

Design Blasting for Surface

Course Aim:

The course aims to embed This unit standard is intended to promote general skills, knowledge and understanding of being able to design blasts for surface excavations in the mining and minerals sector in order to ensure knowledgeable and informed workers.

Course Objective:



- After completion of the course, the delegate will have an understanding of:
- Explain legal requirements relating to blasting in surface excavations.
- Explain the types, application, and selection of explosives, initiation systems, and accessories used and required in surface excavations.
- Explain the drilling equipment required and their applications in surface excavations.
- Explain the factors influencing blast design and their impacts on surface excavations.
- Design safe and efficient blasting.
- Estimate the likely environmental effects of the blasts.
- Monitor the blasting performances and take appropriate actions.

Course Content:

- Explain the types, application and selection of explosives, initiation systems and accessories used and required in surface excavations.
- Initiating systems are identified and their function explained in accordance with specified requirements
- Accessories are identified and their function explained in accordance with specified requirements.
- The factors influencing selection of an explosive are explained.
- Drilling methods and accessories are evaluated to match site specific requirements.

- Appropriate equipment for blast hole drilling for production requirements is identified.
- Explain the factors influencing blast design and their impacts on surface excavations.
- The effect of blast design and practice on slope stability is explained.
- Hazards and risks are anticipated and measures taken in accordance with specified requirements to eliminate them or mitigate their effect.
- Monitor the blasting performances and take appropriate actions.
- The economics of drilling and blasting are regularly calculated and blast design improvements made in accordance with specified requirements.

Target Audience:

All employees interested in following a career in the mining or mineral sector.

Duration:

4 Days

Training Programme

Days	Content
Day 1	<ul style="list-style-type: none"> ■ Welcoming ■ Explain legal requirements relating to blasting in surface excavations. Explosives usage regulations under the Mine Health and Safety Act applicable to surface excavations are explained and applied in accordance with specified requirements. ■ Explosives transport and storage regulations under the Explosives Acts applicable to surface excavations are explained and considered in accordance with specified requirements. ■ Explain the types, application and selection of explosives, initiation systems and accessories used and required in surface excavations Explosive types are identified and their function explained in accordance with specified requirements.

	<ul style="list-style-type: none"> ■ Initiating systems are identified, and their function explained in accordance with specified requirements. ■ Accessories are identified and their function explained in accordance with specified requirements.
	<ul style="list-style-type: none"> ■ Welcoming ■ The factors influencing selection of an explosive are explained in accordance with specified requirements. ■ Explain the drilling equipment required and their applications in surface excavations. ■ Drilling methods and accessories are evaluated to match site specific requirements. ■ Appropriate equipment for blast hole drilling for production requirements is identified. ■ The economics and efficiency of the various drilling methods are evaluated.
	<ul style="list-style-type: none"> ■ Welcoming ■ Explain the factors influencing blast design and their impacts on surface excavations. ■ The geological and physical properties of the rock to be excavated are identified and influence explained in terms of blast design. ■ The production factors involved in producing the required materials are identified and explained in accordance with specified requirements. ■ The effect of blast design and practice on slope stability is explained in accordance with specified requirements. ■ Design safe and efficient blasting. ■ The factors influencing quarry blast design are determined and documented in accordance with specified requirements. ■ The designs are produced, and the applicable calculations carried out in accordance with specified requirements. ■ The designs are put into formats suitable for use by personnel in accordance with specified requirements.

	<ul style="list-style-type: none"> ■ Hazards and risks are anticipated, and measures taken in accordance with specified requirements to eliminate them or mitigate their effect.
	<ul style="list-style-type: none"> ■ Welcoming ■ Estimate the likely environmental effects of the blasts. ■ The environmental effects of blasting are identified and the way blast design minimizes their effects are explained. ■ The equipment and methods to measure ground vibration plus air blast are explained in accordance with specified requirements. ■ The projected ground vibrations are calculated and compared to the effects measured during the blast. ■ Monitor the blasting performances and take appropriate actions. ■ The fragmentation is checked, analyzed and compared against production requirements and appropriate amendments made to the blast design. ■ The shape of the muck pile, condition of floor and extent of back break are checked, and changes made to the blast design as necessary. ■ The economics of drilling and blasting are regularly calculated, and blast design improvements made in accordance with specified requirements. ■ The air blast results are checked and the required amendments to blast design effected in accordance with specified requirements. ■ The incidence of fly rock is investigated and reported upon in accordance with specified requirements. ■ Appropriate actions are taken to improve the blast design. ■ Data is recorded in accordance with specified requirements.

NB: PLEASE MAKE SURE YOU BRING THE FOLLOWING DOCUMENTATION FOR MQA REGISTRATION:

CERTIFIED COPY OF YOUR ID

Looking forward to joining you on this journey of learning!

