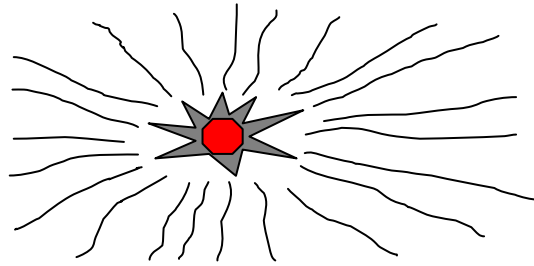


# **Blaster's Training Modules**



**Prepared under sponsorship from**

*Office of Technology Transfer, Western Region  
Office of Surface Mining  
U.S. Department of the Interior*

**In Cooperation With**

*Sheridan District Office  
Wyoming Department of Environmental Quality  
Land Quality Division*

*Peer reviewed:*

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May 6, 2008

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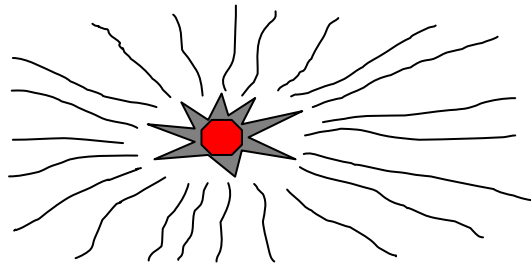
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# **Blaster's Training Modules**



**USER GUIDE**

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# Blaster's Training Modules

The blaster-training modules were put together, under contract, with Federal funds provided by the Office of Technology Transfer (OTT), Western Region (WR), Office of Surface Mining (OSM), U.S. Department of the Interior (DOI), located in Denver, Colorado.

The modules are examples of the technical assistance the Federal government furnishes States to assist them in meeting the requirements of the Surface Mining Control and Reclamation Act of 1977 (SMCRA), upon which their State surface coal-mine regulating programs are based. In particular, the modules were requested and will be used by the Sheridan District Office, Wyoming Department of Environmental Quality (DEQ), Land Quality Division.

A word of caution: please note that **these modules are not intended to stand alone, nor are they self-training type modules**. Rather, **the information the modules provide MUST BE SUPPLEMENTED** by information given by a certified blasting instructor.

## Disclaimer

The technologies described in these modules are for information purposes only. The mention herein, of the technologies, companies, or any brand names, does not constitute endorsement by U.S. Department of the Interior (DOI), Office of Surface Mining (OSM).

## Acknowledgements

Portions of these blaster-training modules were developed through a contract with Aimone-Martin and Associates, LLC, throughout 2003-2004, with the assistance and cooperation of explosives manufacturers as well as coal-mining and quarrying companies. Both OSM and Wyoming DEQ recognize and are appreciative of technical and media contributions, made during the modules' preparation, from:

Advanced Initiation Systems, Inc.  
BHP Billiton  
Bridger Coal Company  
Buckley Powder Company  
Decker Coal Company

Dyno Nobel, Inc.  
E.I.T. Corporation  
Institute of Makers of Explosives  
Kennecott Energy  
Lafarge North America  
Martin Marietta Materials  
Mining Services International  
Nelson Brothers  
Orica International Management, Inc.  
Peabody Energy  
Pete Lien & Sons, Inc.  
Pittsburgh & Midway Coal Company  
Powder River Coal Company  
Trapper Mining, Inc.  
Triton Coal Company  
Viking Explosives Company  
Western Energy Company – Rosebud Mine

## **Background**

The Blaster's Training Modules is accessible by means of a main menu, which a user accesses in order to select from a choice of the eight modules. Again, the information contained in these modules is intended to provide blasting professionals with review material that should be adequate to allow them to complete classroom instruction prior to taking a blaster's certification test.

## **Operating Features**

The Blaster Training Modules require the use of Adobe Reader™<sup>1</sup> version 6. If you do not have Adobe Reader™ installed on your computer, the Adobe Reader Installer is provided to you for your convenience. Please read the instructions on how to install the Adobe Acrobat Reader.

## **System Requirements**

- Intel® Pentium® processor
- Any of the following operating systems: Microsoft® Windows 98 Second Edition, Windows Millennium Edition, Windows NT® 4.0 with Service Pack 6, Windows 2000 with Service Pack 2, Windows XP Professional or Home Edition, Windows XP Tablet PC Edition
- Minimum 32MB of RAM (64MB recommended)
- 60MB of available hard-disk space
- Internet Explorer 5.01, 5.5, 6.0, or 6.1
- Screen Resolution: 1280 x 1024

## **Installing the Adobe Acrobat Reader™**

1. Click on your CD-ROM drive to list the contents of the disk.
2. Click on the folder called SETUP.
3. Click on the file called AdbeRdr60\_enu\_full.exe.
4. Follow the instructions of the program. If at the end you are asked to reboot your computer, please do so.

## **To manually open the publication contained on this CD**

1. Click on your CD-ROM drive to list the contents of the disk.
2. Click on start.htm to get the startup page.

<sup>1</sup>

Adobe, the Adobe logo, and Reader are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States and/or other countries.

## **Getting Started**

Begin by inserting the blaster-training modules CD into the CD drive.

If the Blaster Training Modules Main Menu does not appear, follow the instructions under “To manually open the publication contained on this CD” under Operating Features. On the main menu for the Blaster’s Training Modules, click on any of the nine buttons to start the module (or to access this user’s guide) that button describes, see Figure 1. If security warnings appear, see section Security.

## **Module Organization and Topics**

The training package comprises eight modules that address (and are entitled):

- Explosives
- Initiation Systems
- Surface-Blast Design
- Blasthole Drilling
- Blasthole Loading
- Geology
- Regulations and Safe Practices
- Controlling the Adverse Effects of Blasting

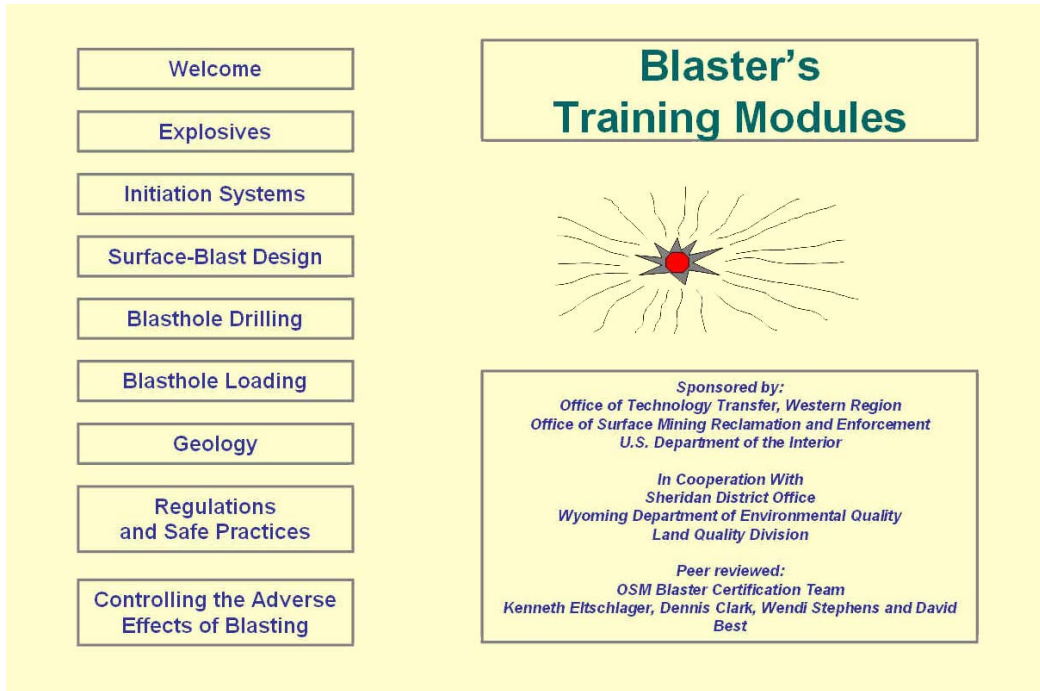


Figure 1 – Main menu of the Blaster’s Training Modules

The eight modules are supplemented by this user’s guide.

Each of the eight modules includes review questions and discussion; in addition, certain modules contain links to videos. The playback of each of these videos may be initiated by clicking on a still photograph, within the module to which it relates, representing the video (in one instance, in the “Initiation Systems” module, the video link is a black screen).

The eight modules are:

**Explosives** – This module presents information pertaining to the classification and properties of explosives products used in surface coal mines and quarries.

**Initiation Systems** – This module presents information pertaining to initiation systems currently in use in blasting operations at surface coal mines.

**Surface-Blast Design** – This module presents recommended blast-design practices for surface-mine and quarry blasting.

**Blasthole Drilling** – This module presents aspects of surface drilling that are important to blasting operations. The purpose of drilling into rock is to provide a “blasthole” into which explosives can be loaded.

Good drilling practices include carefully monitoring drill-rig operating parameters, taking careful notes of the changes in geology during drilling, and effectively communicating to the blasting crew any unusual conditions encountered during drilling that may affect blasting results or require changes in hole-loading practices.

**Regulations and Safe Practices** – This module presents current blasting and related explosive regulations and identifies the regulatory agencies that enforce them.

Regulations in the mining-explosives industry relate to the manufacture, transportation, storage, and use of explosives. Blasters are responsible for knowing all applicable laws that affect the storage, transport, and use of explosives on their job sites. The module focuses on the storage and transport of explosives from magazines to job sites. The safety aspects of explosive handling and use are presented in other blaster-training modules.

**Controlling the Adverse Effects of Blasting** – This module addresses the control of offsite impacts that result from blasting, namely vibrations, airblast, and flyrock. Much of the information in the module is derived from SMCRA, which outlines performance standards applied to all surface coal mines. Similar standards have been adopted on some State and local levels and applied to non-coal blasting operations such as quarrying and construction.

## Security

### Viewing Videos

If the Manage Trust for Multimedia Content appears when you click on a video (see figure 2 and figure 3), select “Play the multimedia content and add this document to my list of trusted documents”. Otherwise, select “Play the multimedia content this one time”. Click on Play to view the video.



Figure 2 – Manage Trust for Multimedia Content for Windows Media Player

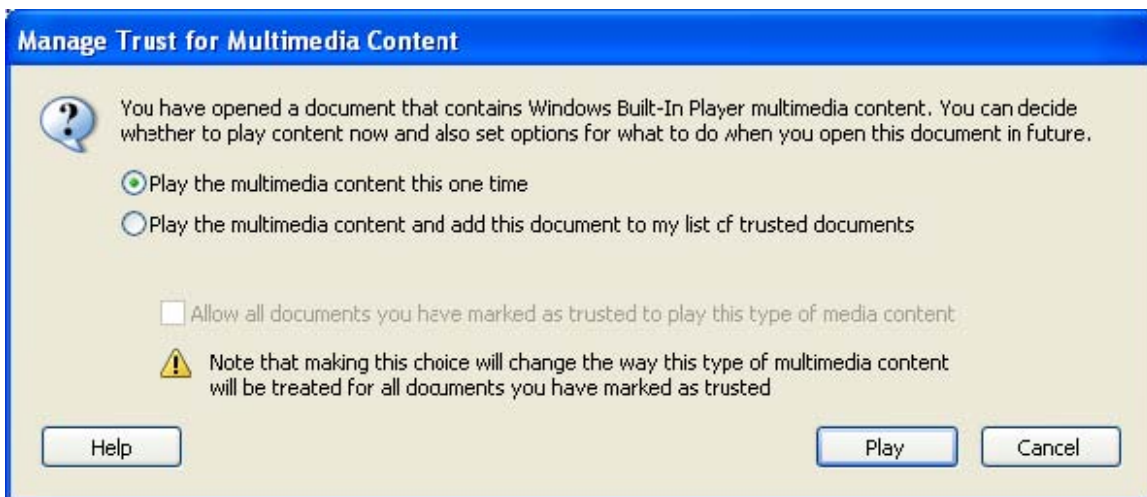


Figure 3 – Manage Trust for Multimedia Content for Windows Built-In Player

## Hyperlinks

If the Security Warning window appears when a hyperlink is clicked (see figure 4), select “Allow” to access the website.



Figure 4 – Security Warning Windows appears when accessing a website