

***SAFETY PRECAUTIONS
ON
COAL STOCKPILES***

**John J. Meadows
Mike W. Southern**

HAZARD ALERT

Current market conditions in the coal mining industry may cause the industry to store large amounts of coal in stockpiles with underlying feeders. These stockpiles can lay dormant for extended periods of time greatly increasing potential hazards, including entrapment; roll over, fire, exposure to power lines and changing weather conditions.

The size of coal piles on storage areas has presented new challenges to equipment operators. The depth and width of potential cavities over underlying feeders dramatically increase, creating a greater risk of entrapment. Coal is being placed higher than the stacking tubes creating steep out slopes and smaller working areas for heavy equipment. Coal placed or stacked in these outlying areas are often not adequately illuminated and requires equipment operators to work on steep and unstable material.

When developing a coal stockpile plan or recovery plan, the operator should recognize that different types of plans may be developed for each stockpile, depending upon the production, physical features of the product and facility, type and size of equipment being used and any other conditions or practices that could create potential hazards.

Applicable Mining Laws and Regulations

§ 36-27-5. Safety Precautions on Coal Stockpiles.

5.1. The following requirements shall apply to all surface coal stockpiles with draw-off tunnel feeders underneath the coal storage area of the stockpile which discharge onto a conveyor belt:

a. No person shall travel on foot or operate equipment on a coal stockpile or coal storage area directly over areas where underlying coal feeders are in place without a plan approving such activity by the Director, or his authorized representative. The Plan shall be submitted by the operator or the independent contractor performing the work, and shall be reviewed with all persons prior to work being done, and a record kept of such review.

b. The Plan shall outline procedures to protect the health and safety of those who may have to travel on foot or operate equipment on a coal stockpile or coal storage area directly over areas where underlying coal feeders are in place. The minimum criteria for approval of the plan shall include:

1. The equipment shall be equipped with an enclosed cab and doors and windows shall be closed and secured at all times the equipment is in operation. Beginning January 1, 2001 all mobile equipment manually operated on coal stockpiles, where there is a potential of the equipment falling into a cavity, shall be equipped with an enclosed cab fitted with chemically tempered glass and a window support system; provided however, that glass certified to withstand 40 psi may be installed without a window support system, provided that such glass is installed in a substantial frame. The Director of the Office of Miners Health, Safety and Training will approve all enclosed cabs pursuant to this section. The Director of the Office of Miners Health, Safety and Training may approve other types of glass and window frames or support system provided that an equal or greater amount of protection is afforded.

2. The equipment shall have two-way communications and a backup communication system supplied on an independent power source.

3. The equipment operator shall be provided with two self-contained self-rescuers.

4. A remote control device capable of stopping the flow of coal from the feeder and stop the coal coming onto the stockpile. Such device shall be tested weekly.

5. A means of providing emergency lighting to the mobile equipment operator.

6. Warning signs shall be posted at the entrances to all coal stockpiles with underlying coal feeders.

7. No person shall travel on foot, except on an emergency basis, and only under direct supervision; they shall be secured by an overhead lifeline; and feeders shall be locked and tagged out.

c. The operator shall establish rules for the safe procedures for breaking through cavities and for marking the feeder areas on the surface. A copy of the rules shall be submitted to the Director, Office of Miners Health, Safety and Training for approval. A copy of the approved rules shall be posted at the mine site, and all persons to perform such work shall be instructed in these procedures.

d. Telephone or equivalent two-way communications shall be established between equipment operators working on stockpiles and those persons who are operating conveyors, feeders, and hoppers at storage piles (where more than one person performs these duties), in order to keep such equipment operators advised of the possibility of bridged material over a cavity in the stockpile.

56-3-36.8. Reclaiming hazards - No person shall be permitted to walk or stand immediately above a reclaiming area at or near a slurrage or storage pile where the reclaiming operations may expose him to a hazard.

22A-2-61(h) and 56-3-44(d)-Extreme caution shall be exercised by all employees required to work at or near coal storage piles during coal recovery operations to avoid injury by coal slides or by being in or drawn into a chute.

2005 8:52AM

FAX NO. : 304 558-1282

No. 8499 P. 2
Sep. 06 2005 03:09PM P1/1




State of West Virginia
Joe Manchin III, Governor

WV Office Of Miners' Health, Safety & Training
Doug Conaway, Director
1615 Washington Street East - Charleston, West Virginia - 25311-2126
Telephone 304-558-1425 • Fax 304-558-1282
www.wominersafety.org

MEMORANDUM

TO: Inspectors-At-Large

FROM: Doug Conaway, Director 

DATE: September 6, 2005

RE: Stockpile Plans or Coal Storage Areas With Underlying Feeders

Please contact every company in your region that has a stockpile plan and have them to add a component to their plan which states the following:

"Prior to uncovering a stockpile draw off feeder the Office of Miners' Health, Safety and Training will be notified."

Or the company may submit a specific plan for approval. This will be added to the plan that shows how they will prevent the collapse of any vertical walls in the coal piles that may endanger any worker.

Please send me verification that every stockpile plan in your region has one of the two changes made by September 28, 2005.

Recommendations

Repairs in stockpile areas with underlying feeders:

Special safety precautions should be taken when persons are required to perform work between immobilized equipment or feeders where there is a danger that escape may be hindered by falls or slides. A competent person should be designated to observe coal banks. If equipment is mobile and repair work is necessary on such equipment, such equipment should be moved to a safe location.

If repair or maintenance is required to an underlying feeder or immobilized equipment, the coal surrounding the affected area should be sloped to the angle of repose and or barriers, baffle boards, screens, or other approved devices that afford equivalent protection should be provided to miners.

All known cavities or other hazardous conditions on coal stockpiles should be recorded in a book approved by the Director and clearly communicated to all employees of each affected shift.



Recommendations for Coal Stockpile Safety

Recommended tools and equipment stored in a central location at the stockpile area.

1. Dozer with an approved cab
2. First-aid-kit with breathing unit
3. Two (2) full body harnesses with appropriate lanyards
4. Four (4) long handled pointed shovels
5. Four (4) coal shovels
6. Two (2) sledge hammers
7. Four (4) cap lights
8. Two (2) slate bars
9. One (1) tool kit
10. Two (2) radio units
11. Wire tow ropes with attachments
12. Stokes basket with ropes and attachments
13. An extension ladder



STOCK PILE DOZER REGULATIONS SAVES A LIFE!

MINGO LOGAN COAL PREP PLANT MARCH 6, 2002



AFTER BEING TRAPPED IN THE CAB FOR OVER ONE HOUR THIS DOZER OPERATOR WAS REMOVED UNHURT.

REVIEW AND FOLLOW STOCK PILE PLANS.

KNOW LOCATION OF UNDERLYING FEEDERS AT ALL TIMES.

MAINTAIN GOOD COMMUNICATION BETWEEN DOZER OPERATORS AND PLANT LOADOUT PERSONNEL.

Critical Zone of a Feeder

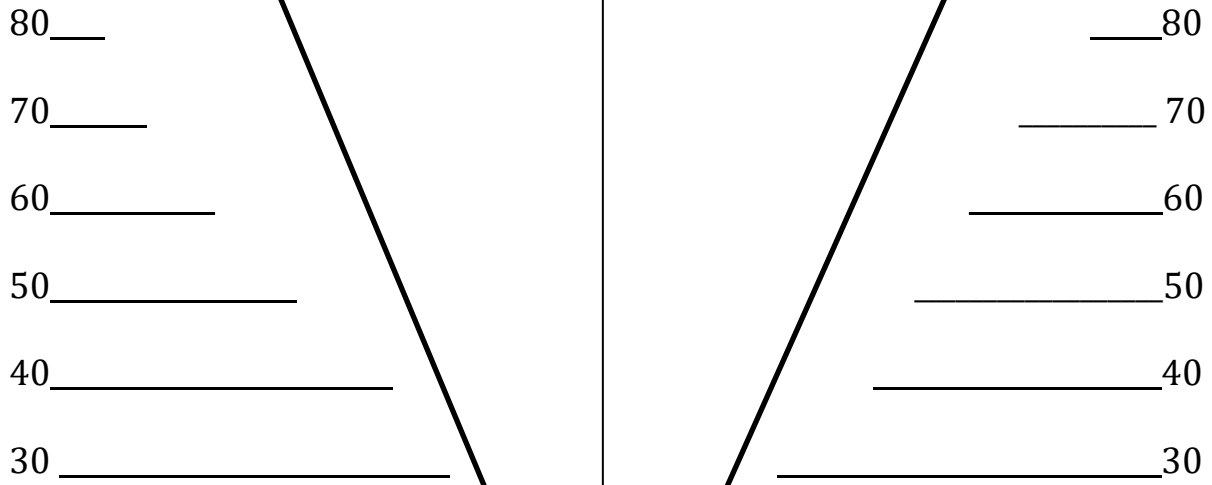
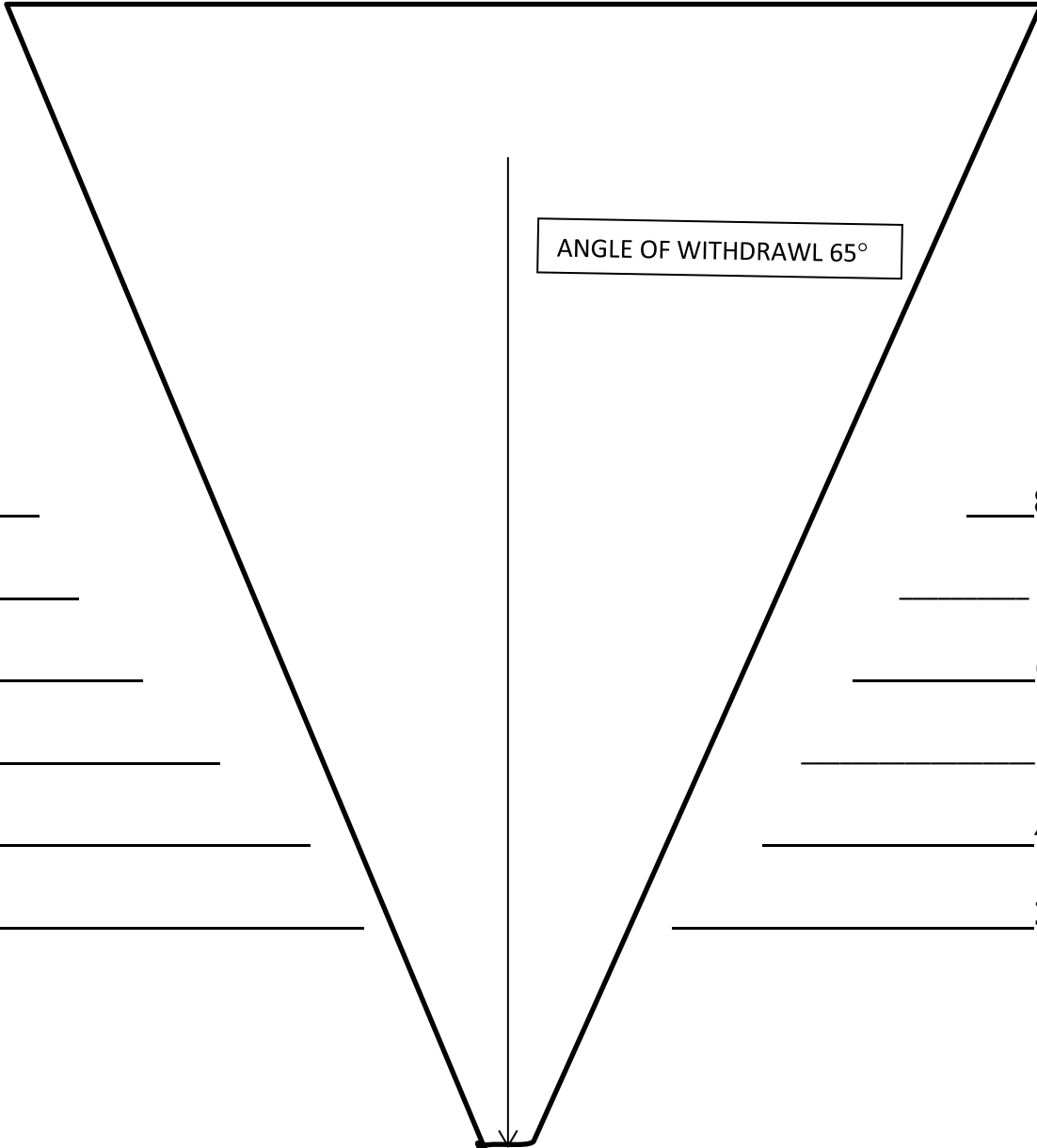
The critical zone is the area around the drawdown that continually feeds under normal flow conditions of the pile. This area extends farther from the feeder as the height of the pile increases. Engineers can calculate this area and provide the equipment operator with a chart that shows the extent of the critical area from the feeder in relation to the height of the pile. The equipment operator will estimate the distance using such things as the length of the dozer, etc. and the known height of the doors on the stacker tubes, etc. At no time would anyone go on the pile to measure any of this. The best place to observe these operations is from walkways at the top of the stacker tubes or elevated belt discharge point.

The attached chart can be used to determine how far away from the center of the feeder a person or dozer would have to be located to not be considered within the critical zone of the drawdown of the feeder. The angle of withdrawal may differ slightly depending on the consistency of the product in the pile. Should a company question this chart we should consider their angle of withdrawal if it is reasonable.

Description	Distance in Yards	Angle in Degrees	Height of Clinometer	Distance In Feet	Estimated Height
Stacker #1	45	19	5.5	135	49
Stacker #2	87	10	5.5	261	51
Window #4	41	23.5	5.5	123	55
Window #3	54	19	5.5	162	58
Window #2	55	18	5.5	165	56
Window #1	63	16	5.5	189	58

Guidelines to Determine Critical Zone above Feeders

50 40 30 20 10 10 20 30 40 50



FEET

CL

Feeder

FEET



50 40 30 20 10 10 20 30 40 50



“1998 West Virginia Coal Stockpile Fatal”



“1999 West Virginia Coal Stockpile Fatal”

Application of Permit and Changes to Coal Stockpile Plans

The following documents are required by the WV Office of Miners' Health, Safety & Training:

- DMM-61 Application/Permit is to be completed by the company and submitted to the WV Office of Miners' Health, Safety & Training prior to any changes and/or additions to the coal stockpile plan.
- Acknowledge receipt of stockpile plan is completed by the WV Office of Miners' Health, Safety & Training and returned to the company with the proposed changes to the plan, accepted or rejected.
- Coal Stockpile Information form is completed by the WV Office of Miners' Health, Safety & Training. The form is for approval of coal stockpile mobile equipment prior to working in areas with underlying feeders.



DMM-61
Permit No. _____

Approved By: _____
Approval Date: _____

**STATE OF WEST VIRGINIA
OFFICE OF MINERS' HEALTH, SAFETY & TRAINING**

7 Players Club Drive, Suite 2
CHARLESTON, WV 25311

www.wvminesafety.org

APPLICATION/PERMIT

1. Company: _____

Address: _____

Street or P.O. Box

City

State

Zip

2. Mine Name or Number: _____

3. Location of Operation:

County

District

nearest Post Office

4. Name and Thickness of Coal Seam: _____ Inches

I am requesting permission to: _____

Signature & Title of Mine Official

CONTINGENT UPON THE FOLLOWING CONDITIONS:

--The practice is to be performed strictly in accordance with Chapter 22A of Code of West Virginia

--A copy of this permit shall be kept at the mine site.

--This permit is NON-TRANSFERABLE.

NOTE: This permit is void upon the District Inspector's recommendation.

*STATE OF WEST VIRGINIA
OFFICE OF MINERS' HEALTH, SAFETY & TRAINING
BUREAU OF COMMERCE
14 COMMERCE DR. STE. 1
WESTOVER, WV 26501*

Region One

Date: _____

Company: _____

Address: _____

This is to acknowledge receipt of your **stockpile plan** for:

Mine Name	Permit No.
-----------	------------

Your submitted change has been:

_____ Accepted

_____ Rejected

REMARKS: _____

District Inspector

Inspector-At-Large

Title 36 Series 27
Board of Coal Mine Health and Safety
Rules and Regulations Governing Surface Areas
Coal Stockpile Information Form

Date: _____

Company Name: _____

Mine/Prep Plant Name: _____ Permit Number: _____

Approved date of the Safety Precautions on the Coal Stockpile Plan: _____

Does the operation have an Equipment Recovery Procedure Plan? _____

What type of equipment is operated on the coal stockpile? _____

Manufacturer: _____ Model: _____

Manufacturer: _____ Model: _____

The enclosed cab is equipped with what type of tempered glass and/or support system?

Explain: _____

List the (2) types of two-way communication: _____

List the (2) types of self-contained self-rescuers or other approved device(s)/system:

Explain the remote control device capable of stopping the flow of coal from the feeder and stop the coal coming onto the stockpile:

The mobile equipment operator is provided with what type of emergency lighting?

Inspector-at-Large

Inspector and Number