

# You should know...



North Dakota Public Service Commission

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North Dakota Public  
Service Commission

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## Blasting and Explosives

### INTRODUCTION

One of the more dangerous activities connected with surface coal mining is the use of explosives. The purpose of this fact sheet is to acquaint you with the use of explosives in North Dakota's surface mines and the safeguards that exist to protect mining employees and the public from the hazards of blasting and explosives.

### THE NEED FOR EXPLOSIVES

In general, there are three situations where explosives are needed in surface coal mining operations. The most common is the need to fracture the coal seam, once it is uncovered, into pieces that can be handled by loading shovels when they fill the haul trucks. The use of explosives for this purpose is no longer as widespread in North Dakota mines as in earlier years, since the mining companies now make greater use of large rippers mounted on bulldozers to break up the thinner seams of uncovered coal.

Another situation where explosives are needed is when the dragline encounters a lens or layer of hard rock while removing overburden from above the coal. When this happens, the detonation of explosives placed in holes drilled in the lens or layer shatters the rock into pieces that can be removed by the dragline.

Still a third need for explosives sometimes occurs in the tipple (the coal handling and crushing facility) when a large piece of coal becomes jammed in the tipple machinery and must be broken up.

ANFO (a mixture of ammonium nitrate fertilizer and fuel oil) and dynamite are

commonly used on the mines for these purposes.

### PROTECTING PUBLIC HEALTH AND SAFETY AND THE ENVIRONMENT FROM THE EFFECTS OF BLASTING

North Dakota's reclamation law requires permit applicants to submit a blasting plan that meets the performance standards for blasting. The law also enables the Public Service Commission to generate rules requiring the training, examination and certification of mine personnel who are directly involved in or responsible for blasting or any use of explosives.

### NOTICE

Each permittee must notify in writing, at least 30 days before blasting, all residents and owners of manmade dwellings or structures located within a mile of the permit area as to how to request a preblasting survey. The purpose of the survey is to record the condition of the dwelling or structure before any blasting takes place in the event the owner feels he or she has suffered any property damage from the blasting. The survey is performed at no cost to the owner by a third-party contractor, and copies are filed with the permittee, the owner and the Commission.

The permittee also must publish a blasting schedule in a newspaper of general circulation in the locality and distribute copies of the schedule by mail to local governments and utilities, and to each residence within half a mile of the blasting site described in the schedule. Residents within half a mile of the blasting site are to receive daily notice prior to blasting. Blasting operations must be

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conducted between sunrise and sunset except in unavoidable situations, and the schedule must be updated, republished and recirculated at least yearly.

## **SAFETY**

Clearly visible signs, audible warning signals and restricted access are required in order to protect the public and the mine employees from flying debris and unexploded charges. Both airblast and ground vibration generated by blasting must be controlled to prevent damage to dwellings or structures. In addition, damage to ground water and surface water outside the permit area must be prevented. The permittee is required to keep a detailed blasting record of times, amounts of explosives used, number of holes and other information.

## **TRAINING**

Everyone directly involved in blasting and any use of explosives on a mine undergoes on-the-job training, formal training, examination and certification. On-the-job training is given by an already certified blaster, after which the blasters-in-training undergo several hours of formal training. The Reclamation Division monitors both the formal training and the examination given at the end, and recommends certification for those who receive a passing grade. Blasters are initially certified for a three-year period and can be recertified following either re-examination or demonstrating that they participated satisfactorily in a blaster-related refresher course during the term of certification. The Commission may, for cause, suspend or revoke a blaster's certificate.