

**Standards**

**HMIS-STD-TQ-61033**

TPD-0016

**Hoisting And Rigging**

Revision 3, Change 1

Published: 04/25/2023

Effective: 04/25/2023

Program: Training

Topic: Training and Qualification

Subject Matter Expert: Culver, Benjamin U

Alternate Subject Matter Expert: Jackson, Emmitt R

Functional Manager: Vandervert, Paul J

**Use Type: Administrative**



- CPCCo General Exclusion :  
Excluded from USQ  
**Exclusion Reason:**  
Excluded per  
CPCC-PRO-NS-062

**JHA:** Administrative

**Periodic Review Due Date:**09/08/2027

Rev. 3, Chg. 1

## **Change Summary**

### **Description of Change**

Revised and incorporated comments. Combined 4 legacy courses into 2 new ones.

### Table of Contents

1.0	PURPOSE.....	3
2.0	SCOPE.....	3
3.0	Training Requirements .....	3
3.1	Qualification .....	3
3.2	Initial Training.....	4
3.2.1	Training Subjects.....	4
3.2.2	Equivalencies for Previous Training or Experience .....	4
3.2.3	Qualification/Certification.....	4
3.2.4	OJE Evaluator Qualification.....	7
3.2.5	Forklift Operators .....	8
3.2.6	Forklift Spotters/Signalers.....	10
3.2.7	Forklift Inspectors.....	10
3.2.8	Floor-Operated Overhead Cranes .....	10
3.2.9	Cab-Operated Overhead Cranes .....	11
3.2.10	Adjunct Staff.....	12
3.2.11	Designated Leader/Lift Director for Critical Lifts.....	13
3.2.12	Hoisting & Rigging Supervisor/Manager.....	13
3.2.13	Equipment Custodians .....	14
3.2.14	Lift Procedure Technical Approver .....	14
3.2.15	Safety Oversight .....	15
3.2.16	Buyer Technical Representatives .....	15
3.2.17	Classroom Instructors .....	15
3.2.18	Rigging Engineer .....	15
3.2.19	Mobile Crane Assembly/Disassembly Director .....	16
3.2.20	Mobile Crane Authorized Workers .....	16
3.2.21	Wire Rope and Rigging Equipment Inspection.....	16
3.2.22	Mobile Crane Inspection and Maintenance .....	17
3.2.23	Overhead Hoist Inspectors.....	19
3.2.24	Overhead Crane Mechanical Inspectors .....	19
3.2.25	Overhead Crane Electrical Inspectors .....	20
3.2.26	Incidental Rigging .....	20
3.2.27	Rigging to Mobile Equipment .....	21
3.2.28	Advanced Rigging .....	22
3.2.29	Mobile Crane Operators .....	23
3.2.30	Technical Training.....	24
3.2.31	On-the-Job Training and Evaluations.....	24
3.2.32	Below-the-Hook Lifting Device Operators .....	26

3.3 Continuing Training.....26  
    3.3.1 Requalification.....26  
    3.3.2 Training Completion Records.....27  
    3.3.3 Qualification Cards.....27  
    3.3.4 Continuing Training.....27

4.0 RECORD IDENTIFICATION .....28

5.0 SOURCES .....28  
    5.1 Source Requirements .....28  
    5.2 References.....29

Appendix A. Course Equivalencies .....30

## 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 5.0.

## 2.0 SCOPE

The H&R Training Program Description (TPD) applies to Hanford Mission Integration Solutions (HMIS) employees and its subcontractors whose assignments include performance of hoisting and rigging activities identified in DOE-RL-92-36, Hanford Site Hoisting & Rigging Manual (H&R Manual). This Level 2 TPD also applies to those Hanford Site contractors and their subcontractors that have endorsed the requirements contained in this procedure.

## 3.0 TRAINING REQUIREMENTS

Qualification training activities may include:

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

### 3.1 Qualification

Personnel shall be considered qualified when they:

- 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.
- Complete OJT for the equipment/activity.
- Successfully complete the equipment/activity specific OJE/oral test listed in this document; or, for non-operator or rigger qualification, pass a written test.
- All 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.

## 3.2 **Initial Training**

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 and ensuring OJT and OJE are conducted by individuals qualified in accordance with this TPD.

### 3.2.1 **Training Subjects**

The H&R Manual, Chapter 4.0, Personnel Qualifications and Training Requirements, Attachment 4.1, 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. Training 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.

### 3.2.2 **Equivalencies for Previous Training or Experience**

NOTE: *A list of approved equivalencies is provided in Appendix A*

Documented evidence of previous training or experience may be accepted to meet training requirements, via submission of a *Training Equivalency Request* (site form A-6001-885). Previous training or experience may include:

- 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
- Completion of an applicable trade union training program
- Journeyman status in an applicable trade
- 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 OJEs. A challenge exam is available for the Basic Crane & Rigging Safety course.

#### 3.2.3.1

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

### 3.2.3 **Qualification/Certification**

#### **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%.

Interactive media exams (e.g., Kahoot) may also be utilized during classroom delivery. If used, the media exams will have a minimum passing criterion of 80% for the course.

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 to take a second, different, challenge examination at that time, or be rescheduled to complete the second challenge examination at a later time.
- d. 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.
- e. The student will then be required to take the initial course for that equipment type or activity.

3.2.3.2

### **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. The OJT shall be based on the equipment manufacturer's operating instructions, typical tasks, operating environment, and facility or contractor-specific procedures.
- 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.
- The completion of OJT must be documented. Acceptable documentation includes one of the following:
  - OJT documentation identified by a course number and submitted to Training Records.
  - OJT documentation for which there is no course number and either retained with the employee's manager or supervisor or submitted with the applicable on-the-job evaluation documentation.
  - OJT documented as either "Completed" or "Previous experience assessed and determined adequate" whereby the employee and the employee's supervisor check and sign the appropriate block on the applicable On-the-Job Evaluation form.

### **On-the-Job Evaluation**

3.2.3.3 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.

Site forms used to document the OJE contain instructions to be followed during the performance, grading, and disposition of the evaluation.

### **On-the-Job Evaluators**

3.2.3.4

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.

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 3.1.4.2. Instructional proficiency is maintained by completing

3.2.3.5 H&R/Aerial Lift On-the-job Evaluator Instruction Qualification (003909, Form A-6005-468)

### **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:

- Completion of the initial classroom training
- Successful completion of a challenge examination
- 3.2.3.6 • 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, Form A-6002-954).

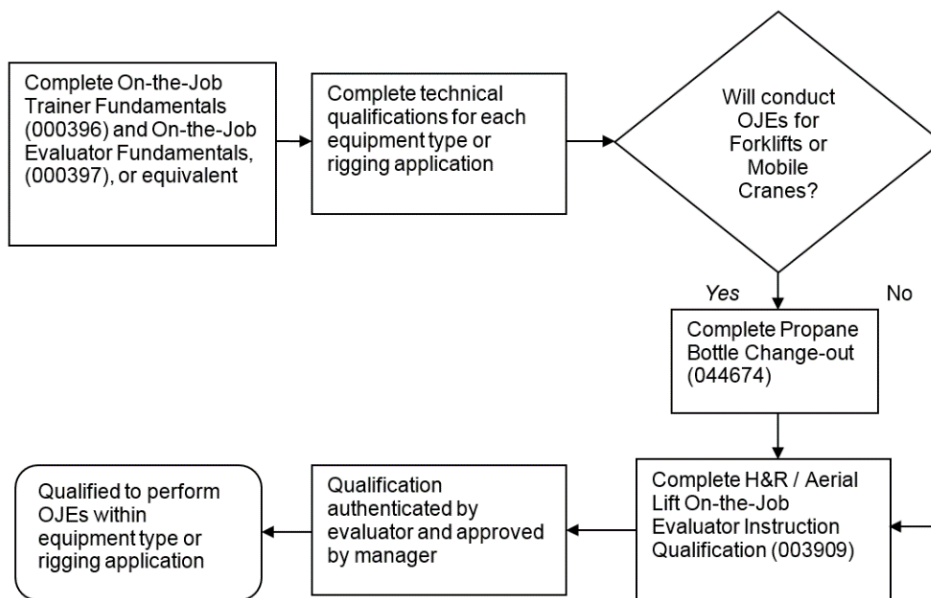
### **Instructional Competencies**

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



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:

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



**Figure 1: H&R On-the-Job Evaluator Qualification**

### 3.2.4 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 the following URL:

<http://web.hmis.rl.gov/iis/page.cfm/HAMMER/TrainingPrograms/Site-wideTrainingStandards/HoistingandRigging/HoistingandRiggingOJEEvaluatorList>

The report applies to the following equipment:

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

**3.2.4.1 Qualifications of Instructional Competency Evaluators**

Only personnel qualified as an H&R On-the-job Evaluator, per section 3.2.4 of this TPD, may conduct evaluations of H&R On-the-job Evaluators performing an on-the-job evaluation.

**3.2.5 Forklift Operators**

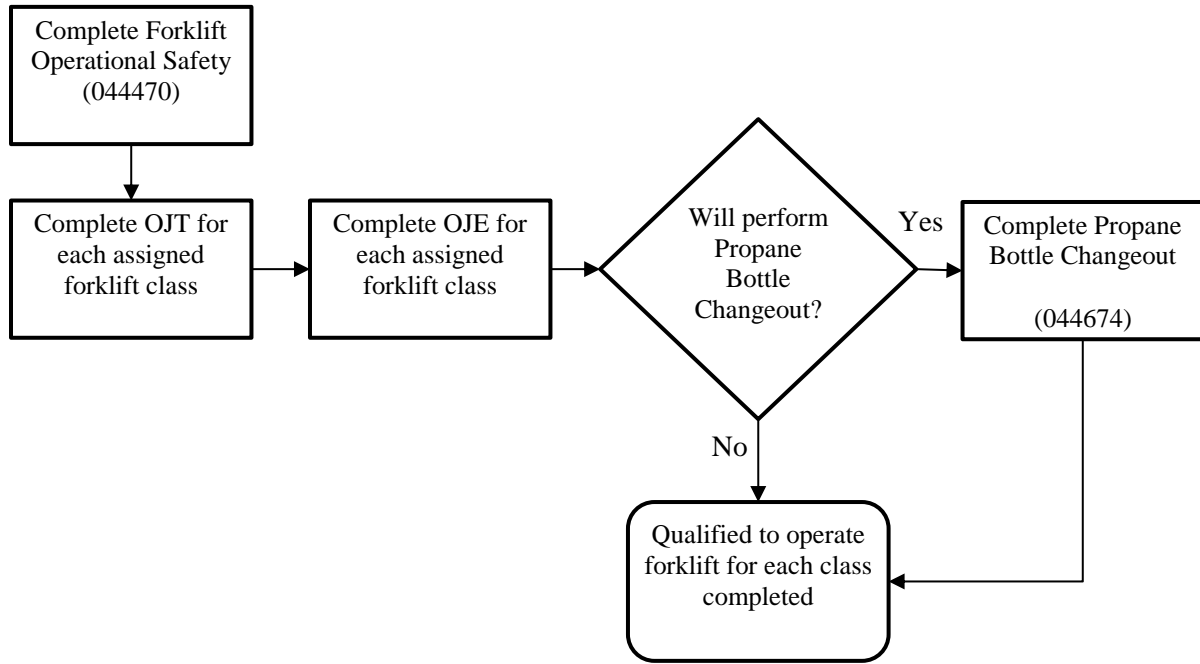
The forklift operator qualification process requires the completion of classroom training, Forklift Operational Safety (044470) or the Forklift Operator Challenge Examination (041890). Upon successful completion of the classroom training, the individual shall be given OJT for each class of forklift the employee will operate. Where the operator and their supervisor/manager agree that the operator’s previous forklift experience is sufficient, the operator can proceed to the OJE. This agreement is to be documented on the OJE form.

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 1. 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 sent to Training Records (MSIN G6-60 or scanned/emailed to ^TR-PDF)

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 2: Forklift Qualification**

Propane Bottle Change-out (As applicable)	044674	A-6002-954	A-6002-953
--	--------	------------	------------



**Table 1: Forklift OJE Site Form**

<b>Forklift Operator Qualification</b>	<b>Activity No.</b>	<b>TCR/Evaluation Form</b>	<b>Answer Guide</b>
Class 1 & 2 Electric Counterbalance and Electric Narrow Aisle	044672	A-6002-764	A-6002-763
Class 3 Electric Hand Trucks	04467B		
Class 4, 5, 6, & 7 Internal Combustion, Solid and Pneumatic Tires, and Rough Terrain, Straight Mast	044673		
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

*NOTE: Employees may print off this document for reference purposes but are responsible to check HMIS Procedure System to ensure the most current version is used to prevent unintended use of obsolete versions.*

If the operator is required to utilize equipment attachments, a qualified forklift OJE evaluator shall document the evaluation on site form A-6008-593, Equipment Attachment – On-the-Job Evaluation Addendum. These forms shall be kept in a file that is retrievable.

### 3.2.6 Forklift Spotters/Signalers

- Signalers for forklift operations are required to complete Forklift Operational Safety (044470).
- Spotters for forklift operations are required to be trained to recognize the hazards involved in the activity.
- Training for spotters working near electrical power lines is met with course 044605, Equipment Operation Near Power Lines.
- Training for spotters in all other forklift operations can be met with the web-based course 600078, CPCCo Vehicle Spotter Awareness Training, or equivalent.

### 3.2.7 Forklift Inspectors

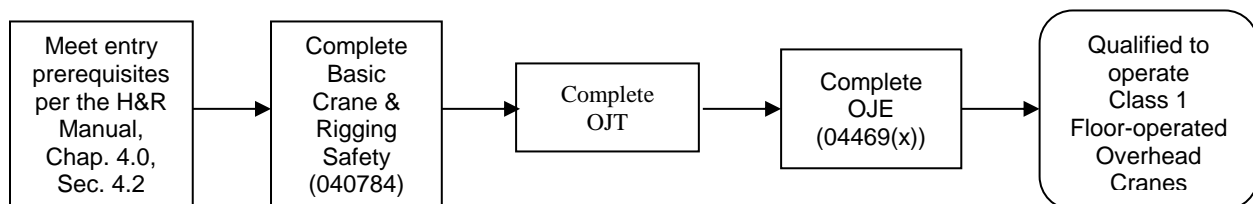
Forklift inspectors shall be qualified to perform documented periodic inspections of forklifts to determine if any damage, failure, deformation, or condition exists that could impair safe operation per the H&R Manual, applicable ASME, ANSI/ITSDF, NFPA, and OSHA standards. Qualification includes completing the forklift operator requirements of Section 3.2, Forklift Inspection (041885), and the applicable forklift OJE for each class of forklift to be inspected.

See Table 1.

### 3.2.8 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 2. 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 3: Floor-Operated Overhead Crane Qualification**

**Table 2: Class 1 Floor-Operated Overhead Crane OJE Site Forms**

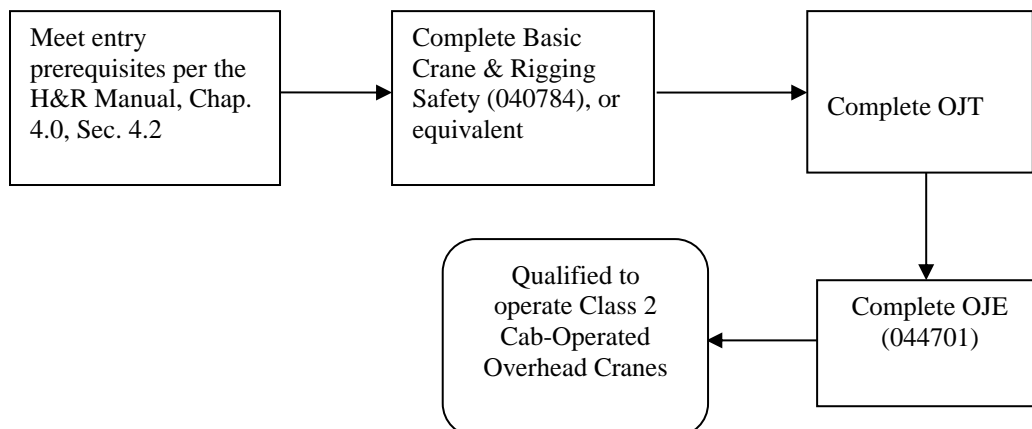
<b>Floor-Operated Overhead Crane Qualification</b>	<b>Activity No.</b>	<b>TCR/Evaluation Form</b>	<b>Answer Guide</b>
Class 1 Floor-Operated Overhead Crane – General	044691	A-6002-752	A-6002-751
Class 1 Floor-Operated Overhead Crane; Facility Specific – A	04469A		
Class 1 Floor-Operated Overhead Crane;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

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

**3.2.9 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). 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 3. Each completed on-the-job evaluation shall be signed by the employee and the qualified evaluator, and then forwarded to Training Records.



**Figure 4: Cab-Operated Overhead Crane Qualification**

*NOTE: Employees may print off this document for reference purposes but are responsible to check HMIS Procedure System to ensure the most current version is used to prevent unintended use of obsolete versions.*

**Table 3: Class 2 Cab-Operated Overhead Crane OJE Site Forms**

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

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

### 3.2.10 Adjunct Staff

#### Designated Leader (DL)

##### 3.2.10.1

Designated leaders direct hoisting and rigging field activities as identified in the H&R Manual Section 2, *Responsibilities*, and in Appendix A, Definitions, *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 for each type of equipment, and/or rigging activities being directed.

**Table 4: Designated Leader Training Requirements by Equipment Type or Rigging Activity**

Equipment or Rigging Activity	Initial Training	Retraining
Cab- and Floor- Operated Overhead Cranes	Basic Crane & Rigging Safety (040784)	Basic Crane & Rigging Safety Refresher (040786) for exempt personnel <b>OR</b> Overhead Crane OJE for Craft personnel
Mobile Cranes	Basic Crane & Rigging Safety (040784) <b>AND</b> either: Advanced Rigging Techniques (042310) <b>OR</b> Mobile Crane Operation & Setup (042321) <b>AND</b> Load Charts and Load Moment Indicators (042327)	Advanced Rigging Techniques (042310) <b>OR</b> Advanced Rigging qualification via OJE (042865) <b>OR</b> Mobile Crane Operation & Setup (0423321) <b>AND</b> Load Charts and Load Moment Indicators (042327) <b>OR</b> Mobile Crane Operator qualification via OJE

<b>Equipment or Rigging Activity</b>	<b>Initial Training</b>	<b>Retraining</b>
Forklift (when using a forklift to conduct a critical lift)	Forklift Operational Safety (044470)	Forklift Operational Safety (044470) <b>OR</b> Forklift Operator qualification via OJE
Incidental Rigging and/or Rigging to Mobile Equipment	Basic Crane & Rigging Safety (040784)	Basic Crane & Rigging Safety Refresher (040786) for exempt personnel <b>OR</b> Incidental Rigging OJE for craft personnel <b>OR</b> Rigging to Mobile Equipment OJE for craft personnel <b>OR</b> Overhead Crane OJE for craft personnel
Advanced Rigging	Basic Crane & Rigging Safety (040784) <b>AND</b> Advanced Rigging Techniques (042310)	Advanced Rigging Techniques (042310) <b>OR</b> Advanced Rigging qualification via OJE (042865) for craft personnel

### 3.2.11 Designated Leader/Lift Director for Critical Lifts

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.

### 3.2.12 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 Hanford Rigging Essentials (044702). Requalification shall be completed every 60 months by retaking (044702). 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.

Supervisor/Managers who previously completed Hoisting and Rigging Manual Overview (170664) or its equivalent, will remain current until their next scheduled requalification. A place holder course (HRBR01) was created in the Learning Management System (LMS) granting equivalency for students who had taken the legacy course. The retrain course is 044702.

### 3.2.13 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 Hanford Rigging Essentials (044702) every 60 months.

Equipment Custodians who previously completed Equipment Custodian (042870) will remain current until their next scheduled requalification. A place holder course (HRBR01) was created in the Learning Management System (LMS) granting equivalency for students who had taken the legacy course. The retrain course is 044702.

### 3.2.14 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 approved 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 5 for each type of equipment.

**Table 5: Lift Procedure Technical Reviewer Qualification**

<b>Equipment Type</b>	<b>Qualification Activities</b>
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)



### 3.2.15 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 Hanford Rigging Essentials (044702). Requalification shall be completed every 60 months by retaking course (044702).

Safety Oversight who previously completed Hoisting and Rigging Manual Overview (170664) or its equivalent, will remain current until their next scheduled requalification. A place holder course (HRBR01) was created in the Learning Management System (LMS) granting equivalency for students who had taken the legacy course. The retrain course is 044702.

### 3.2.16 Buyer Technical Representatives

Employees who are involved with writing statements-of-work or purchasing goods or services that involve hoisting and rigging activities or equipment shall complete the Hanford Rigging Essentials (044702). Requalification shall be completed every 60 months by retaking course (044702).

Buyer Technical Representatives who previously completed Hoisting and Rigging Manual Overview (170664) or its equivalent, will remain current until their next scheduled requalification. A place holder course (HRBR01) was created in the Learning Management System (LMS) granting equivalency for students who had taken the legacy course. The retrain course is 044702.

### 3.2.17 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.

### 3.2.18 Rigging Engineer

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

- Advanced Rigging Techniques, 042310
- Forklift Operational Safety, 044470
- Equipment Operation Near Power Lines, 044605
- Critical and Special Lifts, 044900.

### **3.2.19 Mobile Crane Assembly/Disassembly Director**

The Assembly/Disassembly (A/D) Director performs the responsibilities for assembly and disassembly of mobile cranes as required by 29 CFR 1926, Subpart CC, Cranes and Derricks in Construction. The Assembly/Disassembly (A/D) Director qualification requires the successful completion of prerequisite courses and the Mobile Crane A/D Director Examination (044910). Prerequisite courses for the A/D Director include:

- 020147, Fall Hazard Recognition and Prevention
- 040784, Basic Crane & Rigging Safety
- 042310, Advanced Rigging Techniques
- 044704, Rope and Rigging Equipment Inspection
- 044605, Equipment Operation Near Power Lines
- 044703, Mobile Crane Assembly/Disassembly, Load Charts and LMI

Mobile Crane Assembly/Disassembly Directors who previously completed 042321, Mobile Crane Operation & Setup, 042327, Load Charts and LMI, and 042820, Wire Rope and Rigging Hardware Inspection will remain current until their next scheduled requalification. Two place holder courses (HRBR02, HRBR03) were created in the Learning Management System (LMS) granting equivalency for students who had taken the legacy course. The retrain course is 044703 and 044704.

### **3.2.20 Mobile Crane Authorized Workers**

Authorized workers that are neither qualified riggers nor qualified mobile crane operators, but are essential to the safe movement of a load, i.e., Nuclear Chemical Operators (NCOs), Radiological Control Technicians (RCTs), Industrial Hygiene Technicians (IHTs), etc., shall complete the computer-based training course 044625, Mobile Crane Hazard Awareness.

### **3.2.21 Wire Rope and Rigging Equipment Inspection**

Wire rope and rigging equipment 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.
- Manually operated hoists

Employees who perform wire rope and rigging hardware inspections shall be qualified by completing Basic Crane and Rigging Safety (040784) and Rope & Rigging Equipment Inspection – Initial (044704). 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 Rope and Rigging Equipment Inspection (044704) and any applicable on-the-job evaluations (OJEs), every 60 months.

Employees who previously completed 042820, Wire Rope and Rigging Hardware Inspection will remain current until their next scheduled requalification. A place holder courses (HRBR03) was created in the Learning Management System (LMS) granting equivalency for students who had taken the legacy course. The retrain course is 044704

### **3.2.22 Mobile Crane Inspection and Maintenance**

Mobile crane maintenance personnel who perform crane inspections shall complete the following training:

- Basic Crane and Rigging Safety (040784)
- Rope & Rigging Equipment Inspection (044704)
- Mobile Crane Inspection (042930)

Employees who previously completed 042820, Wire Rope and Rigging Hardware Inspection will remain current until their next scheduled requalification. A place holder courses (HRBR03) was created in the Learning Management System (LMS) granting equivalency for students who had taken the legacy course. The retrain course is 044704

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

- Equipment Operation Near Power Lines (044605)
- Complete the crane-specific Mobile Crane Maintenance OJT (site form A-6005-516)
- Complete an OJE, limited to those crane functions necessary to verify crane performance, as provided in Table 6.

Employees who previously completed 042321, Mobile Crane Operation & Setup, and 042327, Load Charts and LMI Training will remain current until their next scheduled requalification. A place holder courses (HRBR02) was created in the Learning Management System (LMS) granting equivalency for students who had taken the legacy course. The retrain course is 044703, Mobile Crane Assembly/Disassembly, Load Charts and LMI.

In addition, the following prerequisites are required every 36 months for all personnel operating mobile cranes:

- 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).

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.

**Table 6: Mobile Crane Inspection and Maintenance OJE Site Forms**

Mobile Crane Qualifications for Inspection and Maintenance Personnel	Activity No.	TCR/Evaluation Form and Instructions
Class 1 Lattice Boom Tuck	04462A	A-6008-262 (Instructions)
Class 2 Lattice Boom Crawler	04462B	
Class 3 Telescopic Boom (Single Control Station)	04462C	
Class 4 Telescopic Boom Truck (Multiple Control Stations)	04462D	
Class 5 Commercial Truck Mounted Crane -Telescoping Boom	04462E	
Class 9 Telescoping Boom Fixed Control Station (Non-Rotating Cab)	04462F	

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

- Rope and Rigging Equipment Inspection (044704)
- Mobile Crane Inspection Requalification OJE (042932), with documentation on Site Forms A-6006-343 and A-6006-344
- Mobile crane OJE for each class of crane being operated, if required to operate the mobile crane
- Mobile Crane Inspection Requalification OJE Evaluators will complete H&R/Aerial Lift On-the-Job Evaluator Instruction Qualification (003909) with Site Form A-6005-468.

### **3.2.23 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 Rope and Rigging Equipment Inspection (044704).

To maintain their qualification status, overhead hoist inspectors shall complete the Rope and Rigging Equipment Inspection (044704) and any applicable on-the-job evaluations (OJEs), every 60 months.

Employees who previously completed Overhead Manual and Electric Hoist Inspection (101100) will remain current until their next scheduled requalification. A place holder course (HRBR03) was created in the Learning Management System (LMS) granting equivalency for students who had taken the legacy course. The retrain course is 044704.

### **3.2.24 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 inspector must complete an OJE for the class of overhead crane being inspected (Site Form A-6002-752).

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 Rope & Rigging Equipment Inspection (044704).

### **3.2.25 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 inspector must complete an 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.

### **3.2.26 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, Rigging to Mobile Equipment 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.

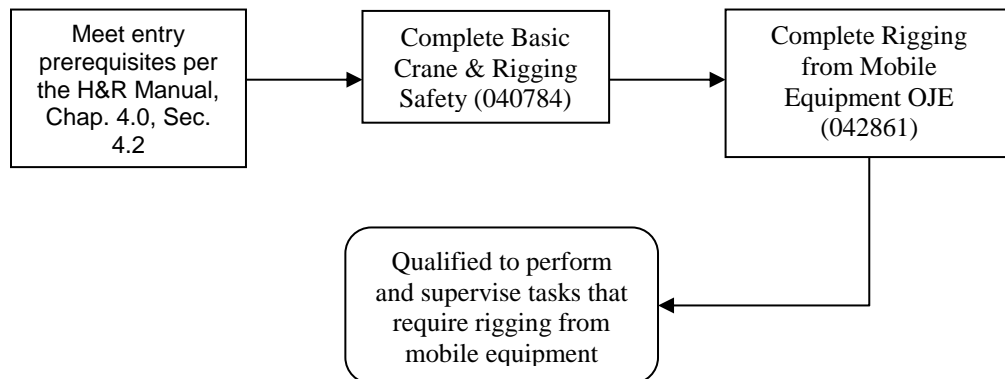
**Table7: Incidental Rigging OJE Site Forms**

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

**3.2.27 Rigging to Mobile Equipment**

Personnel who, for the purpose of hoisting, rig loads to mobile equipment require additional training. Rigging to mobile equipment initial qualification requirements are met by completing the Basic Crane and Rigging Safety course (040784) and the Rigging to Mobile Equipment OJE (042861). If the employee’s job requires that they also operate the mobile equipment, then they must also complete the appropriate operators training for that piece of equipment.

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, Forklift operator training, etc.



**Figure 5: Rigging to Mobile Equipment Qualification**

To maintain rigging to mobile equipment qualifications:

If the employee performs activities which require rigging to mobile equipment, then they need to complete the Rigging from Mobile Equipment OJE (042861) found on site forms A-6006-

---

NOTE: Employees may print off this document for reference purposes but are responsible to check HMIS Procedure System to ensure the most current version is used to prevent unintended use of obsolete versions.



724 and A-6006-724i. 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 refresher course (040786) and the Rigging from Mobile Equipment OJE (042861).

**Table 8: Rigging from mobile equipment OJE Site Forms**

<b>Incidental Rigging Qualification</b>	<b>Activity No.</b>	<b>TCR/Evaluation Form</b>	<b>Answer Guide</b>
On-the-Job Evaluation	042861	A-6006-724	A-6006-724i

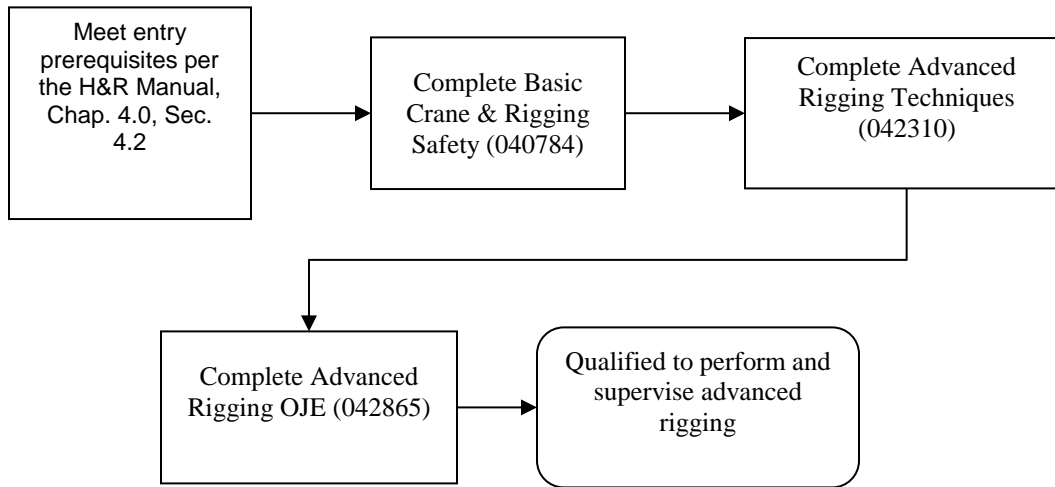
### 3.2.28 Advanced Rigging

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 advanced rigging activities listed above.





**Figure 6: Advanced Rigging Qualification**

**Table 9: Advanced Rigging OJE Site Forms**

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

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.

**3.2.29.1**

Personnel performing as a spotter for mobile cranes shall complete the Advanced Rigging OJE (042865) and course 044605, Equipment Operation Near Power Lines.

**3.2.29 Mobile Crane Operators**

**Prerequisites**

Per the H&R Manual the following prerequisites are required for Mobile Crane Operators every 36 months:

- 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).

*NOTE: Employees may print off this document for reference purposes but are responsible to check HMIS Procedure System to ensure the most current version is used to prevent unintended use of obsolete versions.*

### 3.2.30 Technical Training

Mobile crane operator qualification requires the completion of the following:

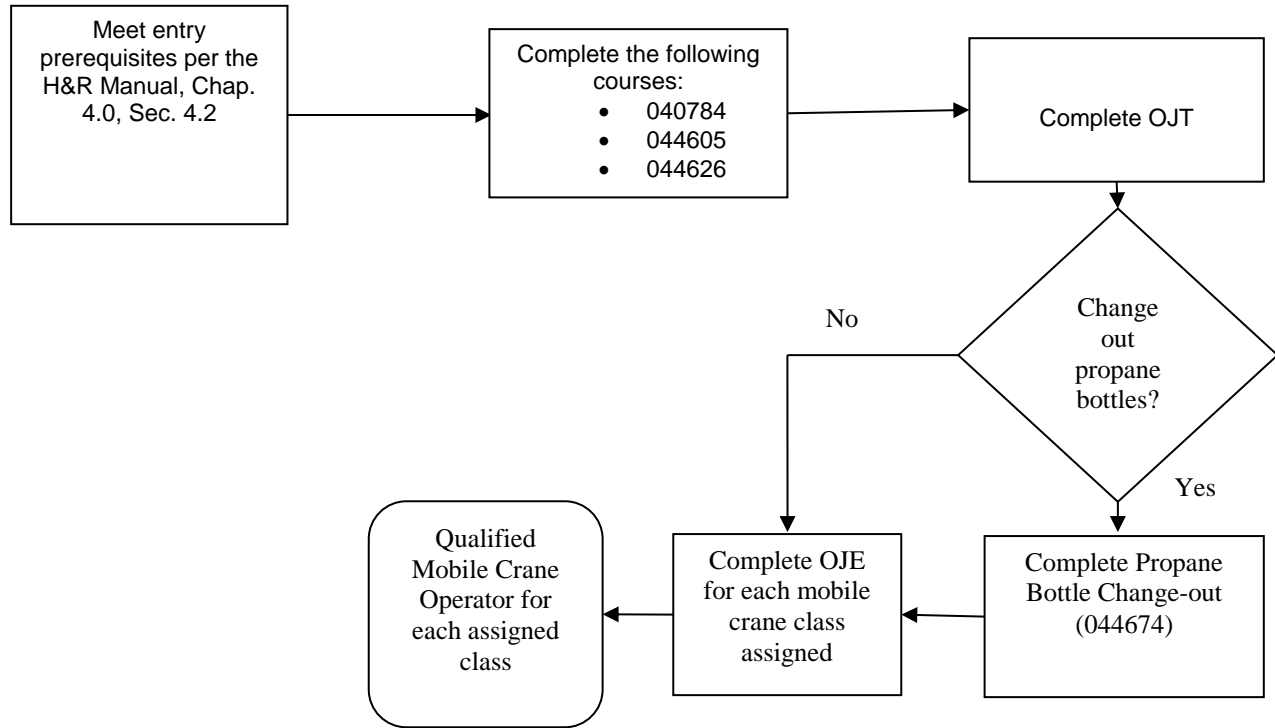
- Basic Crane and Rigging Safety (040784)
- Equipment Operation Near Power Lines (044605)
- Mobile Crane Operator Certification (044626), via completion of a nationally recognized accrediting agency. Based on industry criteria for written and practical testing materials. Credit is obtained by submitting a Training Equivalency Request (site form A-6001-885) and a copy of the certification.
- Personnel meeting the technical training requirements above are also qualified to perform as a mobile crane signaler or spotter.

### 3.2.31 On-the-Job Training and Evaluations

Upon successful completion of the technical training, the employee shall be given on-the-job training (OJT) on each make and model of mobile crane the employee will operate, see Mobile Crane Specific OJT, site form A-6005-516.

The OJE evaluator shall document completion of the employee's OJE on the appropriate site forms per Table 10. Only one OJE is required per crane class, even if multiple OJT's are required within that class. 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 7: Mobile Crane Operator Qualification**

**Table 10: Mobile Crane Operator OJE Site Forms**

Mobile Crane Operator Qualification	Course No.	TRC/Evaluation Form
Class 1 Lattice boom truck	044621	A-6005-516, Mobile Crane Specific On-the-Job Training (OJT)  A-6007-773, Mobile Crane On-the-Job Evaluation (OJE)
Class 2 Lattice boom crawler	044622	
Class 3 Telescopic boom (Single Control Station)	044623	
Class 4 Telescopic boom truck (Multiple Control Stations)	044624	
Class 5 Commercial Truck – Mounted Crane – Telescoping Boom	044652	
Class 9 Telescoping Boom Fixed Control Station	044656	
Propane Bottle Change-out (As applicable)	044674	A-6002-954, Propane Bottle Change-out, (As applicable)

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.

### **3.2.32 Below-the-Hook Lifting Device Operators**

Operators of below-the-hook lifting devices shall be trained and qualified in accordance with ASME B30.20, Below-the-Hook Lifting Devices, Section 20-1.4.1 and 20-1.4.2. Operators shall demonstrate their ability to operate the below-the-hook lifting device prior to assuming responsibility for the use of the device. Hanford Site Form A-6006-230, Below-the-Hook Lifting Device On-the-Job Training, may be used to document the training.

## **3.3 Continuing Training**

### **3.3.1 Requalification**

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

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/powered industrial truck activities
- Personnel performance is determined to be unsatisfactory or diminished skill level is observed

There is no grace period for the requalification of hoisting and rigging activities. Once a person has exceeded the requalification window, they must then start the training cycle over again, completing either an initial training class or a challenge exam before satisfactorily completing an OJE. An OJE alone for requalification beyond the 60-month window (36 month for forklift operators) is not sufficient.

### 3.3.2 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/configuration 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.

### 3.3.3 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.

### 3.3.4 Continuing Training

Continuing training is not currently indicated for the functions listed in this training program description.

#### 4.0 RECORD IDENTIFICATION

All records are generated, processed, and maintained in accordance with HMIS-PRO-TQ-249, *Training Records Administration*; HMIS-PRO-RM-10588, *Records Management Processes*; HMIS-PRO-RM-32281, *Electronic Records Management*, as applicable.

**Table 11. Records Capture Table**

Name of Record	Submittal Responsibility	Retention Responsibility
Completed On-the Job Training and On-the-Job Evaluation records	HAMMER Hoisting and Rigging Activity Manager	IDMS
On-the-Job Evaluation	HAMMER Hoisting and Rigging Activity Manager	IDMS
HAMMER classroom training completion records, course exams and challenge exams completion records	HAMMER Training Logistics	IDMS

#### 5.0 SOURCES

##### 5.1 Source Requirements

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:*

- B30.2, *Overhead and Gantry Cranes (Top Running Bridge, Single or Multiple Girder, Top Running Trolley Hoist)*
- B30.5, *Mobile and Locomotive Cranes*

- B30.9, *Slings*
- B30.10, *Hooks*
- 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*
- B.30.30, *Ropes*
- BTH-1, *Design of Below-the-Hook Lifting Devices*
- PASE-2019, *Portable Automotive Service Equipment (PASE)*

ANSI/ITSDDT B56.1, *Safety Standard for Low Lift and High Lift Trucks*

ANSI/ITSDDT B56.6, *Safety Standard for Rough Terrain Forklift Trucks*

ANSI/ITSDDT B56.9 *Operator Controlled Industrial Tow Trucks*

ANSI/ITSDDT B56.10 *Manually Propelled High Lift Industrial Trucks*

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

HHT-PRO-TQ-61050 (HM-FP-01 3.2), *Examination Preparation, Administration, and Control*, Section 5.0, “Administering Written Examinations”

## 5.2 **References**

HMIS-PRO-RM-10588, *Records Management Processes*

HMIS-PRO-RM-32281, *Electronic Records Management*

### Appendix A. Course Equivalencies

NOTE: A *Training Equivalency Request Form* (site form A-6001-885) must be submitted to the HAMMER Program Manager to obtain an equivalency for those classes that do not have a course number.

The table below provides a listing of course equivalencies that have been reviewed and approved for use.

NOTE: When a challenge exam is completed craft personnel must complete an OJE to perform work.

Course Title	Equivalency Course
040784, BASIC CRANE & RIGGING SAFETY	040788, Basic Crane & Rigging Safety Challenge Exam  (Note: When a challenge exam is completed, craft personnel must still complete an OJE to perform work.)
040786, BASIC CRANE & RIGGING - REFRESHER (Note: Craft personnel must complete the applicable OJE rather than the Refresher.)	040788, Basic Crane & Rigging Safety Challenge Exam
042300, WELL DRILLER RIGGING SAFETY	040784, Basic Crane & Rigging Safety
042310, ADVANCED RIGGING TECHNIQUES	<ul style="list-style-type: none"> <li>• 042315, Advanced Rigging Techniques Challenge Exam</li> <li>• Journeyman card from a union with a rigging program that includes mobile crane operations</li> </ul>
042321, MOBILE CRANE OPERATION & SETUP	<ul style="list-style-type: none"> <li>• 042322, Mobile Crane Operation &amp; Set-up Challenge Exam</li> <li>• 044626, Mobile Crane Operator Certification</li> </ul>
042327, LOAD CHARTS & LOAD MOMENT INDICATORS INITIAL TRAINING	<ul style="list-style-type: none"> <li>• 042328, Load Charts &amp; Load Moment Indicators Challenge Exam</li> <li>• 044626, Mobile Crane Operator Certification</li> </ul>
042860, INCIDENTAL RIGGING	<ul style="list-style-type: none"> <li>• 042861, Rigging to Mobile Equipment</li> <li>• 042865, Advanced Rigging</li> </ul>
042861, RIGGING TO MOBILE EQUIPMENT	<ul style="list-style-type: none"> <li>• 042865 Advanced Rigging</li> </ul>
042930, MOBILE CRANE INSPECTION	<ul style="list-style-type: none"> <li>• Washington State Mobile Crane Certifier</li> <li>• Mobile Crane Inspection Training, Industrial Training International</li> </ul>



**HMIS-STD-TQ-61033**  
**Hoisting and Rigging (TPD-0016)**

Published Date:04/25/2023

Effective Date: 04/25/2023

<b>Course Title</b>	<b>Equivalency Course</b>
044470, FORKLIFT OPERATIONAL SAFETY	041890, Forklift Operational Safety Challenge Exam
170664, HOISTING AND RIGGING MANUAL OVERVIEW	<ul style="list-style-type: none"><li>• 040784, Basic Crane &amp; Rigging Safety</li><li>• 044702, Hanford Rigging Essentials</li><li>• HRBR01 LMS Place holder</li></ul>
042870, Equipment Custodian	<ul style="list-style-type: none"><li>• 044702, Hanford Rigging Essentials</li><li>• HRBR01 LMS Place holder</li></ul>