

Drilling Operations Syllabus

Time: 16 hours

Maximum Class Size: 10-classroom activities

5-hands-on activities

Prerequisites: None

Course Description:

In the construction industry, knowing how to safely and properly operate above ground drilling equipment is a highly sought-after skill. This 16-hour LIUNA Training and Education course addresses aboveground drilling techniques using track-mounted drills for construction and quarry application. Topics such as common drilling patterns used for drilling and blasting rock for removal and proper drill maintenance are covered. This course includes both classroom and hands-on training.

Goals/Objectives/Student Learning Outcomes:

- Describe three types of drilling
- Identify the principle components of a drill string and describe the purpose of each
- Identify at least three drill bits and give examples of situations where each works best
- List at least two causes of bound steel and at least one method to prevent each
- Describe and demonstrate the precautions to take when tramming a drill
- Given scenarios or actual situations of placing and setup of a compressor, describe considerations and demonstrate correct compressor placement and set-up
- Describe and demonstrate the steps to collar a borehole
- List at least three factors that affect the straightness of a borehole
- Describe and demonstrate the steps to add and remove steel
- Describe at least two maintenance or critical operating practices that will prolong the life of the drill string
- Describe and identify the three most common types of rock
- Describe at least two types of borehole patterns; demonstrate the layout of each pattern

Standards Addressed

- Cal/OSHA Standard 1707 (b)
- OSHA Standard 1926.302 (b): Pneumatic Tools

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- OSHA 29 CFR 1910.95: Occupational Noise Exposure
- OSHA 29 CFR 1926-Subpart E: Personal Protective Equipment
- OSHA 29 CFR 1926.1153: Silica Standard

Classroom Rules and Procedures

- All classes begin at 6:30 am and end at 3:00 pm
- Upon entering classroom, all participants must sign in and be seated by 6:30 am
- Class will consist of a combination of lecture, video, demonstration, coached group exercises, individual exercises and assessment.
- Students are required to report to class ready to work and maintain the provided PPE

Textbooks/Readings/Materials

- *Drilling Operations IG/PG- LIUNA Training*
- *Drilling Operations Power Point*
- *DVD: Aboveground Drilling Operations*

Tools/Equipment/Other Materials

- Large post-it pads
- 25 ft. tape measure
- 1-box of soap stone for marking
- 4-permanent markers
- 2-adjustable crescent wrenches
- 1-3 lb. hammers
- 12 to 16 lb. sledge hammer
- 2- 12 in. screwdrivers (one Phillips, one flat head)
- 2-6 in. screwdrivers (one Phillips, one flat head)
- 4-cans of brightly colored spray paint
- 2-rock breaker steel bars
- 2-small chains with hook on each end
- 12-extra hose clamps of various sizes
- 1 mirror to reflect sunlight into hole
- 4-couplings
- 4-extra bits
- 2-100 ft. water hose with nozzles
- 4-rolls of flagging/ribbon
- 1-air compressor with hoses, whip-lines, and safety pins

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- 1-air track drill with all accessories
- 1-can hand cleaner
- 1-box rags
- 3-5 gal. plastic buckets
- Fuel and oil for air compressor
- 4-tubes of grease
- 2-large cans WD40
- 1-bundle of laths

Personal Protective Equipment

- 12 pairs of gloves
- 12 pairs of safety glasses
- 20 pairs of earplugs
- 12 hard hats
- 12 face shields (optional)
- 12 respirators (when/if required)

Course Requirements

To receive credit for the course, participants must:

- Be present for full sixteen hours
- Participate in all classroom exercises
- Pass a written exam
- Pass a hands-on exam

Course Policies

- Participants must be on-time and ready to work.
- Participants must return from breaks on-time.
- Participants must participate in each exercise and assignment
- Participants who are on “light duty” are not allowed to take this course due to the physically demanding requirements.

Assessment and Grading

Participants will be assessed on the following:

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- All written exams must be passed with a score of 80% or above.
- All hands-on exercises are graded on performance and participation. They are pass/fail and must be passed with a score of 80% or above.

Safety

Failure to maintain and use PPE may result in dismissal from the course.