CCO

# CANDIDATE HANDBOOK

- **DRILL RIG OPERATOR**
  - **Foundation Drill Rig (FDR)**
  - **Anchor/Micropile Drill Rig (AMP)**

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# Certification Policies
## DRILL RIG OPERATOR

### ELIGIBILITY

To be eligible for certification, candidates must:

- Be at least 18 years of age
- Comply with CCO's Substance Abuse Policy
- Comply with CCO's Code of Ethics
- Pass written examination
- Pass practical examination

### EXAMINATION FEES

For all exam and related fees, visit www.nccco.org/fees.

### CCO CERTIFICATION TIME FRAMES

Candidates have 12 months after they pass their first exam to pass the corresponding exam(s) for the same designation(s). For example, a candidate passing the written exams (Core + Specialty) in December 2024 has until the end of December 2025 to pass the practical exam.

If a certified Drill Rig Operator subsequently becomes certified in an additional Drill Rig Operator designation, the certification period for the additional designation expires at the same time as his/her original certification (i.e., all Drill Rig Operator designations expire on the same date, regardless of when in the five-year certification period the candidate passed them). If the new Drill Rig Operator designation is added within the final 24 months of his/her certification period, the certificant is exempt from recertifying for the new designation after five years; after that, however, certificants must recertify for all designations during the 12 months prior to their certifications' expiration date. This ensures that all the certificant's Drill Rig Operator designations maintain the same expiration date.

### RECERTIFICATION REQUIREMENTS

CCO Drill Rig Operator certification is valid for five years. ***Recertification candidates must complete all recertification requirements during the 12 months prior to their expiration date.*** Regardless of the date of the exams within that one-year period, the new five-year certification period begins from the date of expiration of the candidate's initial certification.

Recertificants must:

- Pass the applicable Drill Rig Operator written examination(s)
- Comply with CCO's Substance Abuse Policy
- Comply with CCO's Code of Ethics

Candidates who can attest to at least 500 hours of actual drill rig operating experience during their period of certification do not need to take the practical exam to recertify.

Candidates who need to take the practical exam for any reason, however, must do so before their certification expires. ***There is no grace period after the date of expiration.*** Candidates whose certification has lapsed must take both the regular written and practical examinations to be certified again.

*Note: Candidates who recertify more than 12 months prior to their expiration date will have their new certification period begin immediately, not from the end of their current certification period.*

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# Written Examination Outline

**CORE EXAMINATION: 90 QUESTIONS/90 MINUTES**
**SPECIALTY EXAMINATION: 45 QUESTIONS/45 MINUTES**
**(CALCULATOR PERMITTED)**

The CCO Drill Rig Operator Core and Specialty written examination tests the following knowledge areas relating to the operation of drill rigs:

**Domain 1: Pre-Operations/Site Conditions**

- Approximately 23% of test

**Domain 2: Operations**

- Approximately 34% of test

**Domain 3: Technical Knowledge**

- Approximately 31% of test

**Domain 4: Tooling**

- Approximately 4% of test

**Domain 5: Communications**

- Approximately 8% of test

## DOMAIN 1: PRE-OPERATIONS/SITE CONDITIONS

1. Perform pre-work assessments—rig assessments and jobsite assessments.
2. Assess jobsite to identify (potential) hazards posed by existing structures.
   a. Assess jobsite to identify (potential) hazards posed by proximity to existing structures
   b. Assess jobsite to identify (potential) hazards overhead
   c. Verify/assess depths of existing foundations
3. Complete jobsite assessment.
   a. Before getting on rig, what do you do? Include this in the reference manual
4. Inspect work platforms to ensure they are ready for safe operation.
   a. On surface
5. Assess/predict factors that will affect the stability of the drill rig.
6. Verify utilities have been located on job-site.
   a. Interpret markings of utilities (above and below ground). Dig alert
   b. Verify safe working distances from utilities – different types of utilities (underground [markings], above ground [distance?])
7. Assess ground conditions.
   a. Assess electric power line hazards prior to assembly/disassembly
8. Conduct and/or participate in Pre-shift/Pre-operational Job Hazard Analysis (JHA) meetings.
   a. Identify the purpose of the JHA
   b. Assess jobsite to identify potential hazards
   c. Conduct (complete) a JHA
9. Prepare and/or interpret written Job Hazard Analyses (JHA).

## DOMAIN 2: OPERATIONS

1. Assess loading and unloading areas for potential hazards (ground conditions, utilities, existing structures, traffic, other).
   a. Identify the process to stage equipment
   b. Identify elements of assembly/disassembly
   c. Identify sequence of assembly/disassembly
2. Travel (Tram) on jobsite to drilling location(s). Mobilization (on-site travel).
3. Identify and explain the use and the function of safety devices.
4. Identify the basic configurations of equipment
5. Explain personnel safety requirements called for during drilling operations.
6. Identify and control the area of influence of the drill rig.
   a. Secure shaft
7. Identify personal protection equipment (PPE) best practices
8. Interpret load charts (stability charts/lift capacity).
   a. Verify (manufacturer specifications of equipment) dimensions, weights, center of gravity of the drill
9. Inspect the drill for unsafe conditions
   a. Preform pre-operational inspections
   b. Verify/determine documentation required to report rig condition/deficiencies (damage report).
   c. Verify/determine when and who to notify regarding inspection deficiencies.
   d. Inspect wire ropes and explain removal criteria for wire rope.
10. Use information found in the operator's manual.
11. Confirm (using operator manual) manufacturer approved attachments.
12. Implement safe drill rig set up procedures.
    a. Set outriggers and stabilize base with proper supporting materials.
    b. Boom up and verify swing radius (tail and front).
    c. Install tool and other attachments.
    d. Establish and maintain controlled access zone.
    e. Accurately set up on the center of the shaft.

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13. Situational awareness
14. Maintain or adjust drilling procedures in response to changing conditions
    a. Weather
    b. Soil
    c. Rock
    d. Ingress water (groundwater)
    e. Platform stability
    f. Obstructions
    g. The public
    h. Vehicle traffic
    i. Other trades
    j. Spoil removal
    k. Rebar cage
    l. Inspectors
15. Identify emergency procedures for:
    a. Electric power contact
    b. Loss of stability
    c. Control malfunction
    d. Carrier travel malfunction
    e. Overload
    f. Fire
    g. Flooding
    h. Fall into shaft
    i. Injury
    j. Hazardous material spill/leak
16. Explain operator authority to stop operations.
17. Identify proper shutdown/secure procedures when leaving drill rig unattended.
    a. During a break
    b. End of day
18. Maintain or adjust drilling procedures in response to changing conditions.
19. Identify the use and function of safety devices.
    a. Horn
    b. Level indicator (if applicable)
    c. Emergency stop (if applicable)
    d. Other

## DOMAIN 3: TECHNICAL KNOWLEDGE

1. Verify/determine equipment specifications/capacities based on operating manuals.
2. Interpret capacity/stability charts (if applicable) load charts (stability charts / lift capacity).
3. Identify the location of various manufacturer manuals (operator manual, other) and what information can be found in them.
4. Identify the components of rigging principles.
5. Compare basic rigging devices and procedures.
6. Explain the basic uses of hooks or swivels.
7. Explain the proper uses of wire rope and sheaves.
    a. Explain types/designations of wire rope and sheaves.
    b. Explain replacement criteria for wire rope and sheaves.
    c. Explain maintenance procedures for wire rope and sheaves.
8. Explain the relationship between line pull and Working Load Limit (WLL) of running rope, slings and hardware.
9. Explain the relationship between line pull and safe working load of running ropes.
10. Perform inspections
    a. Hydraulics
    b. Structural
    c. Wire rope
    d. Controls
    e. Operational aids
    f. Fluid levels
    g. Electrical
    h. Mast
    i. Rotary
    j. Drilling equipment
    k. Outriggers
    l. Frequency
11. Perform basic maintenance/service
    a. Snapshot of manufacturers manual with associated questions
    b. Wire rope
12. Recognize organizations that have developed regional/national regulations or industry standards, including:
    a. OSHA
    b. ASME
    c. ANSI
    d. CSA
    e. Other
13. Describe the purpose of standards.
14. Interpret capacity or stability charts.
    a. Explain/identify conditions that effect capacity
15. Identify, compare, contrast, and distinguish functions and limitations of various types of drill rigs and tool attachments (as found in manufacturers manuals).
    a. Verify required inspection documentation

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b. Verify/determine when and who to notify of inspection deficiencies

16. Read gauges.
    a. Level indicators
    b. Hydraulics
    c. Fuel
    d. Other
17. Explain the requirements for access and egress of the drill rig.
    a. Three points of contact
18. Verify that operational aids and safety devices are functioning properly (pre-op inspection).
19. Explain alternative measures if operational aids/ safety devices fail – if applicable (place out of service).

## DOMAIN 4: TOOLING

1. Inspect the working condition of the tool (initial and ongoing).
2. Verify that tooling has been properly installed.
    a. Rotary
    b. Drifters
    c. Kelly bar
    d. Attachments

## DOMAIN 5: COMMUNICATIONS

1. Identify industry specific hand signals.
    a. Boom up
    b. Boom down
    c. Tilt
    d. Rotary head up/down
    e. Forward
    f. Reverse
    g. Extend radius, fluid, or air supply
2. Interpret Signage (pictograms) on equipment
    a. Colors—red, yellow, green
    b. Pinch points
    c. Crush hazards
    d. Electrical hazard
3. Identify/explain terms, such as:
    a. Kelly bar
    b. Winches
    c. Auxline (Auxiliary line)
    d. Swivel
    e. Mast
    f. Kelly stub
    g. Kelly pin
    h. Crowd
4. Communicate and coordinate with supervisors, project managers, or representatives regarding the job requirements and schedule.

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# Practical Examination
## DRILL RIG OPERATOR

### SKILLS TESTED

CCO Drill Rig Operator Practical Examinations are available on two types of drill rigs:

- **Foundation Drill Rig (FDR)**
- **Anchor/Micropile Drill Rig (AMP)**

Candidates may take the practical examination on either or both of the drill rig types, provided they have passed/will pass the written examination for the corresponding designation within the 12-month time frame.

The practical examinations comprise tasks designed to assess the specific operating skills necessary for each type of drill rig operations. Foundation Drill Rig Operator skills tested include: inspecting the equipment, site safety protocols, identifying operational controls, picking up and laying down pipe, tool positioning, drilling, and safe shutdown/securing.

Anchor/Micropile Drill Rig Operator skills tested include: inspecting the equipment, forward and reverse travel, vertical drill steel joint, angled and vertical drill steel placement, and safe shutdown/securing.

The following is an outline of the practical testing procedure, as provided to candidates at the time of testing.

### CANDIDATE INFORMATION AND INSTRUCTIONS

The following sections describe the specific tasks you will be performing when taking Drill Rig Operator practical exams. It is important that you understand these instructions. If there is anything you do not understand, please request clarification from the Practical Exam Proctor.

During the practical examination, you are under the direction of the Proctor and must follow the Proctor's directions at all times.

Once you have completed all of the tests you are taking, you must leave the testing area. Only personnel involved in the administration of the test are allowed in the test area.

### FOUNDATION DRILL RIG TASKS

The Foundation Drill Rig Operator Practical Exam tasks are:

- ***Task 1: Pre-Operational (Shift) Inspection***
- ***Task 2: Site Safety Protocols***
- ***Task 3: Operational Controls Identification***
- ***Task 4: Pipe Pickup and Placement***
- ***Task 5: Pipe Laydown***
- ***Task 6A: Tool Positioning***
- ***Task 6B: Drilling***
- ***Task 7: Safe Shutdown/Securing***

There is also a Pre-Test Briefing, a Drill Rig Walk Around, and a Pre-Operation Familiarization Period. You will be required to complete all phases of the test in sequence.

### ANCHOR/MICROPILE TASKS

The Anchor/Micropile Drill Rig Operator Practical Exam tasks are:

- ***Task 1: Pre-Operational (Shift) Inspection***
- ***Task 2: Forward Travel***
- ***Task 3: Vertical Drill Steel Joint***
- ***Task 4: Angled Drill Steel Placement***
- ***Task 5: Vertical Drill Steel Placement***
- ***Task 6: Reverse Travel***
- ***Task 7: Safe Shutdown/Securing***

There is also a Pre-Test Briefing, a Drill Rig Walk Around, and a Pre-Operation Familiarization Period. You will be required to complete all phases of the test in sequence.

### OPTIMUM TIMES

For some tasks ***optimum time limits*** have been set. If the task is completed within this time period, you receive no time penalty. Other tasks are untimed, as noted below.

Once you exceed this time limit, however, you will lose points on a gradual basis. The optimum time for each task is stated as part of the task descriptions. At one-and-a-half times the optimum time the Proctor may end the task and move on to the next task.

### PRE-TEST BRIEFING

While candidates are waiting to take their tests, they will have sufficient time to read this description of the tasks to be performed and review the operator's manual for the rig(s) they will operate. In addition, they will be informed of the make and model of the drill rig.

Note that:

- The drill rig has been set up and leveled. A spirit level is available to verify that the rig is level.
- None of the target points have been placed at a radius that exceeds the drill rig's rated capacity.

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- All signals used throughout the test are in accordance with the Standard Method hand signals.

## UNSAFE ACT

If, at any time during the Pre-Test Familiarization Period or during the test, you commit an unsafe act, you will be disqualified from continuing with the test. An "unsafe act" is defined as an action by a candidate that is uncontrolled or reckless, and is sufficient to cause safety concern for persons or property damage.

The Proctor has the authority to stop the test at any time for reasons of safety. Please ask the Proctor if you have any questions. If you are disqualified due to an unsafe act, you will not be permitted to take any additional practical exams that day.

## WEATHER CONDITIONS AND EQUIPMENT PROBLEMS

The Proctor will use an anemometer to check the wind speed and then will record the weather conditions on the score sheet.

The Proctor has the responsibility to determine if weather conditions or equipment problems are such that a test needs to be suspended. If the test is interrupted due to weather conditions or equipment problems, the procedure for restarting is as follows:

- You will resume the test at the beginning of the task you were performing at the time of the interruption.
- You will be entitled to a Pre-Operation Familiarization Period before resuming the test.
- If testing resumes on a different machine, you must start the test over from the beginning. The first score sheet will be marked as "VOID" with an explanation and returned to CCO.
- If the testing is delayed to a different day, the test must be restarted from the beginning.

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# Practical Examination Outline

## FOUNDATION DRILL RIG OPERATOR

The following is an outline of the practical testing procedure, as provided to candidates at the time of testing.

### DRILL RIG WALK AROUND

- Before you begin operations, you are allowed a couple of minutes to walk around the drill rig to ensure proper setup.

### TASK 1: PRE-OPERATIONAL (SHIFT) INSPECTION

***Untimed***

- You will be asked to identify five items on the drill rig that are part of the pre-operational inspection.
- One at a time, you will be asked to describe how you would conduct the inspection and what deficiencies you would look for.
- You have approximately one minute per item.
- You will also be asked to physically identify by pointing the quickest method for shutting off the machine in an emergency situation.
- Points will be deducted for each incorrectly identified inspection item.

### TASK 2: SITE SAFETY PROTOCOLS

***Optimum time: 1:30***

- At the Proctor's indication to start, at which point timing will begin, use the available materials to identify the exclusion zone around the equipment you will be using.
- Timing will end when you indicate to the Proctor that you are done.
- When you have finished setting up the exclusion zone, you will be asked to describe the safety measures you would implement around an exposed hole.
- If your time exceeds one-and-a-half times the optimum time, the Proctor may stop you and move on to the next task.
- Points will be deducted for the following:
  a. Cones not placed beyond swing radius
  b. Cones not placed completely around hazard area
  c. Not correctly describing exposed hole safety measures

### TASK 3: OPERATIONAL CONTROLS IDENTIFICATION

***Untimed***

- The Proctor will describe six functions of the drill rig. One at a time, you will be asked to identify which control performs that function.
- You will have approximately one minute per item.
- Points will be deducted for stating incorrect function and/or direction.

### PRE-OPERATION FAMILIARIZATION PERIOD

- You will be allowed up to 15 minutes to get comfortable with operating the drill rig.
- You may run the rig through its functions, except for tracking or traveling the machine, or lowering the mast down to its storage position.
- You may not interfere with the test course.
- If you are ready before the 15-minute time limit is reached, please indicate this to the Proctor.
- The Proctor will let you know when you have five and one minute(s) remaining.
- If at any point you feel like you are not ready to test, you should notify the Proctor. You will have, in effect, disqualified yourself from taking the examination at this time, and you will be required to sign to that effect on the Candidate Score Sheet.

### TASK 4: TOOL POSITIONING

***Untimed***

- You will be instructed to swing the tool in between the starting point and the drilling spot, and partially extend it.
- The Proctor will signal you to adjust the boom or tool position with a series of voice commands. This part is not timed.
- For each voice command the Proctor provides, you will adjust the position of the boom or tool accordingly.
- Points will be deducted for incorrect movements of tool.

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## TASK 5: PIPE PICKUP AND PLACEMENT

***Optimum time: 4:30***

- You will be instructed to bring the hook over top of the pipe attachment point and lower the hook so that it can be attached. Then the Proctor will attach the pipe to the hoist line when you indicate you are ready to make the connection. You will then make the rigging taut.
- When the Proctor gives you a start signal, timing will begin. Raise the Pipe out of the Corridor and high enough to avoid obstructions. Swing the pipe over to Barrel #1 and lower the pipe until the line on the pipe is below the barrel rim.
- The Proctor will give you a stop signal, a hoist signal, and a swing signal indicating you may go to Barrel #2.
- Once the pipe has been lowered into Barrel #2 past the horizontal line, the Proctor will give you a stop signal, a hoist signal, and a stop signal.
- Points will be deducted for incorrect movements of tool.
- If your time exceeds one-and-a-half times the optimum time, the Proctor may stop you and move on to the next task.
- Points will be deducted for the following:
  a. Dragging pipe tip or touching ground outside of corridor
  b. Tool contacting any part of the rig
  c. Pipe contacting any part of the rig
  d. Moving barrels two inches or more
  e. Knocking over barrels
  f. Knocking over poles
  g. Moving pole bases off line
  h. Knocking balls off poles

## TASK 6: PIPE LAYDOWN

***Optimum time: 2:30***

- At the Proctor's indication to start, at which point timing will begin, raise the pipe above all obstructions, and then swing it back over to the Corridor.
- Set the tip of the pipe down inside the 4 ft. x 3 ft. box and then lay the pipe back down in between the pole barriers.
- Once the pipe has been set down fully inside the Corridor, the Proctor will give you a stop signal. If the pipe has not been set down fully inside the corridor, timing continues.
- If your time exceeds one-and-a-half times the optimum time, the Proctor may stop you and move on to the next task.
- Points will be deducted for the following:
  a. Dragging pipe tip or touching ground outside of corridor
  b. Pipe not set inside target box
  c. Pipe contacting any part of the rig
  d. Moving barrels two inches or more
  e. Knocking over barrels
  f. Knocking over poles
  g. Moving pole bases off line
  h. Knocking balls off poles

## TASK 7: DRILLING

***Optimum time: 2:30***

- The Proctor will instruct you place the tool plumb on the ground at the start position.
- At the Proctor's indication to start, at which point timing will begin, swing the tool from the starting point to drilling location.
- Once centered over the casing, proceed with drilling a hole with two passes not to exceed 5 ft. total below grade.
- As necessary, you may dump the dirt in the dump-off area.
- Once you've completed two passes and dumped off the dirt from the tool, swing the tool back to the starting point and place the tip of the auger on the ground.
- Once the tool is set on the ground in the starting position, the Proctor will give you a stop signal. If the tool is not set on the ground, timing continues.
- If your time exceeds one-and-a-half times the optimum time, the Proctor may stop you and move on to the next task.
- Points will be deducted for the following:
  a. Dragging tool on the ground
  b. Banging tool into the mast
  c. Dropping tool on the ground
  d. Tool hitting side of casing (while swinging)
  e. Contacting rig with tool
  f. Fouling hoist line
  g. Overloading tool
  h. Circumvention (clean tool)

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## TASK 8: SAFE SHUTDOWN AND SECURING PROCEDURES

***Untimed***

- Before leaving the operator station, you will be required to apply safe shutdown procedures to the drill rig in preparation for the next candidate.
- Once the drill rig is shut down, you will leave the operator station and describe to the Proctor the procedures you would follow to secure the machine at the end of the work day.
- Points will be deducted for improperly securing the equipment or improperly describing how to secure it.

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# Practical Examination Outline

## ANCHOR/MICROPILE DRILL RIG OPERATOR

The following is an outline of the practical testing procedure, as provided to candidates at the time of testing.

### DRILL RIG WALK AROUND

- Before you begin operations, you are allowed a couple of minutes to walk around the drill rig to ensure proper setup.

### TASK 1: PRE-OPERATIONAL (SHIFT) INSPECTION

***Untimed***

- You will be asked to identify five items on the drill rig that are part of the pre-operational inspection.
- One at a time, you will be asked to describe how you would conduct the inspection and what deficiencies you would look for.
- You have approximately one minute per item.
- You will also be asked to physically identify by pointing the quickest method for shutting off the machine in an emergency situation.
- Points will be deducted for each incorrectly identified inspection item.

### PRE-OPERATION FAMILIARIZATION PERIOD

- You will be allowed up to 30 minutes to get comfortable with operating the drill rig.
- You may run the rig through its functions.
- You may not interfere with the test course.
- If you are ready before the 30-minute time limit is reached, please indicate this to the Proctor.
- The Proctor will let you know when you have five and one minute(s) remaining.
- If at any point you feel like you are not ready to test, you should notify the Proctor. You will have, in effect, disqualified yourself from taking the examination at this time, and you will be required to sign to that effect on the Candidate Score Sheet.

### TASK 2: FORWARD TRAVEL

***Optimum time: 2:30***

- When the Proctor gives you a start signal, timing will begin. While keeping the mast in the travel position, travel the rig out of the starting area and bring it over to the drilling steel frame located at the end of the course.
- Except for the control panel, no part of the rig should leave the marked boundaries of the course.
- Avoid contacting any of the obstructions around the starting area or inside the course.
- Once the lowest part of the mast has crossed the marked line 4 ft. from the drilling steel frame, the Proctor will give you a stop signal. If the mast has not completely crossed the marked line, timing continues.
- If your time exceeds one-and-a-half times the optimum time, the Proctor may stop you and move on to the next task.
- Points will be deducted for the following:
  a. Contacting barrel
  b. Dragging mast on ground
  c. Any part of rig traveling outside Working Area
  d. Traveling with outriggers down
  e. Knocking over poles
  f. Moving pole bases off line
  g. Knocking balls off poles

### TASK 3: VERTICAL DRILL STEEL JOINT

***Optimum time: 6:30***

- When the Proctor gives you a start signal, timing will begin. Raise the mast to a vertical position, approach the vertically placed drilling steel, and "shoulder it up."
- Once fully connected, lift the drilling steel out of its holder.
- Avoid knocking or moving the drilling steel frame.
- Once the drilling steel has been completely lifted out of its holder, the Proctor will give you a stop signal. If the drilling steel is not completely outside of its holder, timing continues.
- If your time exceeds one-and-a-half times the optimum time (9 minutes 45 seconds), the proctor will stop you and the test will end..
- Points will be deducted for the following:
  a. Knocking tennis ball off pole
  b. Dragging mast on ground
  c. Not making full drill steel connection

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## TASK 4: ANGLED DRILL STEEL PLACEMENT

***Optimum time: 10:30***

- When the Proctor gives you a start signal, timing will begin. Position the drill steel in the holder angled at 30 degrees.
- Once placed inside the holder, unthread the rod.
- Avoid knocking or moving the drilling steel frame.
- Once the drilling steel has been completely unthreaded, the Proctor will give you a stop signal. If the drilling steel has not be completely unthreaded, timing continues.
- If your time exceeds one-and-a-half times the optimum time, the Proctor may stop you and move on to the next task.
- Points will be deducted for the following:
  a. Knocking tennis ball off pole
  b. Dragging mast on ground
  c. Dropping steel on disconnect

## TASK 5: VERTICAL DRILL STEEL PLACEMENT

***Optimum time: 8:00***

- When the Proctor gives you a start signal, timing will begin. Re-engage the rod in the holder angled at 30 degrees and "shoulder it up."
- Once fully connected, remove the drilling steel from the angled holder and set it back in the original vertical holder.
- Avoid knocking or moving the drilling steel frame.
- Once the drilling steel has been placed down fully inside the vertical holder, I will give you a stop signal. If the drilling steel is not placed fully down inside the vertical holder, timing continues.
- If your time exceeds one-and-a-half times the optimum time, the Proctor may stop you and move on to the next task.
- Points will be deducted for the following:
  a. Knocking tennis ball off pole
  b. Dragging mast on ground
  c. Not making full drill steel connection

## MULTI-TASK DEDUCTIONS

- Points will be deducted for the following if the following occurs during Tasks 2–5:
  a. Drilling steel frame moved 2 in. or more but less than 6 in.
  b. Drilling steel frame moved 6 in. or more

## TASK 6: REVERSE TRAVEL

***Optimum time: 4:30***

- Prior to the start of this task, you will be asked to unthread the drilling steel and track the rig back so that the mast is on the transition line.
- When the Proctor gives you a start signal, timing will begin. Lower the mast to a horizontal position for traveling.
- Once the mast has been lowered, begin traveling backwards and place the rig back inside the starting area bordered by the pole barriers.
- Avoid contacting any of the obstructions around the starting area or inside the course.
- Once the rig's tracks are fully within the area, the Proctor will give you a stop signal. If the rig's tracks are not fully within the area, timing continues.
- If your time exceeds one-and-a-half times the optimum time, the Proctor may stop you and move on to the next task.
- Points will be deducted for the following:
  a. Contacting barrel
  b. Dragging mast on the ground
  c. Mast not properly lowered before travel
  d. Traveling with outriggers down
  e. Any part of rig traveling outside the working area
  f. Knocking over poles
  g. Moving pole bases off line
  h. Knocking balls off poles

## TASK 7: SAFE SHUTDOWN AND SECURING PROCEDURES

***Untimed***

- Before leaving the operator station, you will be required to apply safe shutdown procedures to the drill rig in preparation for the next candidate.
- Once the drill rig is shut down, you will leave the operator station and describe to the Proctor the procedures you would follow to secure the machine at the end of the work day.
- Points will be deducted for improperly securing the equipment or improperly describing how to secure it.

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# Reference List
## DRILL RIG OPERATOR

The latest versions of the following reference materials are used by CCO's Drill Rig Exam Management Committee to verify the accuracy of CCO test questions. Candidates are strongly advised to become familiar with manufacturers' manuals in preparing for the CCO certification examinations.

### Occupational Safety and Health Administration (OSHA)

www.osha.gov

- OSHA ACT 5(a)(1) – "General Duty Clause"
- OSHA Focus Four – "Construction Focus Four Training"
- Part 1910 – General Industry
- Part 1926 – Construction
  - — Subpart E – Personal Protective and Life Saving Equipment
  - — Subpart M – Fall Protection
  - — Subpart O – Motor Vehicles, Mechanized Equipment and Marine Operations
  - — Subpart P – Excavations
  - — Subpart AA – Confined Spaces in Construction
  - — Subpart CC – Cranes and Derricks in Construction
  - — §251 – Rigging Equipment for Material Handling
  - — §1153 – Respirable Crystalline Silica

### U.S. Army Corps of Engineers (USACE)

- Safety and Health Requirement Manual (EM385-1-1) (2024)

### ANSI

- ANSI/ASSP A10.23: Safety Requirements for the Installation of Drilled Shafts (2019) webstore.ansi.org

### ASME

- ASME B30.30 Ropes (2024)

www.asme.org

### U.S Department of Transportation Federal Highway Administration (FHWA)

- Drilled Shaft Construction Procedures and Design Methods (2018) www.fhwa.dot.gov/engineering/geotech/nhi18024.pdf
- Micropile Design and Construction Guidelines (2000) https://apps.itd.idaho.gov/apps/manuals/Materials/Materials References/FHWA-SA-97-070.pdf

### ADSC Resource Materials

- Large Foundation Drill Rig www.adsc-iafd.com/certification-program/
- Anchor/Micropile Foundation Drill Rig www.adsc-iafd.com
- Drilling Operators Machine Safety Guide www.adsc-iafd.com

### NAIT Drill Rig Operator Program

- *www.nait.ca/coned/foundation-drill-rig-operator*

### Federation of Piling Specialists

- www.fps.org.uk

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# CCO Policies
## DRILL RIG OPERATOR

### Code of Ethics

www.nccco.org/coe

### Disciplinary Policy

www.nccco.org/discipline

### Substance Abuse Policy

www.nccco.org/abuse

### Testing Accommodations

www.nccco.org/accommodations

### Test Security

www.nccco.org/security

### Information Release Policy

www.nccco.org/inforelease

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**CCO**

5250 Commerce Dr, 100, Murray,
Utah 84107, US

Phone: 703-560-2391
info@nccco.org
www.nccco.org