

Maintaining a skilled, knowledgeable workforce is a challenge everyone faces. With changing technologies and fluctuations within the mining industry, it can be especially daunting. Whether you need training for a new hire or a veteran, it can be difficult to find training that is engaging, technologically relevant and easy to fit into busy schedules. Product Training and Publications, the technical communication and training group within P&H Mining Equipment, strives to provide you with the knowledge, skills and competencies needed for your employees to achieve their highest performance potential.

Product Training and Publications has identified eLearning as the primary delivery method for the knowledge components of Fundamental and Product Specific Training. eLearning provides several advantages over traditional training methods:

- eLearning content can be accessed on any computer that has Internet access by any individual who has the appropriate login and password credentials.
- Immediate availability of training content. Students receive the training they require right now, when the training is required most. This provides a quicker, more productive workforce.
- Reduces the cost of training by eliminating travel, living, and other expenses associated with Instructor Led Training.
- Provides students with the ability to learn at their own pace and in their own comfortable environment.
- Improved retention of technical and operational content.
- The training content can be delivered to a large contingent of people in varying locations and be technically consistent across the board.
- Training content can be tailored to an individual's personal strengths and weaknesses. This provides a targeted more effective training solution for today's workforce.
- When used as a prerequisite to Instructor Led Training, eLearning can level the playing field between novice and senior personal. This makes the Instructor Led Training more effective by allowing the Instructor to spend more time developing skills rather than knowledge-based components.

This Course Catalog contains descriptions of the eLearning Lessons available to you through Product Training and Publications.

Lesson Duration:

Each eLearning Lesson is designed to be 45 minutes in duration. However, because eLearning is self-paced training, actual duration may vary per student.

Target Audience:

Operators, Technicians, and Engineers who will operate and/or perform maintenance on P&H Mining Equipment.

Prerequisites:

Students should have a basic working knowledge of computers, and fundamental understanding of electronics, mechanics, pneumatics, hydraulics, operation, etc., as it applies to the systems P&H Equipment.

Lesson Location:

eLearning content can be accessed on any computer that has Internet access by any individual who has the appropriate login and password credentials.

Computer Requirements:

It is recommended that all computers accessing eLearning content have the basic minimum requirements:

- Internet Explorer version 7 or better.
- Flash Player version 8 or better.
- Java version 1.5 or better.
- Latest version of Windows Media Player.
- Adobe Reader version 8 or better.

Operator eLearning

Module 1 Shovel Operator

Lesson 1.1	General Safety Practices
Lesson 1.2	Shovel Orientation
Lesson 1.3	Operator Inspections and Procedures
Lesson 1.4	Shovel Operation

Module 2 Drill Operator

Lesson 2.1	Drill Orientation
Lesson 2.2	Qualifications and Conduct of a Drill Operator
Lesson 2.3	Operator Functional Checks
Lesson 2.4	Drill Operation 320XPC

Shovel Operator Curriculums

Centurion AC Shovel Operator Standard Curriculum

Lesson 1.1	General Safety Practices
Lesson 1.2	Shovel Orientation
Lesson 1.3	Operator Inspections and Procedures
Lesson 1.4	Shovel Operation
Lesson 3.6	P&H Centurion Control Systems - Touch Panels – AC (Reference the General eLearning Course Catalog)
Lesson 9.5	HMI Devices: Touch Screen Systems (Reference the Shovel Electrical eLearning Course Catalog)

Centurion DC Shovel Operator Standard Curriculum

Lesson 1.1	General Safety Practices
Lesson 1.2	Shovel Orientation
Lesson 1.3	Operator Inspections and Procedures
Lesson 1.4	Shovel Operation
Lesson 3.4	P&H Centurion Control System - Touch Panels (Reference the General eLearning Course Catalog)
Lesson 9.5	HMI Devices: Touch Screen Systems (Reference the Shovel Electrical eLearning Course Catalog)

Non-Centurion Shovel Operator Standard Curriculum

Lesson 1.1	General Safety Practices
Lesson 1.2	Shovel Orientation
Lesson 1.3	Operator Inspections and Procedures
Lesson 1.4	Shovel Operation

Drill Operator Curriculums

320XPC Standard Curriculum

Lesson 2.1	Drill Orientation
Lesson 2.2	Qualifications and Conduct of a Drill Operator
Lesson 2.3	Operator Functional Checks
Lesson 2.4	Drill Operation 320XPC

Shovel Operator Lesson Descriptions

Lesson 1.1 General Safety Practices

Lesson Description:

This Lesson is provided as a guide to personnel involved in the operation of P&H mining shovels. We recommend that Operators review and become familiar with the general procedures and information contained within the Lesson

Objectives:

Upon completion of this Lesson the student will:

- Understand the basic qualifications, as recommended by P&H Mining Equipment, for an Electric Mining Shovel Operator.
- Have a basic understanding of the Functional Checks required of the Operator before starting and Operating a P&H Electric Mining Shovel.
- Have a basic understanding of the proper conduct for an Operator of a P&H Electric Mining Shovel.
- Understand some basic guidelines and suggestions, do's and don'ts, for operating a P&H Electric Mining Shovel.
- Have a basic understanding of the responsibilities of crew members performing a job on or near an Electric Mining Shovel.
- Have a basic understanding of the importance of planning a job.
- Be able to identify the different Warning, Prohibition, and Mandatory Action safety symbols used on the decals of a P&H Electric Mining Shovel.
- Be able to identify the different types of fires.
- Understand the different ratings of fire extinguishers.
- Explain how to use a cartridge operated fire extinguisher provided on P&H Mining Equipment.
- Explain how to use a stored pressure fire extinguisher provided on P&H Mining Equipment.
- Have a basic understanding of what an Emergency Plan is and what, at a minimum, it should include.
- Have a basic understanding of how to evacuate a P&H Electric Mining Shovel.

Lesson Outline:

- Topic 1 Safe Operating Practices
- Topic 2 Safety Symbols
- Topic 3 Fire Extinguishers
- Topic 4: Emergency Evacuation

Lesson 1.2 Shovel Orientation

Lesson Description:

This Lesson provides the Operator or Maintenance Technician with a complete overview of the Shovel Exterior, Interior, and Cab Components of current production model C Series P&H Mining Shovels

Objectives:

Upon completion of this Lesson the student will:

- Understand the purpose and function of the exterior components associated with P&H Mining Shovels.
- Understand the purpose and function of the interior components associated with P&H Mining Shovels.
- Understand the purpose and function of the major components and controls associated with the Operator Cab on P&H Mining Shovels.

Lesson Outline:

- Topic 1 Exterior Component Overview
- Topic 2 Interior Component Overview
- Topic 3 Loading Control Center

Lesson 1.3 Operator Inspections and Procedures

Lesson Description:

This Lesson provides information for the Operator to make Pre-Start, Startup, and Shutdown checks of the Electric Mining Shovel.

Objectives:

Upon completion of this Lesson the student will:

- Have a thorough understanding of the Ground Level Inspection required prior to starting the Shovel.
- Have a thorough understanding of the On-Board Inspection required prior to starting the Shovel.
- Have a thorough understanding of the Operator Station Inspection required prior to starting the Shovel.
- Have a thorough understanding of the steps required to properly startup a Shovel.
- Have a thorough understanding of the steps required to properly shutdown a Shovel under normal conditions and the extra steps required for extended period shutdowns.

Lesson Outline:

- Topic 1 Pre-Start Inspection – Mechanical Systems
- Topic 2 Pre-Start Inspection – Electrical Systems
- Topic 3 Pre-Start Inspection – Ground Level
- Topic 4 Pre-Start Inspection – On-Board
- Topic 5 Pre-Start Inspection – Operator's Station
- Topic 6 Starting Up the Shovel
- Topic 7 Shutdown Procedures

Lesson 1.4 Shovel Operation

Lesson Description:

This Lesson describes the operation of the individual motion controls and includes some recommended operating procedures and practices that will aid the Operator in the safe, smooth and efficient operation of P&H Electric Mining Shovels.

It is important to understand that this Lesson is not complete without follow-up hands on skills-based training. This Lesson can provide the knowledge of the controls and functions of the P&H Electric Mining Shovel. It is this knowledge portion, combined with the skills training from a P&H Factory Authorized Operator Trainer that will increase the competence of the Shovel Operator Trainee.

Objectives:

Upon completion of this Lesson the student will:

- Have a thorough understanding of the steps required to properly operate the Shovel Hoist motion.
- Have a thorough understanding of the steps required to properly operate the Shovel Swing motion.
- Have a thorough understanding of the steps required to properly operate the Shovel Crowd motion.
- Have a thorough understanding of the steps required to properly operate the Shovel Propel motion.

- Have a basic understanding of Dig Forces and how it affects the Shovel.
- Have a basic understanding of Dipper Fill Factors.
- Have a thorough understanding of the 4 Phases required to properly operate the Shovel through a complete Dig Cycle.
 - Phase 1 Digging.
 - Phase 2 Swinging to the Truck.
 - Phase 3 Dumping.
 - Phase 4 Returning to the Bank.
- Have a thorough understanding of the steps required to reposition the Shovel for optimal digging.
- Have a thorough understanding of the steps required to safely relocate the Shovel.
- Understand the purpose of the Emergency Stop.
- Understand how to recognize a 30 Second Delayed Shutdown alarm and what to do in case it happens on the Shovel during operations.

Lesson Outline:

- Topic 1 Shovel Operation Introduction
- Topic 2 Individual Motion Control Procedures
- Topic 3 Dig Cycle
- Topic 4 Propelling Guidelines
- Topic 5 Emergency Stops
- Topic 6 Thirty-Second Delayed Shutdowns

Drill Operator Lesson Descriptions

Module 2 Drill Operator

Lesson 2.1 Drill Orientation

Lesson Description:

This Lesson provides the Operator or Maintenance Technician with a complete overview of the Drill Exterior, Interior, and Cab Components of past and current production model P&H Blasthole Drills.

Objectives:

Upon completion of this Lesson the student will:

- Understand the purpose and function of the exterior components associated with P&H Mining Blasthole Drills.
- Understand the purpose and function of the interior components associated with P&H Mining Blasthole Drills.
- Understand the purpose and function of the major components and controls associated with the Operator Cab on P&H Mining Blasthole Drills.

Lesson Outline:

- Topic 1 Exterior Component Overview
- Topic 2 Interior Component Overview
- Topic 3 Operator Cab Overview

Lesson 2.2 Qualifications and Conduct of a Drill Operator

Lesson Description:

This Lesson provides recommendations for the purpose of reducing the possibility of personal injury, either to the Operator, or to those who work on or in the area adjacent to the Drill. This Lesson is general in nature, and your Drill may not be equipped with all devices mentioned.

However, it is impossible to foresee all such conditions, and it must remain the responsibility of the Mining Company and the Drill Operator to anticipate and avoid any unsafe conditions not described in detail in this Lesson. It is understood that safety rules within individual Mining Companies vary, and that, if a conflict exists, the rules of the Mining Company take precedence over the suggestions contained herein.

Objectives:

Upon completion of this Lesson the student will:

- Understand the basic qualifications, as recommended by P&H Mining Equipment, for a Blasthole Drill Operator.
- Have a basic understanding of the proper conduct for an Operator of a P&H Blasthole Drill.
- Have a basic understanding of the Functional Checks required of the Operator before starting and operating a P&H Blasthole Drill.
- Have a basic understanding of the responsibilities of crew members performing a job on or near a Blasthole Drill.
- Have a basic understanding of the importance of planning a job.

Lesson Outline:

- Topic 1 Operator Qualifications
- Topic 2 Operator Conduct
- Topic 3 Operator Functional Checks
- Topic 4 Crew Member Responsibilities
- Topic 5 Planning a Job

Lesson 2.3 Operator Functional Checks

Lesson Description:

This Lesson provides information for the Operator to make Pre-Start, Startup, and Shutdown checks of the Blasthole Drill.

Objectives:

Upon completion of this Lesson the student will:

- Have a thorough understanding of the Ground Area Inspection required prior to starting the Drill.
- Have a thorough understanding of the On-Ground Drill Inspection required prior to starting the Drill.
- Have a thorough understanding of the On-Drill Inspection required prior to starting the Drill.
- Have a thorough understanding of the Operator Station Inspection required prior to starting the Drill.
- Have a thorough understanding of the steps required to properly startup a Drill.
- Have a thorough understanding of the steps required to properly shutdown a Drill under normal conditions and under emergency conditions.

Lesson Outline:

- Topic 1 Pre-Start Functional Checks
- Topic 2 Startup Functional Checks
- Topic 3 Shutdown Functional Checks

Lesson 2.4 Drill Operation 320XPC

Lesson Description:

The purpose of this Lesson is to describe the operation of the individual motion controls and include some recommended operating procedures and practices that will aid the Operator in the safe, smooth and efficient operation of P&H Blasthole Drill.

It is important to understand that this Lesson is not complete without follow-up hands on skills-based training. This Lesson can provide the knowledge of the controls and functions of the P&H Blasthole Drill. It is this knowledge portion, combined with the skills training from a P&H Factory Authorized Operator Trainer that will increase the competence of the Drill Operator Trainee.

Objectives:

Upon completion of this Lesson the student will:

- Review the responsibilities and conduct requirements for a Drill Operator.
- Have a thorough understanding of the operation of the Propel Joystick Controller.
- Have a thorough understanding of the concepts and procedures required to propel the Drill forward, backward, turn left, and turn right.
- Understand the controls and indicators associated with the Drill Remote Control Unit.

- Have a thorough understanding of the concepts and procedures required to propel the Drill forward, backward, turn left, and turn right using the Remote Control.
- Have an understanding of the procedure required to ready the Drill for towing.
- Understand the concepts and procedures required to level the Drill automatically.
- Understand the concepts and procedures required to level the Drill manually.
- Understand the concepts and procedures required to Auto Lower the Drill.
- Understand the concepts and procedures required to manually lower the Drill.
- Understand the concepts and procedures required to raise and lower the Drill Mast.
- Have an understanding of the procedures required to ready the Drill for Rotary Carriage movement.
- Have an understanding of the procedures required to ready the Drill for using the Deck Wrench.
- Have an understanding of the procedures required to ready the Drill for drill pipe installation.
- Have an understanding of the procedures required to ready the Drill for stabilizer installation.
- Have an understanding of the procedures required to ready the Drill for drill bit installation.
- Have an understanding of the procedures required to ready the Drill for collaring.
- Have an understanding of the procedures required when single pass drilling.
- Have an understanding of the procedures required when drilling to uncouple pipe to add drill pipe.
- Have an understanding of the procedures required when drilling to uncouple pipe to remove drill pipe.
- Have an understanding of the procedures required when drilling to remove the drill bit.
- Have an understanding of the procedures required when drilling to remove the stabilizer.

Lesson Outline:

- Introduction
- Topic 1 Propel Operation
- Topic 2 Remote Control Operation
- Topic 3 Towing the Drill
- Topic 4 Leveling Operations
- Topic 5 Raising and Lowering the Mast
- Topic 6 Drilling Setup
- Topic 7 Drilling