

Hoisting and Rigging Training Program Description

HAMMER/Hanford Training

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

Contractor for the U.S. Department of Energy
under Contract DE-AC06-09RL14728



P.O. Box 650
Richland, Washington 99352

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Hoisting and Rigging Training Program Description

HAMMER/Hanford Training

Bret M. Akers
Mission Support Alliance


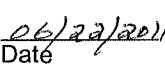
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ADMINISTRATIVE DOCUMENT PROCESSING AND APPROVAL

Page 1 of 2

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Name	Phone Number
Author: Bret Akers	376-3712
Manager: Stan Scott	376-0618

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The changes for Rev. 20 include:

- Added cover page for Site Training Manager concurrence
- Revised Section 4.1 to clarify equivalencies and qualification
- Moved Section 5.0, Requalification, to section 4.1.3
- Revised Figure 4.3 to better align steps in order of occurrence
- Revised all Site Form tables to show change in form numbers
- Combined Class 7 forklifts with class 4 and 5
- Added table in Section 4.5 for Forklift Maintenance OJEs. Site Form numbers are still pending. This section pertains only to vehicle maintenance personnel.
- Revised requalification frequency for all courses, except forklift, from 36 to 60 months.
- Revised Table 4.8.1 to clarify retraining options
- Added clarification for Basic Crane & Rigging Safety in section 4.8.3, Hoisting & Rigging Supervisor/Manager
- Removed redundancy of Basic Crane & Rigging Safety requirement in Table 4.8.2
- Moved Rigging Engineer requirements from Section 4.16 to Section 4.8.9 (Adjunct Staff section)
- Added Wire Rope & Rigging Hardware Inspection to Section 4.12, Overhead Crane Mechanical Inspectors, to clarify requirement in H&R Manual.
- Revised Section 4.14, Incidental Rigging, to clarify retraining/requalification requirements.
- Renumbered section headings accordingly

REVIEWERS		Others
Name (print)		Organization
Dana Morgan (Technical Authority)		MSA Crane & Rigging
Frank Hejmanowski		WRPS Training
Jamie Morris		CHPRC/ENREP Training
Mike Kelly		WCH Training
Joshua Camp		ATL Quality Assurance

ADMINISTRATIVE DOCUMENT PROCESSING AND APPROVAL (continued)

Page 2 of 2

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APPROVAL SIGNATURES

Author:	<i>Bret Akers</i>	6-22-11
Name: (Print)	Bret Akers	Date
Responsible Manager:	<i>C. P. Lesperance</i>	6/22/11
Name: (Print)	Stan Scott	Date
Other:		
Name: (Print)		Date

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(Print and Sign)		(Print and Sign)	
Approval by Direct Report to President (Speech/Articles Only) <u>[Signature]</u> (Print and Sign)			
I. Reviewers	Yes	Print	Signature
General Counsel	<input checked="" type="checkbox"/>	<u>Susan Brechbill</u>	<u>E-mail Pg. 2</u>
Office of External Affairs	<input checked="" type="checkbox"/>	<u>Deanna Smith</u>	<u>E-mail Pg. 3</u>
DOE-RL	<input checked="" type="checkbox"/>	<u>Rob Hastings</u>	<u>[Signature]</u>
Other	<input type="checkbox"/>	_____	_____
Other	<input checked="" type="checkbox"/>	<u>J. D. Aardal</u>	<u>[Signature]</u>
J. Comments		Information Clearance Approval	
The Hoisting & Rigging Training Program Description needs to be available to subcontractors that do not have access to the Hanford Site intranet.			
If Additional Comments, Please Attach Separate Sheet <u>1 of 3</u>			

Aardal, Janis D

From: Brechbill, Susan R
Sent: Monday, June 13, 2011 9:45 AM
To: Akers, Bret M; Smith, Deanna L; Hastings, Robert; Aardal, Janis D
Cc: Gulley, Stephen M; Fowler, Sandra B
Subject: RE: Review of Hoisting & Rigging Training Program Description, Rev. 20, for external release

Categories: Green Category, Blue Category

I have reviewed the training program description and have no legal issues with it. Susan Brechbill

From: Akers, Bret M
Sent: Tuesday, June 07, 2011 1:08 PM
To: Brechbill, Susan R; Smith, Deanna L; Hastings, Robert; Aardal, Janis D
Cc: Gulley, Stephen M
Subject: Review of Hoisting & Rigging Training Program Description, Rev. 20, for external release

Attached is the final MS Word version of the H&R TPD, Rev. 20, for your review. Please forward any comments you may have to me. If you have no comments, please acknowledge your approval via email to Janis Aardal and myself. Thank you.

Bret Akers, Program Manager
Hoisting & Rigging Training Program
HAMMER Training & Education Center
376-3712

Aardal, Janis D

From: Smith, Deanna L
Sent: Tuesday, June 07, 2011 2:19 PM
To: Akers, Bret M; Brechbill, Susan R; Hastings, Robert; Aardal, Janis D
Cc: Gulley, Stephen M
Subject: RE: Review of Hoisting & Rigging Training Program Description, Rev. 20, for external release

Categories: Green Category, Blue Category

Approved.


Thanks, D

Deanna Smith

Communications/External Affairs & Community Outreach

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

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

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From: Akers, Bret M
Sent: Tuesday, June 07, 2011 1:08 PM
To: Brechbill, Susan R; Smith, Deanna L; Hastings, Robert; Aardal, Janis D
Cc: Gulley, Stephen M
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Bret Akers, Program Manager
Hoisting & Rigging Training Program
HAMMER Training & Education Center
376-3712

Hoisting & Rigging Training Program Description

Approvals:

MSA Functional Manager: Stan W. Scott /  Date: 5/31/11

Technical Authority: Dana L. Morgan /  Date: 6-16-2011

Concurrence:

Training Manager, ATL: Joshua A. Camp / on file Date: 4-26-11

Training Manager, CHPRC: James M. Morris / on file Date: 5-3-11

Training Manager, WCH: P. Mike Kelly / on file Date: 5-23-11

Training Manager, WRPS: Frank Hejmanowski / on file Date: 5-2-11
for Lloyd Keith


Prepared by: Bret Akers, Program Manager 
Hoisting & Rigging Training Program
HAMMER Training & Education Center

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1.0 PURPOSE

This document implements requirements for the Hanford Site Hoisting and Rigging (H&R) Training Program. The program implements the training requirements contained in the source documents listed in Section 6.0.

2.0 SCOPE

The H&R Training Program Description (TPD) applies to Mission Support Alliance employees and its sub-tier contractors whose assignments include performance of hoisting and rigging activities identified in DOE-RL-92-36, *Hanford Site Hoisting & Rigging Manual* (H&R Manual). This TPD also applies to those Hanford Site contractors and their subcontractors that have signed concurrence with the H&R training requirements contained in this document.

3.0 RESPONSIBILITIES

3.1 Director, HAMMER/Hanford Training

The Director of HAMMER/Hanford Training is responsible for ensuring:

- Training is designed and developed using a performance-based, graded systematic approach.
- Formal site-wide training is implemented in accordance with current hoisting and rigging training standards and regulatory drivers.
- Training materials are approved prior to implementation.
- Evaluations of training activities and instructors are performed as needed, and feedback from these evaluations is used to improve training.
- Auditable copies of training documentation are maintained by Training Records.

3.2 Site Training Managers

Site Training Managers signatory to this document are responsible for reviewing, validating, and processing training equivalency documentation for hoisting and rigging training.

3.3 Managers

Managers of hoisting and rigging activities are responsible for:

- Ensuring employee's training identified in the H&R TPD is completed prior to operation or assignment of activities involving forklifts, hoists & cranes, or hoisting and rigging equipment.
- Ensuring qualified personnel maintain the required proficiency for their assigned tasks.
- Ensuring On-The-Job Training (OJT) and On-The-Job Evaluations (OJE) are conducted by individuals qualified in accordance with this TPD.
- Determining if personnel who have not performed work or operated equipment for which they were trained and qualified for 12 continuous months need to be re-evaluated.

4.0 TRAINING REQUIREMENTS

4.1 General Training Process

Qualification training activities may include:

- Classroom instruction or computer based training
- Written examinations
- On-The-Job Training (OJT)
- On-The-Job Evaluation (OJE)

4.1.1 Equivalencies for Previous Training or Experience

Documented evidence of previous training or experience may be accepted to meet training requirements. Previous training or experience may include:

- a. Certificates of training from a vendor or equipment manufacturer where the training has been reviewed and determined to meet the training requirements of the H&R Manual
- b. Completion of an applicable trade union training program
- c. Journeyman status in an applicable trade
- d. A degree or accreditation from a college or trade school.

Equivalencies for previous training or experience will not be granted for Basic Crane & Rigging Safety (040784) or On-the-job Evaluations (OJEs). A challenge exam is available for the Basic Crane & Rigging Safety course.

4.1.2 Qualification

Personnel shall be considered qualified when they:

- a. Complete the training course(s) prescribed by this document; or meet the requirements of previous training or experience; or pass a written examination (challenge exam) of the knowledge requirements for the applicable activity identified in the H&R Manual.
- b. Complete OJT for the equipment/activity, or it is waived by management
- c. Successfully complete the equipment/activity specific OJE/oral test listed in this document; or, for non-operator or rigger qualification, pass a written test.

Operators of mobile, locomotive, and cab- or pulpit-operated overhead cranes must also meet Physical Examination and Substance Abuse Testing requirements every 36 months, as identified in the H&R Manual, Chapter 4.0, Section 4.2.3.

4.1.3 Requalification

Requalification shall consist of satisfactorily completing the training requirements for that activity or equipment as specified in the training activity sheet (TAS) for each course. Personnel shall be retrained when any of the following occurs:

- Acquisition of equipment with new operating characteristics
- Modification of existing equipment, changing the operating characteristics
- Personnel receive an unsatisfactory OJE
- Changes in standards or requirements that could affect safety

- Personnel are directly involved in a documented incident that compromises safety of personnel, equipment, or the environment in the performance of hoisting and rigging activities
- Personnel performance is determined to be unsatisfactory or diminished skill level is observed

Note: It is highly recommended that personnel be re-evaluated when they have not performed the work activity or operated the equipment for 12 continuous months.

4.1.4 Training Subjects

The H&R Manual, Chapter 4.0, Personnel Qualifications and Training Requirements, Appendix A, contains a list of subjects, by qualification area, that should be included in the training process. Refer to the H&R Manual for detailed information. The course content will meet the requirements of applicable ASME or OSHA standards as a minimum. If two standards set forth inconsistent requirements, the standard containing the most stringent requirements shall be followed.

4.1.5 Written Examinations

Written examinations are used to document the employee's knowledge level of the subject matter and will have a minimum passing criterion of 80%.

Challenge examinations are available for some equipment and job assignments for individuals with previous experience or training. If an employee fails a challenge examination:

- a. The student will be informed upon failure to meet the passing standard.
- b. The student will be given the opportunity to review their graded examination.
- c. The student will be allowed the opportunity to review the course materials.
- d. The student will be allowed to take a second, different, challenge examination at that time, or be rescheduled to complete the second challenge examination at a later time.
- e. If the student does not pass the second challenge examination or chooses not to perform the re-examination, the instructor will notify the training activity point of contact (POC), who then notifies the responsible manager and the student's company training manager to inform them of the student's status.
- f. The student will then be required to take the initial course for that equipment type or activity.

4.2 On-The-Job Training

On-the-Job Training (OJT) provides instruction and practice under the direct supervision of a qualified operator, or a qualified H&R On-the-Job Evaluator, in an appropriate work environment, using standardized performance criteria.

- Hoisting equipment operators must meet the qualification requirements of this TPD.
- H&R On-the-Job Evaluators shall complete qualification requirements per section 4.3.1.

4.3 On-The-Job Evaluation

On-the-Job Evaluations (OJE) are used to validate that personnel have the knowledge and skills to operate hoisting equipment safely, and perform the hoisting and rigging activities. Personnel must be evaluated for each type and class of equipment operated, or rigging activity performed. Personnel who

pass an evaluation for a type and class of equipment are considered qualified on all equipment of the same type and class. The OJE's require a minimum passing score of 80%.

Site forms used to document the OJE contain instructions to be followed during the performance, grading, and disposition of the evaluation. Site Forms can be found on the Hanford Intranet at <http://apweb01.rl.gov/siteforms/>.

4.3.1 On-the-Job Evaluators

H&R On-the-job Evaluators qualify employees to perform hoisting and rigging activities by providing an objective assessment of an individual's ability to operate equipment or systems, or perform designated rigging activities. H&R On-the-job Evaluators shall be designated by management and complete both technical and instructional competencies.

4.3.1.1 Technical Competencies

The H&R On-the-job Evaluator's technical competencies consist of evidence to substantiate the evaluator's knowledge about the rigging application, systems or equipment (including all lifting devices and/or special equipment options) for which they will be providing on-the-job evaluations. Acceptable evidence includes one of the following:

1. Completion of the initial classroom training
2. Successful completion of a challenge examination
3. Qualification on a class of equipment in the equipment type, or in a rigging application

In addition, H&R On-the-job Evaluators conducting evaluations on forklifts or mobile cranes shall complete Propane Bottle Change-out (044674).

4.3.1.2 Instructional Competencies

The On-the-job Evaluator's instructional competencies consist of evidence to substantiate knowledge about the processes of evaluating the performance of an OJE. Evidence includes completion of all three of the following activities:

1. On-the-Job Trainer Fundamentals (000396), or equivalent
2. On-the-Job Evaluator Fundamentals (000397), or equivalent
3. H&R On-the-Job Evaluator Instruction Qualification (003909) is documented using site form A-6005-468.

Note: Instructional competencies are not required to be repeated for each equipment type or class.

4.3.1.3 Maintaining H&R On-the-job Evaluator Qualification

To maintain H&R On-the-job Evaluator qualification, employees must complete both instructional and technical proficiency at the prescribed frequencies listed on the respective training activity sheets.

- Technical proficiency is maintained by completing one of the technical competencies listed in section 4.3.1.1
- Instructional proficiency is maintained by completing H&R On-the-Job Evaluator Instruction Qualification (003909)

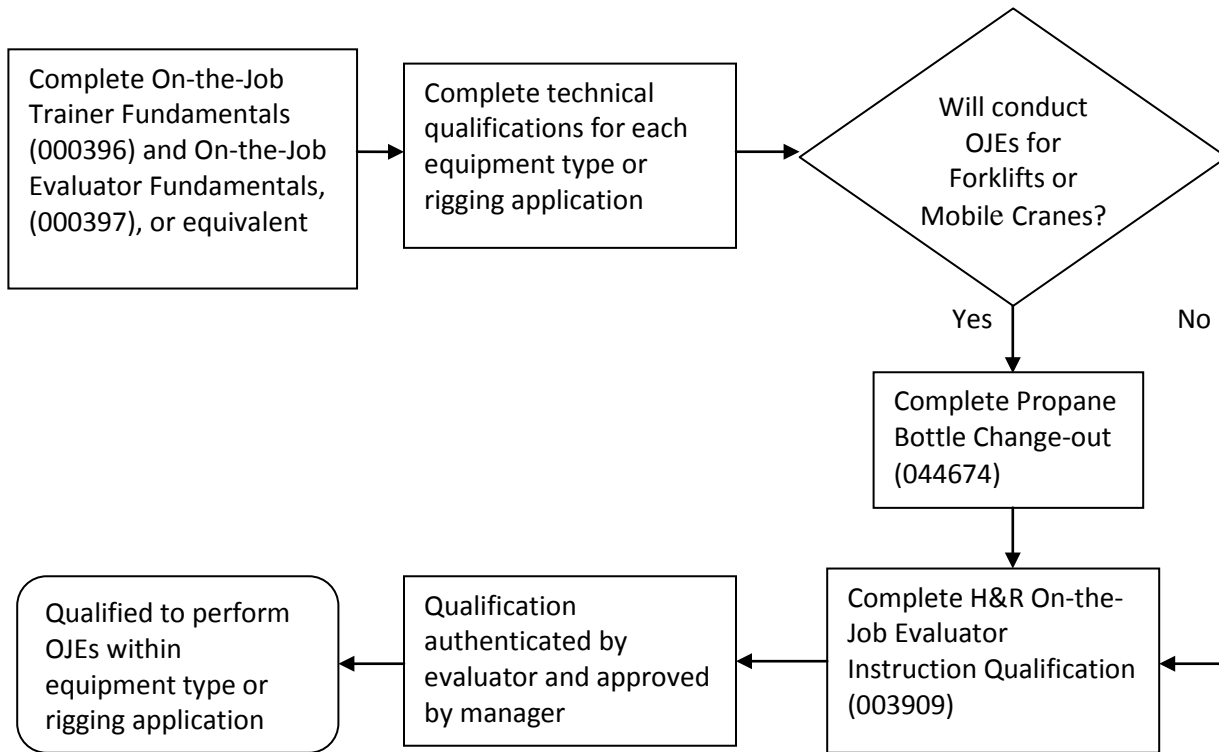


Figure 4.3 H&R On-the-Job Evaluator Qualification

4.3.1.4 OJE Evaluator Qualification

H&R on-the-job evaluator qualification is authenticated by a qualified evaluator for the hoisting equipment type, or for the particular rigging activity, and approved by the employee’s manager. HAMMER/Hanford Training has developed a report to aid in the verification of OJE Evaluator qualifications. The report is available at: <http://wbt.rl.gov/admin/WET/hoistingRiggingOJEEvalForm.cfm>

- Advanced Rigging
- Cab-Operated Overhead Cranes
- Floor-Operated Overhead Cranes
- Forklifts
- Incidental Rigging
- Mobile Cranes
- Propane Bottle Change-out

4.3.1.5 Qualifications of Instructional Competency Evaluators

Only personnel qualified as a H&R On-the-job Evaluator, per Section 4.3.1 of this TPD, may conduct evaluations of H&R On-the-job Evaluators performing an on-the-job evaluation.

4.4 Forklift Operators

The forklift operator qualification process requires the completion of classroom training, Forklift Operational Safety (044470) or the Forklift Operator Challenge Examination (041890). Upon successful completion of the classroom training, the individual shall be given OJT for each class of forklift the employee will operate. Management may allow previously qualified or experienced personnel to bypass the OJT and proceed to the OJE.

After the OJT has been completed, a qualified evaluator shall conduct an OJE. The evaluator shall document completion of the operator’s OJE on the appropriate site forms per Table 4.4. Individuals assigned to operate multiple classes of forklifts shall complete and document an OJE for each class of forklift they will operate. Each completed on-the-job evaluation shall be signed by the employee and qualified evaluator, and forwarded to Training Records at MSIN G6-60.

Forklift operators maintain their qualification by completing an OJE on the class of forklift the employee is assigned to operate every 36 months. Operators that change out propane bottles on forklifts and On-the-job Evaluators for forklifts shall complete Propane Bottle Change-out (044674).

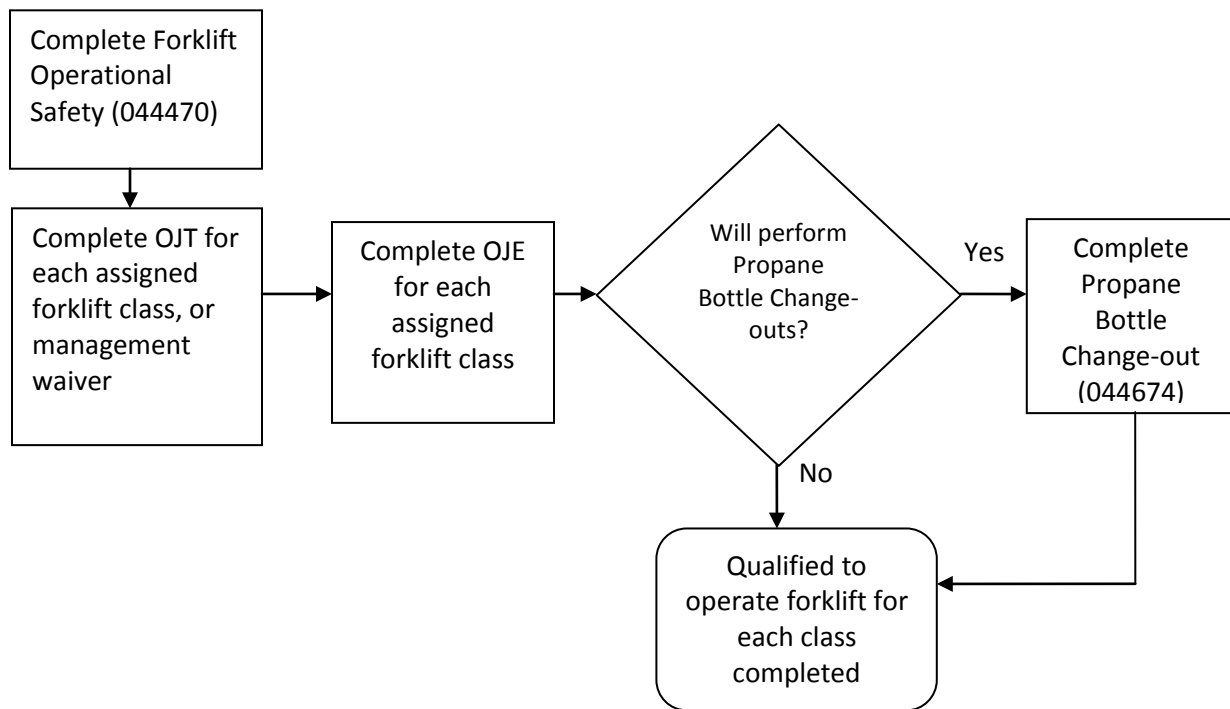


Figure 4.4 Forklift Qualification

Forklift Operator Qualification	Activity No.	TCR/Evaluation Form	Answer Guide
Class 1 & 2 Electric Counter Balance and Electric Narrow Aisle	044672	A-6002-764	A-6002-763
Class 3 Electric Hand Trucks	04467B		
Class 4, 5, & 7 Internal Combustion, Solid and Pneumatic Tires, and Rough Terrain, Straight Mast	044673		
Class 6 Tractor	04467E		
Class 8 Rough Terrain, Telescopic Boom	044676	A-6004-378	A-6004-379
Propane Bottle Change-out (As applicable)	044674	A-6002-954	A-6002-953

Table 4.4 Forklift Operator OJE Site Forms

If the operator is required to utilize equipment attachments, a qualified forklift OJE evaluator shall document the evaluation on site form A-6004-380, Equipment Attachment – On-the-Job Evaluation Addendum. The operator’s supervisor shall maintain these forms in the operator’s field file, or in a similar reference file.

4.5 Forklift Inspectors

Forklift inspectors shall be qualified to perform documented periodic inspections of forklifts to determine if any damage, failure, deformation, or condition exists that could impair safe operation per the H&R Manual, applicable ASME, ANSI/ITSDF, NFPA, and OSHA standards. Qualification includes completing the forklift operator requirements of Section 4.4, Forklift Inspection (041885), and the applicable forklift OJE for each class of forklift to be inspected. See Table 4.4.

4.6 Floor-Operated Overhead Cranes

Floor-operated overhead crane qualification requires the completion of Basic Crane & Rigging Safety (040784), or the Basic Crane & Rigging Safety Challenge Exam (040788). Upon successful completion, the individual may be given on-the-job training (OJT) on the class of floor-operated overhead crane and hoist the employee will operate. Management may allow previously qualified or experienced personnel to bypass the OJT and proceed to the OJE.

After completing the OJT, an OJE, conducted by a qualified evaluator, shall be completed. The evaluator shall document completion of the employee’s OJE on the appropriate Site Forms per Table 4.6. Facilities can designate and use activity numbers 044691, 04469A, 04469B, or 04469C to track qualifications for specific facility floor-operated overhead cranes and hoists. Each facility or project may also have additional required forms.

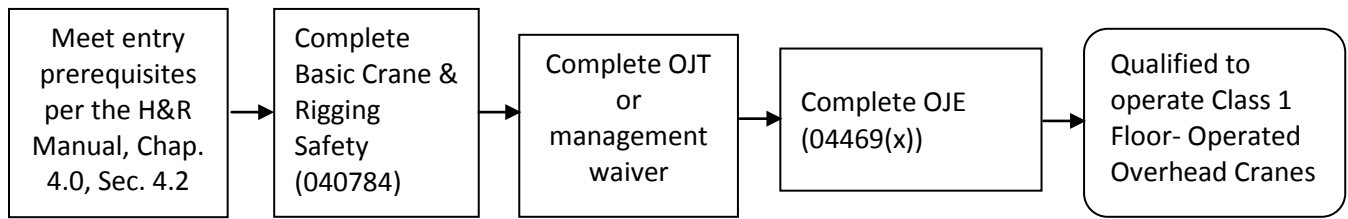


Figure 4.6 Floor-Operated Overhead Crane Qualification

Floor-Operated Overhead Crane Qualification	Activity No.	TCR/Evaluation Form	Answer Guide
Class 1 Floor-Operated Overhead Crane – General	044691	A-6002-752	A-6002-751
Class 1 Floor-Operated Overhead Crane Facility Specific - A	04469A		
Class 1 Floor-Operated Overhead Crane Facility Specific - B	04469B		
Class 1 Floor-Operated Overhead Crane Facility Specific - C	04469C		

Table 4.6 Class 1 Floor-Operated Overhead Crane OJE Site Forms

Crane operators maintain their qualifications by completing an OJE on a floor-operated overhead crane or hoist every 60 months.

4.7 Cab-Operated Overhead Cranes

Prospective cab-operated overhead crane operators must pass a physical examination per the H&R Manual prior to pursuing qualifications as a cab-operated overhead crane operator. Cab-operated overhead crane qualification requires the completion of Basic Crane & Rigging Safety (040784) and Fire Extinguisher Training for Mobile/Cab-Operated Crane Operators (170661). Upon successful completion of the classroom training and examination, the individual may be given on-the-job training (OJT) conducted at the project or facility on the cab-operated overhead crane the employee will operate. Management may allow previously qualified or experienced personnel to bypass the OJT and proceed to an OJE.

After the completing OJT, an OJE, conducted by a qualified evaluator, shall be completed. The evaluator shall document completion of the employee’s OJE (044701) for Class 2 Cab-Operated Crane/Hoist on the appropriate site forms per Table 4.7. Each completed on-the-job evaluation shall be signed by the employee and the qualified evaluator, and then forwarded to Training Records.

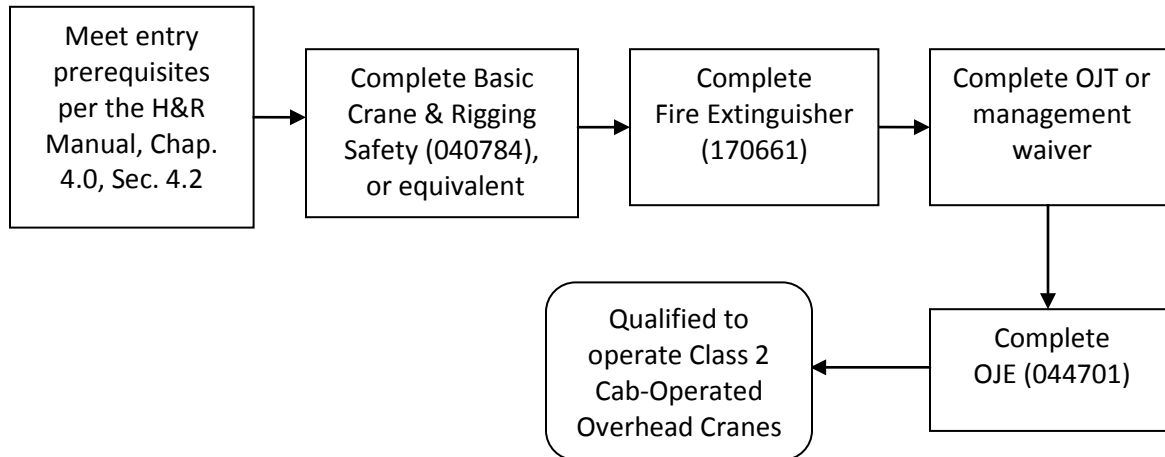


Figure 4.7 Cab-Operated Overhead Crane Qualification

Overhead Crane Qualification	Activity No.	TCR/Evaluation Form	Answer Guide
Class 2 Cab-Operated Crane/Hoist Equipment Specific Evaluation	044701	A-6002-755	A-6002-754

Table 4.7 Class 2 Cab-Operated Overhead Crane OJE Site Forms

Cab-operated overhead crane operators maintain their qualification by completing the OJE (044701) on the specific crane to be operated every 60 months.

4.8 Adjunct Staff

4.8.1 Designated Leader (DL)

Designated leaders direct hoisting and rigging field activities, as identified in the H&R Manual Section 2, *Responsibilities*, and Appendix A, Section K, *Designated Leader*. Designated leaders shall be trained and knowledgeable about the equipment operation and rigging activities to be performed. Designated leader qualification is based upon the equipment and/or rigging activity being directed, and shall meet the training requirements listed in Table 4.8.1 for each type of equipment, and/or rigging activities being directed.

Equipment or Rigging Activity	Initial Training	Retraining
Cab- and Floor-Operated Overhead Cranes	Basic Crane & Rigging Safety (040784)	Basic Crane & Rigging Safety Refresher (040786) OR Overhead crane qualification via OJE
Mobile Cranes	Basic Crane & Rigging Safety (040784) AND either: Advanced Rigging Techniques (042310) OR Mobile Crane Operation & Setup (042321) and Load Charts and Load Moment Indicators (042327)	Advanced Rigging Techniques (042310) OR Advanced Rigging qualification via OJE (042865) OR Mobile-Crane Operation & Set-up (042321) and Load Charts and Load Moment Indicators (042327) OR Mobile Crane Operator qualification via OJE
Forklift (when using the forklift to conduct a critical lift)	Forklift Operational Safety (044470)	Forklift Operational Safety (044470) OR Forklift Operator qualification via OJE
Incidental Rigging	Basic Crane & Rigging Safety (040784)	Basic Crane & Rigging Safety Refresher (040786) OR Incidental Rigging qualification via OJE OR Overhead Crane qualification via OJE
Advanced Rigging	Basic Crane & Rigging Safety (040784) AND Advanced Rigging Techniques (042310)	Advanced Rigging Techniques (042310) OR Advanced Rigging qualification via OJE (042865)

Table 4.8.1 Designated Leader Training Requirements by Equipment Type or Rigging Activity

4.8.2 Designated Leader/Lift Director for Critical Lifts

In addition to the qualifications in section 4.8.1 above, employees that are assigned as designated leaders, or lift director, for critical lifts shall complete Designated Leader for Critical Lifts Qualification (170666). The qualification is a combination of required reading, observing or conducting a pre-lift meeting, and an interview with the employee’s manager. Site Form A-6004-434 contains a training completion record, the required reading material, and a guide with questions for conducting the interview. Requalification is required every 60 months by completing training activity 170666. Designated Leaders for critical lifts should have a strong hoisting and rigging background and experience working with a critical lift crew.

4.8.3 Hoisting & Rigging Supervisor/Manager

This section applies to those supervisors and managers directly responsible for assigning employees to be designated leaders, supervise hoisting and rigging operations, conduct sling, wire rope, rigging hardware or hoisting equipment inspections, and conduct maintenance, and/or repair of hoisting and rigging equipment and components. Supervisors and managers shall complete Hoisting and Rigging Manual Overview (170664), or equivalent. Requalification shall be completed as prescribed for each course. Refer to the H&R Manual, Chapter 4, Personnel Qualifications and Training Requirements, Appendix A, Section L, *Supervisor*, for additional information that should be covered during the training process for supervisors.

4.8.4 Equipment Custodians

Equipment custodians are individuals designated by management who have custodial responsibility for cranes, hoists, forklifts, and other H&R equipment that requires scheduled maintenance, inspection, and record keeping, per the H&R Manual, Section 2.2.8. Initial and requalification requires completion of Equipment Custodian Training (042870) every 60 months.

4.8.5 Lift Procedure Technical Approver

Lift Procedure Technical Approvers perform technical reviews of hoisting and rigging lift plans/procedures (including critical lift plans/procedures). Employees assigned to review and approve lift procedures shall complete Basic Crane & Rigging Safety (040784) and Critical and Special Lifts (044900), and requalify every 60 months. Lift Procedure Technical Approvers responsible for critical lift procedures for forklifts or mobile cranes shall also meet the training requirements listed in Table 4.8.2 for each type of equipment.

Equipment Type	Qualification Activities
Mobile Cranes	Mobile Crane Operation & Setup (042321) Load Charts Load Moment Indicators (042327) Advanced Rigging Techniques (042310)
Forklifts, when using a forklift to conduct a critical lift	Forklift Operational Safety (044470)

Table 4.8.2 Lift Procedure Technical Reviewer Qualification

4.8.6 Safety Oversight

Individuals performing safety oversight of hoisting and rigging activities should be knowledgeable of the activities being performed, the responsibilities of the personnel engaged, and the pertinent safety related requirements for personnel and equipment that must be met to perform those activities in accordance with the H&R Manual. Employees who provide safety oversight of hoisting and rigging activities shall complete the Hoisting and Rigging Manual Overview course (170664). Requalification shall be completed every 60 months by retaking course (170664).

4.8.7 Buyer Technical Representatives

Employees who are involved with writing statements-of-work or purchasing goods or services that involve hoisting and rigging activities shall complete the Hoisting and Rigging Overview (170664). Requalification shall be completed every 60 months by retaking course (170664).

4.8.8 Classroom Instructors

Classroom instructors that present training on subjects identified in this TPD will complete Trainer's Training (170011), or equivalent, to ensure instructional competency. Classroom instructors shall meet previous training requirements identified in the H&R Manual Chapter 4.0, Section 4.3.1; have documentation of experience in the subject area; and approval of the H&R training program manager to instruct.

4.8.9 Rigging Engineer

In order to meet the qualifications for Rigging Engineer, employees are required to complete the following courses, or equivalent:

- Basic Crane & Rigging Safety, 040784
- Mobile Crane Operation & Set-up, 042321
- Load Charts & Load Moment Indicators, 042327
- Wire Rope & Rigging Hardware Inspection, 042820
- Advanced Rigging Techniques, 042310
- Forklift Operational Safety, 044470
- Equipment Operation Near Power Lines, 044605

4.9 Wire Rope and Rigging Hardware Inspection

Wire rope and rigging hardware inspection and maintenance is divided into the equipment categories below:

- Wire ropes
- Slings
- Hooks
- Rigging hardware
- Below-the-hook lifting devices
- A-frames and trolleys
- Portable Automotive Lifting Devices

Employees who perform wire rope and rigging hardware inspections shall be qualified by completing Basic Crane and Rigging Safety (040784) and Wire Rope & Rigging Hardware Inspection - Initial (042820). Completing these training requirements qualifies an employee to perform wire rope and rigging hardware inspections on all equipment categories listed above.

To maintain their qualification status, inspectors shall complete Wire Rope and Rigging Hardware Inspection Requalification (042822) and Basic Crane & Rigging Safety Refresher (040786), or equivalent, every 60 months.

4.10 Mobile Crane Inspection and Maintenance

Inspection and maintenance personnel, when required to operate a mobile crane for the performance of their work, shall complete the following activities:

1. Complete Basic Crane and Rigging Safety (040784)
2. Complete Wire Rope & Rigging Hardware Inspection (042820)
3. Complete Mobile Crane Operation & Set-up (042321)
4. Complete Equipment Operation Near Power Lines (044605)
5. Complete Mobile Crane Inspection (042930)
6. Complete Fire Extinguisher Training for Mobile/Cab-Operated Crane Operators (170661)
7. Complete an OJE, limited to those crane functions necessary to verify crane performance, as provided in Table 4.10.

Mobile crane operations by inspection and maintenance personnel are limited to those crane functions necessary to perform maintenance work and to verify crane performance after maintenance or repair. Inspection and maintenance personnel will complete those portions of the OJEs that allow the limited operations required to perform their activities. Completion of the OJE does not qualify mobile crane inspection and maintenance personnel to lift loads.

Mobile Crane Qualifications for Inspection and Maintenance Personnel	Activity No.	TCR/Evaluation Form	Answer Guide
Class 1 Lattice boom truck	04462A	A-6005-457	A-6005-458
Class 2 Lattice boom crawler	04462B	A-6005-469	A-6005-470
Class 3 Telescopic boom (Single Control Station)	04462C	A-6005-478	A-6005-477
Class 4 Telescopic boom truck (Multiple Control Stations)	04462D	A-6005-471	A-6005-472
Class 5 Commercial Truck – Mounted Crane – Telescoping Boom	04462E	A-6005-473	A-6005-474
Class 9 Telescoping Boom Fixed Control Station (Non-rotating cab)	04462F	A-6005-475	A-6005-476

Table 4.10 Mobile Crane Inspection and Maintenance OJE Site Forms

To maintain their mobile crane qualification status, mobile crane inspection and maintenance personnel shall complete the following activities every 60 months:

1. Wire Rope and Rigging Hardware Inspection Requalification (042822)
2. Mobile Crane Inspection Requalification (042932)
3. Mobile Crane Operation and Setup (042321) or Mobile crane OJE for class of crane being maintained, if required to operate the mobile crane

4.11 Overhead Hoist Inspectors

Individuals who perform periodic inspections of electric, air, chain fall, or lever operated hoists shall be qualified by first completing Basic Crane & Rigging Safety (040784), and then completing the Overhead Manual and Electric Hoist Inspection (101100).

To maintain their qualification status, overhead hoist inspectors shall complete the Overhead Manual and Electric Hoist Inspection (101100) and Basic Crane & Rigging Safety Refresher (040786), or equivalent, every 60 months.

4.12 Overhead Crane Mechanical Inspectors

Individuals who perform documented mechanical inspections of overhead cranes shall be qualified by completing:

- Basic Crane & Rigging Safety (040784)
- Overhead Crane Inspection – Mechanical (042830)

If the inspector is required to operate an overhead crane as part of the inspection, then the following must also be completed:

- Fire Extinguisher Training for Mobile/Cab-Operated Crane Operators (170661), for Cab-Operated Overhead Cranes
- The OJE for the class of overhead crane being inspected

To maintain their qualification status, overhead crane mechanical inspectors shall complete Overhead Crane Inspection – Mechanical (042830), and the applicable overhead crane OJE every 60 months.

Inspectors that also inspect the wire rope of the overhead crane must complete Wire Rope & Rigging Hardware Inspection (042820) and requalify every 60 months with Wire Rope & Rigging Hardware Inspection-Requal (042822).

4.13 Overhead Crane Electrical Inspectors

Individuals who perform documented electrical inspections of overhead cranes shall be qualified by completing:

- Basic Crane & Rigging Safety (040784)
- Overhead Crane Inspection – Electrical (043010)

If the inspector is required to operate an overhead crane as part of the inspection, then the following must also be completed:

- Fire Extinguisher Training for Mobile/Cab-Operated Crane Operators (170661), for Cab-Operated Overhead Cranes
- The OJE for the class of overhead crane being inspected

To maintain their qualification status, overhead crane electrical inspectors shall complete the Overhead Crane Inspection – Electrical (043010) and the applicable overhead crane OJE every 60 months.

4.14 Incidental Rigging

Incidental rigging training is required for personnel rigging loads from overhead cranes. Incidental rigging initial qualification requirements are met by completing the Basic Crane and Rigging Safety course (040784). If the employee's job requires that they also operate an overhead crane, then they must also complete the Class 1 Floor-Operated Overhead Crane OJE (044691).

If an employee completes the Basic Crane & Rigging Safety Challenge Exam (040788) to get credit for Basic Crane & Rigging Safety, the employee **is not** qualified to perform any hoisting or rigging activities until they complete an OJE corresponding to their work assignment. In many cases additional prerequisite training is also required, i.e., Advanced Rigging, Mobile Crane Operator, etc.

To maintain incidental rigging qualifications:

- If the employee performs incidental rigging activities only, then they need to complete the Incidental Rigging OJE (042860) found on site forms A-6002-904 and 905. At the supervisor’s discretion, or at the employee’s request, they may also complete the retraining requirement by retaking the Basic Crane & Rigging Safety course (040784).
- If the employee performs overhead crane operator activities, as well as incidental rigging activities, then they need to complete only the Class 1 Floor-Operated Overhead Crane OJE (044691) found on site forms A-6002-751 and 752.

If an employee completes the retraining by taking the Basic Crane & Rigging Safety Refresher (040786), or the challenge exam (040788), they **are not** qualified to perform overhead crane operator or incidental rigging activities until they also complete the corresponding OJE.

Incidental Rigging Qualification	Activity No.	TCR/Evaluation Form	Answer Guide
On-the-Job Evaluation	042860	A-6002-905	A-6002-904

Table 4.14 Incidental Rigging OJE Site Forms

4.15 Advanced Rigging

Advanced rigging training is required for personnel rigging loads from mobile cranes. Advanced rigging is the process of performing activities that involve any of the following hoisting and rigging functions:

- Calculating multi-leg sling loading using load angle factors, D/d ratios, and sling tension formulas
- Calculating load weights, and load on crane including manufacturer specified deductions
- Determining pick points
- Calculating the center of gravity and pick points for symmetrical and unsymmetrical loads
- Performing in-transit flagging, setup, and positioning of mobile cranes
- Working from suspended platforms
- Working near energized sources and power lines
- Assembling and disassembling lattice boom cranes and box-boom extensions and jibs
- Conducting critical lifts and special lifts
- Signaling mobile crane operators

Employees that meet the program prerequisites per the H&R Manual and complete Basic Crane and Rigging Safety (040784), Advanced Rigging Techniques (042310), and Advanced Rigging On-the-Job Evaluation (042865) will be qualified to perform and supervise the advance rigging activities listed above.

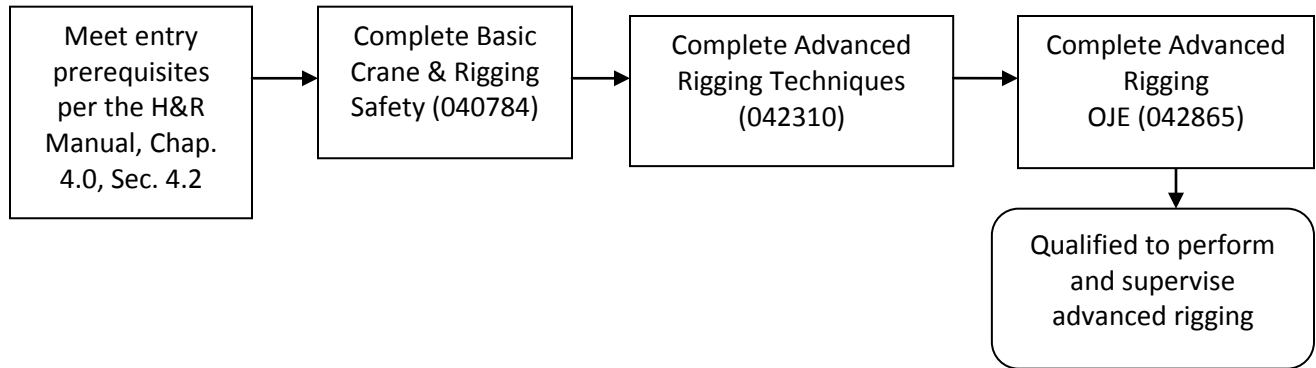


Figure 4.15 Advanced Rigging Qualification

Advanced Rigging Qualification	Activity No.	TCR/Evaluation Form	Answer Guide
On-the-Job Evaluation	042865	A-6002-908	A-6002-907

Table 4.15 Advanced Rigging OJE Site Forms

To maintain advanced rigging qualifications employees must complete one of the following every 60 months:

- Advanced Rigging Techniques (042310) or Advanced Rigging Techniques Challenge Examination (042315) for personnel not required to perform advanced rigging activities.
- Advanced Rigging OJE (042865) for personnel required to perform advanced rigging activities.

4.16 Mobile Crane Operators

4.16.1 Prerequisites

Per the H&R Manual the following prerequisites are required for Mobile Crane Operators:

- Pass a crane operator physical examination (H&R Manual, Chapter 4.0, Section 4.2.3.1)
- Pass a substance abuse test (H&R Manual, Chapter 4.0, Section 4.2.3.2)

4.16.2 Technical Training

Mobile crane operator qualification requires the completion of the following:

- Basic Crane and Rigging Safety (040784)
- Mobile Crane Operation & Set-up (042321)
- Load Charts & Load Moment Indicators (042327)
- Equipment Operation Near Power Lines (044605)
- Fire Extinguisher Training for Mobile/Cab-Operated Crane Operators (170661)

Note: National Commission for the Certification of Crane Operators (NCCCO) mobile crane certification is equivalent to both Mobile Crane Operation & Set-up (042321) and Load Charts & Load Moment Indicators (042327). An equivalency request must be submitted along with a copy of the operator’s certification card.

4.16.3 On-the-Job Training and Evaluations

Upon successful completion of the technical training, the employee may be given on-the-job training (OJT) on the mobile crane the employee will operate, see Mobile Crane Specific OJT, site form A-6005-516. Management may allow previously qualified or experienced personnel to bypass the OJT and proceed to the OJE. When OJT is waived, Management shall ensure the crane operator is familiar with the operating parameters of the assigned crane.

After the OJT has been completed, or waived, a qualified evaluator shall conduct an OJE. The evaluator shall document completion of the employee’s OJE on the appropriate site forms per Table 4.16. Each completed evaluation shall be signed by the employee and the qualified evaluator performing the evaluation, and forwarded to Training Records.

Personnel performing propane bottle change outs on mobile cranes, and on-the-job evaluators for mobile cranes, shall complete the Propane Bottle Change-out OJE (044674).

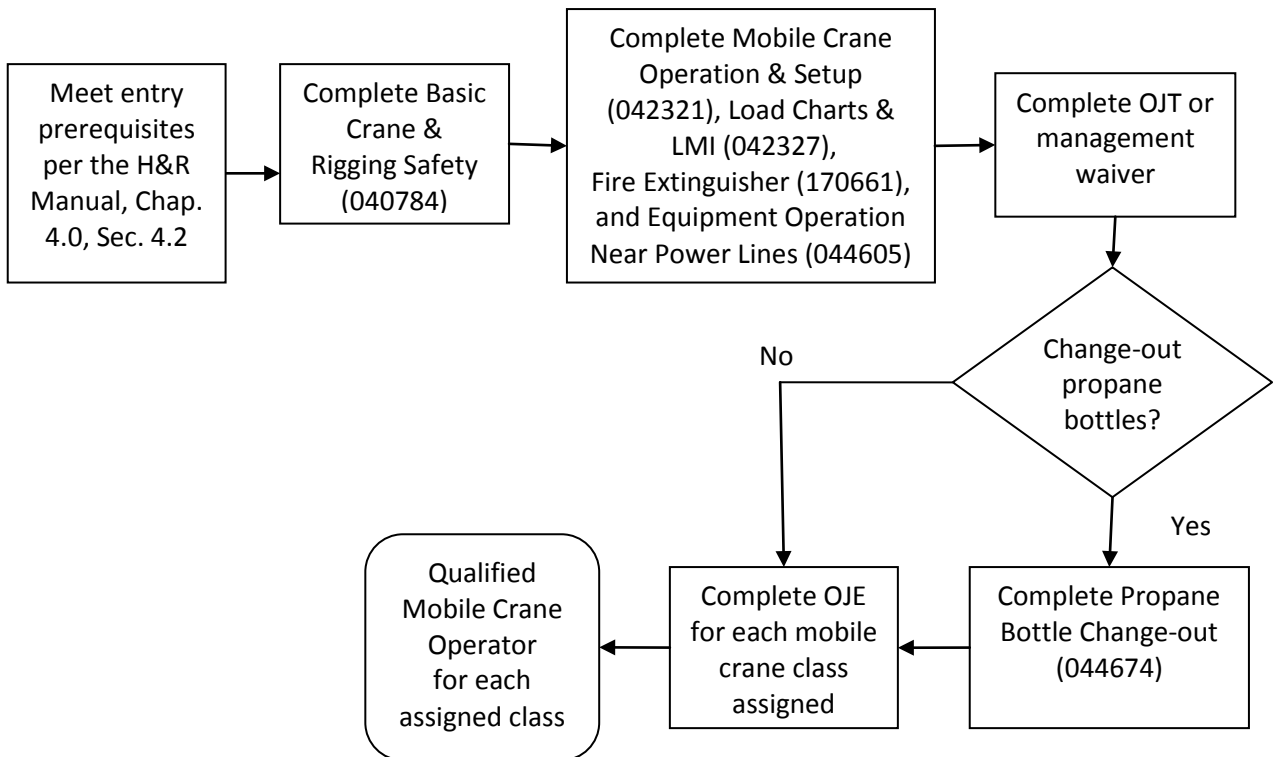


Figure 4.16 Mobile Crane Operator Qualification

Mobile Crane Operator Qualification	Activity No.	TCR/Evaluation Form	Answer Guide
Class 1 Lattice boom truck	044621	A-6002-942	A-6002-941
Class 2 Lattice boom crawler	044622	A-6002-945	A-6002-944
Class 3 Telescopic boom (Single Control Station)	044623	A-6002-948	A-6002-947
Class 4 Telescopic boom truck (Multiple Control Stations)	044624	A-6002-951	A-6002-950
Class 5 Commercial Truck – Mounted Crane – Telescoping Boom	044652	A-6004-388	A-6004-389
Class 9 Telescoping Boom Fixed Control Station (Non-rotating cab)	044656	A-6004-391	A-6004-392
Propane Bottle Change-out (As applicable)	044674	A-6002-954	A-6002-953

Table 4.16 Mobile Crane Operator OJE Site Forms

Note: Although other classes of mobile cranes are specified in the H&R Manual, there are no models of those classes currently in use at Hanford.

Mobile crane operators maintain their qualification by passing a physical examination and substance abuse test and completing an OJE on each class of mobile crane assigned to the operator every 60 months.

5.0 TRAINING RECORDS

5.1 Training Completion Records

Training completion records (TCR) shall:

- Be maintained by the issuing organization or employer for the duration of qualification
- Contain written examinations and on-the-job evaluations of knowledge skills
- If applicable, contain documentation supporting evaluation of previous training and qualifications
- Identify activity and/or equipment type and class qualification was issued on
- Contain the printed name of the qualified individual and date the qualification was issued
- Reflect the printed name and signature of the qualified instructors and students, including the date the evaluation was conducted
- Contains the printed name and signature of the evaluator, the person evaluated, and date the evaluation was conducted

5.2 Qualification Cards

Qualified personnel may be issued qualification cards that identify their equipment/activity qualifications. Information on the cards must be derived from, and supported by, training and qualification records per the H&R Manual, Section 4.6.1 *Training Completion Records*. If used, the qualification cards shall contain the following information:

- Activity covered by qualification
- Type of equipment or activity
- Class of equipment
- Date of training and/or evaluation
- Printed names and signatures of qualified individual, the qualified OJT instructor, and the qualified on-the-job evaluator

6.0 SOURCE REQUIREMENTS DOCUMENTS

29 CFR 1910.179, *Overhead and Gantry Cranes*

29 CFR 1910.178, *Powered Industrial Trucks*

29 CFR 1910.180, *Crawler Locomotive and Truck Cranes*

29 CFR 1910.184, *Slings*

29 CFR 1926.251, *Rigging Equipment for Material Handling*

29 CFR 1926, Subpart CC, *Cranes and Derricks in Construction*

ASME Standards:

- B30.5, *Mobile and Locomotive Cranes*
- B30.2, *Overhead and Gantry Cranes (Top Running Bridge, Single or Multiple Girder, Top Running Trolley Hoist)*
- B30.9, *Slings*
- B30.10, *Hooks*
- B30.11, *Monorails and Underhung Cranes*
- B30.16, *Overhead Hoists (Underhung)*
- B30.17, *Overhead and Gantry Cranes (Top Bridge, Single Girder, Underhung Hoist)*
- B30.20, *Below-the-Hook Lifting Devices*
- B30.21, *Manually Lever Operated Hoists*
- B30.23, *Personnel Lifting Systems*
- B30.26, *Rigging Hardware*
- ANSI/ITSDD B56.1, *Safety Standard for Low Lift and High Lift Trucks*
- ANSI/ITSDD B56.6, *Safety Standard for Rough Terrain Forklift Trucks*

DOE-RL-92-36, *Hanford Site Hoisting & Rigging Manual*