



Informal Conference NOV 0804

**Dakota Westmoreland Corp.
&
North Dakota PSC**

Dakota Westmoreland
Corporation Beulah Mine

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Overview of NOV 0804

“During a routine inspection of the Beulah Mine on December 10, 2008, the inspector noted a blast in the West Silver Pit area located in the S1/2 of Section 17, Permit KRSB-8603 at approximately 10:45 a.m., CDT. The inspector was located approximately 300 yards northeast of the blast site at the time of the blast detonation. Although the inspector was located relatively close to the blast site, the required pre-blast warning siren was not heard prior to the blast nor was an all clear signal heard after the blast.”

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Overview of NDAC Code

NDAC 69-05.2-17-05(3): "Warning and all-clear signals of different character that are audible within a range of one-half mile [0.85 kilometers] from the point of the blast must be given."

The excerpt above represents the portion of the code that was referenced in NOV0804, and does not include the code in its entirety.



December 10, 2008, Inspection Specifics

Ambient Conditions at time of inspection:

- ✓ Wind: 15 - 25 mph (33 mph gusts)
- ✓ Wind Direction: WNW (approx. 50° perpendicular to blast)
- ✓ Temperature: 35°F
- ✓ Cover: Partly Cloudy (approx. 60%)

- ✓ Actual Distance from Blast: 1,600 ft
- ✓ Reported Distance from Blast: 900 ft



December 10, 2008, Inspection Specifics



Recommended Remedial Action/Abatement Period

NDPSC (NOV0804): "Dakota Westmoreland must use a siren or other audible warning system that can be heard within a range of one-half mile in any direction of the blast point under normal weather conditions prior to (pre-blast warning) and after each blast (all clear signal) using different signals for each."

NDPSC (NOV0804): "The use of a siren or other audible warning system must be implemented immediately or prior to the next blast following receipt of this Notice of Violation."



Responses to Remedial Action

- DWC (December 31 Response Letter): “After a series of tests performed on the siren under normal weather conditions, DWC feels that the siren effectively meets the requirements of NDAC 69-05.2-17-05(3).”
- ✓ Essentially, at this point of the NOV process, DWC had always met the recommended remedial action requirements. Test results validate this statement and will be summarized later in this presentation.

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Responses to Remedial Action

NDPSC (January 11 Response Letter): “It appears that a one-directional siren is being used by DWC. This would certainly affect the range of effectiveness of the siren. At a minimum, we recommend the use of a bi-directional siren be used to ensure a wider range of coverage of the siren. Also, the location of the siren should be investigated. If the siren is located in the pit or ramp at the time of the blast, its effectiveness will also be limited.”

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Responses to Remedial Action

With regard to the newly proposed remedial action, DWC disagrees with for following:

- 1) DWC disagrees with the usefulness of a bi-direction siren. A second siren does not "certainly affect the range of effectiveness". However, a bi-directional siren was affixed to the blasting truck to fulfill the remedial action requirements.
- 2) DWC also disagrees with the location of the siren in relation to blasting activities. DWC believes that the location of the siren next to the blast provides for the safest environment (and is approved by MSHA).



Responses to Remedial Action #2

- PSC (January 6 Response Letter): "While adding the second siren helps make the warning signal more audible, we believe a warning siren needs to be located out of the pit to be audible for the one-half mile distance as required by subsection 3 of NDAC 69-05.2-17-05. Since the sirens were not audible upwind of the blast site during the January 27th inspection, NOV-0804 is not being terminated at this time.



Responses to Remedial Action #2

- ✓ The second siren is not more audible.
- ✓ The radio signal is audible within the ½ mile radius.
- ✓ To implement a siren only approach, a cost-prohibitive grid of sirens located 1,000 ft (in some instances, 500 ft apart) from each other would have to be constructed throughout the mine.
- ✓ Because of environmental variables, sirens and radios must be used in combination to provide the safest work environment in accordance with NDAC 69-05.2-17-05.



Proposed Penalty Summary

PSC (Proposed Penalty, Jan. 8): "DWC's violation did not impact the environment; however, the required warning signals are a safety issue."

DWC has NOT been cited for blasting under the authority of MSHA. No individuals were at risk during the blast. DWC strongly adheres to the best safety practices with respect to blasting.



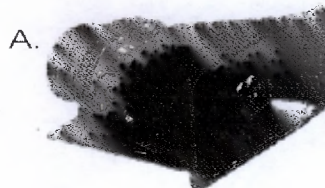
DWC-Points of Contention

- ✓ DWC uses a **siren** for every blast at the mine. The use of this siren is noted on the daily blast logs.
- ✓ The siren is **audible** within a range of one-half mile given normal environmental and blasting conditions.
- ✓ In addition to a siren, DWC employs the use of the **radio network** to convey warning signals.



DWC-Point #1 The Use of a Siren

- ✓ The siren used at the time of the blast is a 100watt siren capable of producing 105dB of sound. This siren is a siren normally used for blasting, which is purchased from a blasting company, that meets all MSHA guidelines.



A. 73655 - Siren Speaker, 100watt



DWC-Point #1 The Use of a Siren

- Because of MSHA regulations, the siren cannot exceed 115 dB without secondary PPE (ear plugs and ear muffs).
- At 115dB, the blasters' would not be able to hear the radio because of the PPE.



DWC-Point #1 The Use of a Siren

The table below shows noise levels and how long a person can be exposed without hearing protection before there is damage to the ear.

<u>Noise Level</u>	<u>Allowable Exposure Time</u>
85 decibels	8 hours
90 decibels	4 hours
100 decibels	1 hour
105 decibels	30 minutes
110 decibels	15 minutes
115 decibels	0 minutes





DWC-Point #1 The Use of a Siren

- ✓ The siren is located above the cab of the blasters' pickup, and faces the front of the vehicle. Noise measurements conducted at the mine indicate that 105dB could be heard in front of the pickup, and 98db could be heard in the rear of the pickup.
- ✓ The additional siren (facing the rear of the pickup) did not change the dB level from either the front nor the rear of the pickup. This test was validated on a PSC inspection dated January 27, 2009.
- ✓ This siren has been used for every blast, and its use is mentioned within daily blasting logs (reviewed by the PSC).



DWC-Point #2 Audible Range of Siren

- ✓ Several tests were performed to assess the audible range of the siren. Likewise, tests were performed during two additional PSC inspections.
- ✓ Under normal operating conditions, the siren can be heard at a range of one-half mile.
- ✓ During the time of the inspection, the environmental conditions were NOT normal as summarized below.



DWC-Point #2 Audible Range of Siren

- ✓ Environmental conditions that affect the audible range of the siren:
 - ✓ Wind
 - ✓ Blasting Location (in pit, on ramp, etc.)
 - ✓ Landform Features (spoil ridges, hills, etc.)
 - ✓ Other Equipment Working in Area
 - ✓ Location of Individual Inside of a Vehicle
 - ✓ Physical Handicap of Individual

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DWC-Point #2 Audible Range of Siren

- ✓ Wind:
 - ✓ During the time of the inspection winds were recorded at 15-25 mph with gusts of up to 33mph.
 - ✓ Wind deflects noise waves upward against winds.
 - ✓ Tests performed at the mine on an open County Road indicate that audible ranges decrease from ½ mile to 1,500 ft at wind speeds of 15 mph standing upwind in an open settings.
 - ✓ Also, the tests indicate that that audible ranges decrease from ½ mile to 1,500 ft at wind speeds of 15 mph standing perpendicular to the wind in an open setting.
 - ✓ During this set of tests, the tester was standing outside of the vehicle (which was turned off) with no other environmental interference.
 - ✓ Tests were also performed during the inspection dated January 27, 2009. These tests also verify that wind (15 mph) affects the range of the siren

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DWC-Point #2 Audible Range of Siren

✓ Blasting Location:

- ✓ Blasters' always utilize the highest and safest point available to ignite a blast, without compromising the safety of the blast.
- ✓ During the blast in question, the blasters' were located in a position approximately 30ft above the shot, up a pit ramp.
- ✓ The blasters' must be able to view the blast and properly string their detonation cord at a distance that can be viewed all of the time. Likewise, this distance must be safely away from potential flyrock.
- ✓ Detonation cord cannot be strung over a distance not viewable by a blaster (for instance, up a highwall).
- ✓ In summary, the blasters' must have full control of the blast including their coordination of the sirens, their ignition of the shot, and the safety of all individuals within the area.
- ✓ In the case of NOV0804, DO NOT ENTER signs, a dragline, a reclamation dozer, and a scraper fleet were all used to help prevent non-authorized personnel from entering the area.

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DWC-Point #2 Audible Range of Siren

✓ Landform Features:

- ✓ All landform features impact the distance in which noise waves travel through the air.
- ✓ Tests performed at the mine in an open pit (similar to the location of NOV0804) indicate that audible ranges decrease from ½ mile to 1,500 ft above pit highwalls and from ½ mile to 2,000 ft behind pit spoils.
- ✓ During this set of tests, the tester was standing outside of the vehicle (which was turned off) with no other environmental interference.

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DWC-Point #2 Audible Range of Siren

- ✓ Other Equipment Working in the Area:
 - ✓ Equipment that is idling and working affects the ability to hear the siren.
 - ✓ Tested idling equipment includes a dragline which has a 65dB reading at 500 ft, a dozer which has a 55dB reading at 1,000 ft, and a scraper which has a 55dB reading at 500 ft (all under normal environmental conditions).
 - ✓ If any equipment is working or idling within a ½ mile radius of the blast, at a point closer to you than the blast, their sound may override the sound of the siren.



DWC-Point #2 Audible Range of Siren

- ✓ Location of Individuals Inside a Vehicle:
 - ✓ Tests performed at the mine indicate that while sitting in a vehicle located within a coal pit, dB levels decrease to 75dB parked next to the siren (bi-directional scenario; a 25% decrease).
 - ✓ Also, tests indicate that dB levels decrease to 55dB at 500 ft from the siren, and are just barely audible at 1,000 ft from the siren.
 - ✓ During this set of tests, the tester was sitting inside of the vehicle with the rear passenger window rolled down completely, and no other environmental interference.
 - ✓ During the inspection, the rear window was partially down, facing away from the siren. During the tests, the rear window was completely down, perpendicular to the siren.



DWC-Point #2 Audible Range of Siren

- ✓ Physical Handicap of Individual:
 - ✓ All tests were performed by myself. A hearing test performed at the mine during the last week of October, 2008, indicate that my hearing levels are normal.
 - ✓ Individuals with hearing handicaps may not be able to hear the dB levels as outlined in this presentation.
 - ✓ Individuals who hunt tend to have a lower hearing range than those who do not hunt. At this time, it is not possible to evaluate the hearing range of the inspector.
 - ✓ To counteract this potential problem, during a blast DWC also uses radios, signs, and spotters to prevent unauthorized entry into a blast zone.



DWC-Point #3 Radio Network

- ✓ Radio Network:
 - ✓ DWC has been in the process of installing a radio repeater since August of 2008. During the third week of December, the system was tested and deemed fully working. The radio repeater allows DWC to broadcast the blast on an emergency channel, overriding all other channels.
 - ✓ Prior to this network, the blasters' would have to sequentially work through all of the mine channels to notify all workers of the impending blast.
 - ✓ The radio repeater was installed for emergency response situations to continually improve safety at the mine. DWC continually strives to enhance safety at the mine.



NOV0804 Dispute

- ✓ Based on the information listed above, DWC disputes the following items:

PSC (NOV0804): "The inspector was located approximately 300 yards northeast of the blast site..."

Response:

Although still within one-half mile of the shot, the inspection was occurring at a distance of approximately 1,600 ft from the blast. The inspector did not verify this distance by driving to the shot location.



NOV0804 Dispute

- ✓ Based on the information listed above, DWC disputes the following items:

PSC (NOV0804): "Warning and all-clear signals of different character that are audible within a range of one-half mile [0.85 kilometers] from the point of the blast must be given."

Response:

Warnings were given via both the radio and siren. This could have been validated by speaking with the blasters' at the time of the blast. This can also be validated by viewing the drillers' log for the date of the blast.



NOV0804 Dispute

- ✓ Based on the information listed above, DWC disputes the following items:

PSC (NOV0804): "Dakota Westmoreland must use a siren or other audible warning system that can be heard within a range of one-half mile in any direction of the blast point under normal weather conditions prior to (pre-blast warning) and after each blast (all clear signal) using different signals for each."

Response:

Conditions were not normal. Winds were blowing at 15-25 mph, the inspector was inside a vehicle, and several pieces of equipment were operating closer to the inspector than the shot (specifically, a dragline, D11 bulldozer, a motor grader, and a fleet of scrapers.



NOV0804 Summary

Although unrelated to the NOV, no inspectors were placed in a position that was unsafe. Had the inspectors visited the site and blasters, they would have seen the precautions in place at the time of the shot. Because of the various conditions that may be encountered at a blast, sirens are only one of many safeguards in place to protect employees.

DWC's siren can be heard as regulated (1/2 mile) either on the ground or on the radio under normal environmental conditions, but not perpendicular to a 15-25 wind, behind a spoil, near other idling mining equipment, and inside a moving vehicle.

DWC takes blasting very seriously, and strongly feels that NOV0804 should be vacated based on the arguments above.