



AMERICAN PETROLEUM INSTITUTE
TRAINING PROGRAMS

API-U Training Provider Certification Program (TPCP)

Qualified Crane Operator Compliance Checklist

VERSION 1_August2020

All API-U Approved courses through TCPD should include Hand Signals and Wire Rope Knowledge and Understanding. Course Materials must illustrate the following (**disregard if this section was filled out with another course compliance checklist**):

Compliance Check	Course Content and Testing	Notes
	<ul style="list-style-type: none"> <input type="checkbox"/> Identification and testing of test the student's ability to understand and perform the basic hand signals in this standard for the purposes of API 2D. <input type="checkbox"/> A thorough understanding of wire rope construction and its: construction effects on performance and applications, construction factors causing rope deterioration. <input type="checkbox"/> Testing of wire rope inspection responsibility <input type="checkbox"/> Testing of wire rope manufacturing <input type="checkbox"/> Testing of wire rope terminology <input type="checkbox"/> Practical assessment of steel wire rope characteristics <input type="checkbox"/> Testing of wire rope deterioration including rope terminations/end fittings, good, bad, and indifferent <input type="checkbox"/> Testing of wire rope inspection/examination procedures <input type="checkbox"/> Testing of discard/retirement criteria <input type="checkbox"/> Understanding of record keeping and reports <input type="checkbox"/> Identification of damaged/failed wire ropes 	

Qualified Crane Operator Training

The following are requirements for crane operator training.

Classroom-type sessions with written and practical exercise examinations on the type of crane to be operated by the qualified crane operator.

- Such classroom-type sessions and examinations shall cover all major crane components; the operational and maintenance procedures appropriate for the type and rated capacity of crane to be operated; and all major issues and guidelines addressed in this document.
- Training shall also cover lubricating points; adjustments; principles of crane operation, especially boom operating procedures; safety and anti-two-blocking systems; the proper use and care of all running cables and pendant line(s) and the proper reading and understanding of crane rated capacity and reeving charts, boom and indicator charts and hand signal charts.

The qualified crane operator shall demonstrate by written examination an appropriate understanding of the required course content.

If a mechanical or non-mechanical crane is to be operated, the necessary experience and training shall be focused on each type of crane classification.

Compliance Check	Course Content	Notes
<input type="checkbox"/>	Discuss the appropriate objectives of the following topics: lift plan, JSA/JSEA and types of cranes used offshore (mechanical and non-mechanical)	
Crane components and lifting capacities, to include:		
	<input type="checkbox"/> Components of a stationary mounted crane. Identify and describe the standard components on each type of crane. <input type="checkbox"/> Basic crane terminology and their definitions. <input type="checkbox"/> Boom angle and load radius and how load weight directly affects the rated capacity of any crane as well as how to use the various tools available (boom angle indicator, load rating charts) to evaluate and perform a safe lift. <input type="checkbox"/> Basic lifting principles are affected by different variables including boom angle, length, and radius as well as load weight, to include: lever principles; lifting principles; types of lifts; onboard; shock loading; and offboard lifts. <input type="checkbox"/> Reading a load rating chart as specified in the following: <ul style="list-style-type: none"> - correct and configured to crane; - weight that can be lifted at a specified boom length and boom angle; - working radius; - parts of line; - crane is de-rated; - exceeding the loads and/or conditions stated on load rating chart; - the weight of the hook block, overhaul ball, slings etc. also be considered part of the load; - comparison of load weights relative to boom angle and length of boom. <input type="checkbox"/> Load charts are used for lifts; identifying the different procedures for onboard and offboard lifting; and considering the sea state, wind, and other operating conditions <input type="checkbox"/> Number of parts of line and relationship to rated load <input type="checkbox"/> Limitations of the size and type of wire rope used in boom hoist lines, pendant line(s), and load hoist line <input type="checkbox"/> Rated capacity of the main and auxiliary hook <input type="checkbox"/> Rated capacity of load and boom hoist drums (speed vs. line pull)	

Wire rope construction and use, to include:	
<input type="checkbox"/> Mechanics of wire rope. <input type="checkbox"/> Classes, designation, and characteristics of wire rope: lay length; types and direction of lay; single layer; and rotation resistant <input type="checkbox"/> Handling and installation precautions of wire rope <input type="checkbox"/> Guidelines for replacement of wire rope and wedge socket installation <input type="checkbox"/> Rope maintenance (lubrication) <input type="checkbox"/> Recommended storage and handling procedures. <input type="checkbox"/> Wire rope inspection/replacement criteria.	
Mounting features of the revolving upper structure, to include:	
<input type="checkbox"/> Hook rollers <input type="checkbox"/> Swing/slew bearing <input type="checkbox"/> King post	
Boom structure, to include:	
<input type="checkbox"/> Types of boom construction (lattice, box, etc.) <input type="checkbox"/> Wire rope rollers/guides <input type="checkbox"/> Boom bolts <input type="checkbox"/> Pins and pin connections	
Limit devices, to include:	
<input type="checkbox"/> Boom-hoist limit <input type="checkbox"/> Load hoist limits <input type="checkbox"/> Boom stops <input type="checkbox"/> All locking devices <input type="checkbox"/> Anti-two-blocking devices.	
Additional items, to include:	
<input type="checkbox"/> Sheaves <input type="checkbox"/> Hand signals <input type="checkbox"/> Control identification <input type="checkbox"/> Power plant emergency shutdown (ESD) <input type="checkbox"/> Air intake shutdown (specific to internal combustion engines) <input type="checkbox"/> Emergency load lowering awareness <input type="checkbox"/> Vessel to vessel transfers (offboard)—effects, operational <input type="checkbox"/> Sub-sea lifting <input type="checkbox"/> GOPS (gross overload protection systems) <input type="checkbox"/> Qualified crane operators are to keep a log of lifts as required by API 2D	

Practical Exercises

General Guidelines

Practical exercise proficiency is the last segment of crane operator qualification training. To allow the operator to demonstrate their operating skills, this qualification shall be performed with an actual crane that should be similar to the type of crane to be operated by the qualified crane operator. Simulators can be used to improve the operator's skills sets prior to taking actual hands-on qualifications.

When a simulator is used, it shall be able to perform the following:

- real-life scenarios based on the offshore environment
- onboard lifts
- offboard lifts
- various weather condition and sea states
- crane/rigging malfunctions to challenge operator

The training provider shall document, ensure that hands-on exercises and demonstrations include the following:

- pre-use inspection
- lift plan for the three unique types of lifts
- swing crane and control load
- performance of at least two unique types of lifts (a minimum of one on each type): onboard lift, blind lift
- one or more depth perception exercises
- interpretation of load chart during lifting exercises
- hand signals
- lift procedures: onboard, offboard, blind

Pre-use Inspection Practical Exercise	Notes
<ul style="list-style-type: none"> <input type="checkbox"/> Provide a copy of pre-use inspection form <input type="checkbox"/> Demonstrate that Examiner certifies that student completes task to pass. Not performing a portion of this exercise constitutes a failure <input type="checkbox"/> Demonstrate that Examiner reviews test results once completed 	
Lift Procedures	Notes
<ul style="list-style-type: none"> <input type="checkbox"/> Provide a of lift procedures form. Form should demonstrate that students are asked to perform the following, (all tasks should be completed to pass): <p>Lift #1–Onboard</p> <ol style="list-style-type: none"> 1. At the examiner's indication, bring the load block over the load used for test and center the load block at the start position. 2. The load will be attached to the crane hook by the designated qualified crane rigger. 3. At the examiner's indication to start: <ul style="list-style-type: none"> - verify the weight of the load used for test, - check load chart to verify crane rated capacity, - determine if it is safe or not safe to lift, and - verify tagline on load 4. At the start position, the student will move the load used for the test to the second designated location performing the procedures listed below. <ul style="list-style-type: none"> - The student will lift the load used for test slowly (~6 in. to 12 in.) off deck - Stop and check hoist brake 	

- The student will make sure the path is clear: of all obstacle—when test weight reaches an obstacle, lift load high enough to clear the obstacle, swing over the obstacle and lower the load to a safe height; and of all personnel—never move test weight over personnel
- Watching for overload
- The student will make sure the load is under control
- Watching for dragging the load on the deck (sideloading)
- Watching for load contacting any part of the course
- Checking depth perception to see if load in place at position #2.
- Once the test weight reaches position #2, place it there so that the load used for test is under control
- The student will then slowly lower the test weight on to the deck
- The examiner will give you a stop signal once the test weight is in the #2 position
- Student remains at the controls until the examiner gives a clear indication that Lift #1 is finished

5. Examiner reviews the test results of Lift #1.

Lift #2–Offboard (where practical or simulated, or both)

1. At examiner's indication, bring the load block over the load used for test and center the load block at the start position.
2. The load will be attached to the crane hook by the designated qualified crane rigger.
3. At examiner's indication to start:
 - verify the weight of the load;
 - check load chart to verify crane rated capacity;
 - determine if it is safe or not safe to lift;
 - verify tagline on load.
4. At start position, the student will move the test weight to the third designated location performing the procedures listed.
 - Student lifts test weight slowly off deck
 - Student makes sure the path is clear: of all obstacle—when test weight reaches an obstacle, lift load high enough to clear the obstacle, swing over the obstacle, and lower the load to a safe height; and of all personnel—never move test weight over personnel
 - Watching for overload
 - Student makes sure the load is under control
 - Watching for dragging the load on the deck (sideloading)
 - Watching for load contacting any part of the course
 - Checking depth perception to see if load in place at position #3
 - Once the test weight reaches position #3, place it there so that the test weight is under control
 - Student slowly lowers the test weight on to the deck
 - Examiner gives a stop signal once the test weight is in the #3 position
 - Student remains at the controls until the examiner gives a clear indication that the Lift #2 offboard is finished
 - Examiner reviews the test results of the Lift #2

Lift #3–Blind

1. Student has the opportunity to discuss any special hand signals needed to perform blind lift with examiner and signalman. Radio communication can also be used as an option (if available).

2. Watching the designated signalman hand signals, bring the load block over the load used for the test at position #3 and center the block.
3. The load will be attached to the crane hook by the designated qualified crane rigger.
4. Watching designated signalman hand signal indication to start:
 - verify the weight of the load;
 - check load chart to verify crane rated capacity;
 - determine if it's safe or not safe to lift;
 - verify tagline on load.
5. At the #3 position, move the test weight to position #4 designated location performing the procedures listed.
 - Watching the designated signal man, lift test weight slowly (~6 in. to 12 in.) off deck
 - Stop and check hoist brake
 - The designated signalman directs to position #4 by watching for when test weight reaches an obstacle—the signalman will direct you to lift the load high enough to clear the obstacle, swing over the obstacle and lower the load to a safe height and qualified crane operator will be watching for overload
 - Watching for overload
 - Once the test weight reaches position #4, place it there by watching the signalman hand signals so that the test weight is under control
 - You will then slowly lower the test weight on to the deck by watching the signalman
 - The signalman will give you a stop signal once the test weight is in position #4
 - Student remains at the controls until the examiner gives a clear indication that the Lift #3 is finished
 - Examiner will review the test results of the Lift #3