spread
- Minimizing Airborne Generation

4.5. Anomaly Grading Guidelines

4.5.1. **Assess the Initial Conditions.** When the chairperson introduces the anomaly to the candidate, the candidate should take steps to identify the radiological conditions, physical condition of any victims and/or the consequences to the facility and the environment.

4.5.2. **Initiates Appropriate Response to Anomaly.** After the anomaly is introduced into the scenario, the candidate should ensure appropriate actions are taken to control and mitigate the problem.

4.5.3. **Notifies Appropriate Personnel.** The candidate makes the necessary notifications.

4.5.4. **Identifies Needed Resources/Initiates Supplementary Actions.** The candidate should be able to identify other resources that may be needed to rectify the anomaly and take supplementary actions. Other resources could be air sampling equipment, more instrumentation, requesting help, etc.

Supplementary actions are actions taken after the anomaly has been controlled. This could include nasal smears, calculations, release surveys, etc.

4.5.5. **Documentation and Turnover.** The candidate should be able to discuss documentation (surveys, log entries, etc.) and give a proper turnover to a manager or another technician (not all scenarios will have a turnover). The turnover should include information of the work being performed, the anomaly that occurred, key issues, radiological data, etc.

4.5.6. **The Situation Became Progressively Better Over Time.** This is a critical item. It is imperative the actions taken during the anomaly improve the situation during the course of the board. If the actions taken make the situation worse, the candidate will have failed the oral examination board.

4.6. Oral Examination Board Grading Classification

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- 4.6.1. **Satisfactory**—The candidate understands the material. The candidate answered a large majority of questions correctly, showed a logical thought process in arriving at the answer and gave supporting information. The candidate correctly identified the problem. The candidate implemented immediate actions in a timely manner and established correct priority for critical emergency procedures. The candidate requested/evaluated important additional information to assess and control the situation and correctly implemented supplementary actions. Key issues and data were included in the final analysis. Over time, the situation was made progressively better by the candidate's actions. The candidate demonstrated very few weaknesses of which none were significant.
- 4.6.2. **Unsatisfactory**—The candidate does not have an understanding of the material. The candidate answered a few questions correctly, but did not show a logical thought process in arriving at the answer and often gave incorrect or no supporting information. The candidate did not correctly identify the emergency or problem and did not implement immediate actions in a timely manner. The candidate did not establish the correct priority for critical emergency procedures and did not request or evaluate important additional measurements to assess and control the situation. Key issues and data were not included in the final analysis. Over time, the situation became progressively worse as a result of the candidate's actions. The candidate demonstrated numerous significant weaknesses.

4.7. Board Invalidation

- 4.7.1. The board chairperson is responsible for ensuring a fair and equitable board takes place. If the chairperson feels this has not happened, the chairperson may invalidate the board. Some reasons may include:
- 4.7.1.1. Board members asking questions not specifically related to the candidate's job assignment.
- 4.7.1.2. An excessive or lengthy interruption of the board due to some external circumstance.

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4.7.1.3. Insufficient required references for the candidate to use during the board such that an unsatisfactory evaluation resulted.

4.7.2. This list is not meant to be complete. The board chairperson must determine, on a case-by-case basis, if factors beyond the candidate's control caused an unsatisfactory grade in any area of the board or the board overall. If this is the case, the board will be invalidated and considered not held.

4.8. Examination Security

4.8.1. Security of exam scenarios and anomalies must be maintained at all times.

4.8.2. When each board is completed, scenarios and anomalies must be shredded.

4.8.3. Examination materials should never be left unattended or given to personnel who are unaware of or are incapable of meeting examination security and storage requirements.

4.8.4. Examination scenarios used for qualification boards will not be used for practice boards.

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**Attachment A
Oral Examination Board Grading Form**

Candidate: _____

Date: _____

Board Member: _____

Scenario Number: _____

Overall Grade (circle one):

Satisfactory

Unsatisfactory

Scenario Grading Form				
In addition to the scenario questions, board members will select a minimum of four (4) discussion topics for each oral examination board. Mark the selected topics with an "X"				
Discussion Topic	SAT	UNSA T	Comments/Strengths/Weaknesses	
X	Scenario questions (required)*			
	1. ALARA Considerations			
	2. External Exposure Control			
	3. Internal Exposure Control			
	4. Instrumentation			
	5. Dosimetry			
	6. Contamination Control Methods			
	7. Air Sampling Program/Methods			

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	8. Respiratory Protection			
	9. Access Control and Work Area Setup			
	10. Radiological Work Coverage			

*Indicates a critical item

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**Attachment A
Oral Examination Board Grading Form - (continued)**

Candidate: _____

Date: _____

Board Member: _____

Anomaly Letter: _____

Anomaly Grading Form			
Discussion Topic	SAT	UNSA T	Comments/Strengths/Weaknesses
Assess the Initial Conditions			
Initiate Appropriate Response to the Anomaly			
Notify Appropriate Personnel			
Identify Needed Resources/Initiates Supplementary Actions			

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Documentation and Turnover			
* The Situation Became Progressively Better Over Time			

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**Attachment B
Oral Examination Board Record Sheet**

TYPE OF ORAL EXAMINATION BOARD: (Select one of the following)	
Rad Con Supervisor _____	Rad Con Technician _____
Other (Please specify) _____	
Scenario Number: _____	Anomaly Letter: _____
BOARD MEMBERS:	
_____ Chairperson's Signature	_____ Date
_____ Board Member's Signature	_____ Date
_____ Board Member's Signature	_____ Date
Overall Grade: Satisfactory _____ Unsatisfactory _____	
COMMENTS: _____ _____ _____ _____	
CANDIDATE:	
NAME: _____ PAYROLL or HID: _____	
I have reviewed the board members' evaluation sheets, and have been given the opportunity to provide written comments.	

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SIGNATURE: _____	DATE: _____
CANDIDATE COMMENTS: _____	

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**Attachment C
Oral Board Information for Candidates**

You will be given a scenario with a specific task identified. The scenario is designed to test your ability to respond to a variety of conditions and, therefore, may or may not duplicate actual field conditions at your facility. You will be expected to discuss any or all of the following topics:

- ALARA considerations
- External exposure control
- Internal exposure control
- Instrumentation
- Dosimetry
- Contamination control methods
- Airborne sampling program/methods
- Respiratory protection
- Access control and work area setup
- Radiological work coverage
- Documentation

You will be expected to solicit information from the board about the results of any actions you perform.

If you don't understand a question, **ASK** the board for clarification.

At some point, a radiological anomaly will be introduced. You will be expected to inform the board in a step-by-step fashion **EXACTLY** how you would respond to the situation.

During the board you may request a break (2-3) minutes if you feel it is necessary to collect your thoughts.

While performing the job assignment, and while responding to the problem, data will be provided to support your actions as they are done. You will not be given data if you don't perform an action.

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You may make assumptions to support your actions if the board agrees. The board will tell you if your assumption is not acceptable.

You may be required to perform field calculations and/or conversions (i.e., air samples, cpm to dpm, etc.).

If you feel you need references, request the **SPECIFIC** references. If the board feels the scenario would support your access to those references, the board will provide the references or a verbal synopsis of the references.

You are encouraged to use the white/chalk board as you proceed through the scenario and anomaly.

To conclude the board you will be expected to discuss documentation (Log entries, Surveys, Problem Reports, etc.) and provide a turnover if needed. You will need to include radiological data, the magnitude, and consequences of the problem.

On the anomaly, you will be graded satisfactory or unsatisfactory in the following areas:

- Assessing the initial conditions.
- Initiating appropriate response to the radiological problem.
- Making appropriate notifications (if needed).
- Identifying needed resources.
- Initiating supplementary actions.
- Documenting your finding and providing a proper turnover.
- *The situation became progressively better over time.

* Critical item.