Coal Preparation Equipment

**Course Description:**

Coal preparation is an important aspect of coal handling. When coal leaves a plant's coal handling system, it generally is sent to one of two places. Depending on the design of the plant, the coal may go directly to a boiler furnace to be burned, or it may go through coal processing equipment, such as a pulveriser, before it is burned. In either case, coal usually has to be prepared during coal handling so that the pulverizing and burning will be more efficient. Coal preparation involves the use of special equipment that operators are often required to inspect, maintain, and troubleshoot. Operating coal preparation equipment properly can help prolong the life of the equipment and maximize the efficiency of the coal handling system.

**Learning Objectives:**

- State the function of coal preparation
- Describe the basic methods used to reduce the size of coal
- Identify the major types of coal preparation equipment
- Identify the major parts of a breaker
- Describe the basic operation of a breaker
- Describe a typical breaker driving mechanism
- Describe the basic operation of a hammer mill
- State the function of a refuse plow
- State the function of deflector plates
- Explain why breaker lubrication is necessary
- Identify parts of a breaker and a breaker driving mechanism that typically require lubrication
- Describe or demonstrate two ways in which a breaker or a breaker driving mechanism can be lubricated
- Describe or demonstrate a general procedure for inspecting the outside of a breaker
- Describe or demonstrate a general procedure for inspecting the inside of a breaker
- Describe or demonstrate a basic procedure for starting up a breaker
- Identify conditions that are typically monitored during routine breaker operation
- Identify problems that may occur during breaker operation, and explain how these problems should be handled
• Describe or demonstrate a basic procedure for shutting down a breaker
• Identify the major parts of a hammer mill crusher
• Describe the basic operation of a hammer mill crusher
• Identify the major parts of a ring crusher
• Describe the basic operation of a ring crusher
• Identify the major parts of a roll crusher
• Describe the basic operation of a roll crusher
• Identify parts of a crusher and crusher driving mechanism that are typically checked during a routine inspection
• Describe a basic oil bath system for crusher bearing lubrication
• Explain the basic operation of a forced-oil system for crusher bearing lubrication
• Describe inspection and maintenance procedures that are typically required for a forced-oil system for crush lubrication
• Explain two ways in which tramp iron and other un-crushable material can be removed from a crusher
• Describe or demonstrate the basic procedure for adjusting the clearance between a crusher cage assembly and crushing element
• Describe or demonstrate a basic procedure for starting up a crusher
• Identify conditions that are typically monitored during normal crusher operation
• Identify problems that may occur during crusher operation, and explain how these problems should be handled
• Describe or demonstrate a basic procedure for shutting down a crusher