

Appendix O– Enforcement of Respirable Dust Standards

The exposure to excessive concentrations of respirable coal mine dust poses significant health risks to miners, including the risk of developing lung disease. The risk that miners will develop lung disease depends on the quantity – the concentration and duration – of the dust inhaled. The risk rises as the percentage of quartz in respirable dust increases. Black lung refers to a number of lung diseases caused by inhalation of coal mine dust, including coal workers’ pneumoconiosis (CWP), emphysema, and chronic bronchitis.

Compliance with respirable dust standards is based initially on determining the minimum dust control parameters that effectively can control respirable dust. Reliably and consistently keeping exposures below applicable limits depends on an operator maintaining these minimum parameters.

After the explosion at UBB, the State of West Virginia, Department of Health and Human Services, Office of the Chief Medical Examiner performed autopsies on the 29 victims.⁷⁴ These autopsies indicated that most of the victims had evidence of varying degrees of black lung in the form of CWP, emphysema, and fibrosis.

The average age of the victims was 44 years, and the average mining experience was approximately 19 years. The majority of the victims (58.6%) had more than 10 years of mining experience and most (65.5%) worked less than 5 years at UBB. Employment history indicated four of the victims worked only at UBB during their mining careers.

Due to evidence of dust-related lung disease identified from autopsies of the victims, the Internal Review team reviewed District 4’s enforcement of the respirable dust standards in 30 CFR Part 70. Accordingly, the Internal Review team examined UBB respirable dust-related records provided by District 4 for the review period. These records included: methane and dust control plans (MMU plans); plan supplements; inspection reports; and results of respirable dust sampling conducted by District 4 for plan evaluation and by the Operator for compliance with mandatory health standards. Also included were copies of citations and orders issued for failing to collect samples, respirable dust overexposures, and deviations from approved plans related to respirable dust control. The team also considered pertinent information from previous years in order to address historical factors related to respirable dust at UBB. The Internal Review team interviewed MSHA employees to determine whether enforcement of respirable dust standards at UBB conformed to the provisions of the Mine Act and MSHA regulations, policies, and procedures.

In addition to deficiencies in MSHA’s enforcement of respirable dust standards at UBB, the Internal Review team found serious failures on the part of the Operator to adequately protect UBB miners from excessive respirable dust exposures. Evidence indicates miners were exposed to respirable dust concentrations in excess of reduced standards, which are associated with high quartz concentrations, for many months on the working sections.

Requirements: Mandatory health standards were contained in 30 CFR Part 70. In addition, 30 CFR Part 75 contained health-related provisions, such as ventilation plan requirements and specific respirable dust standards when using air from the belt entry to ventilate working sections.

Mandatory health standards under 30 CFR Part 70 required underground coal mine operators to collect respirable dust samples on a bimonthly basis and submit them to MSHA for analysis to determine compliance with applicable standards. Compliance determinations were based on the average concentration of respirable dust measured by five valid samples taken by the mine operator during five consecutive normal production shifts or five normal production shifts worked on consecutive days. The standards required sampling with at least 50% of the average production. MSHA directed enforcement personnel to issue a citation or order when compliance samples did not meet the requirements of the applicable dust standard.

⁷⁴ Report of MSHA Accident Investigation, December 6, 2011.

Mandatory health standard 30 CFR 70.100(a) stated: “Each operator shall continuously maintain the average concentration of respirable dust in the mine atmosphere during each shift to which each miner in the active workings of each mine is exposed at or below 2.0 milligrams of respirable dust per cubic meter [2.0 mg/m³] of air.”

Mandatory health standard 30 CFR 70.101 stated: “When the respirable dust in the mine atmosphere of the active workings contains more than 5 percent quartz, the operator shall continuously maintain the average concentration of respirable dust in the mine atmosphere during each shift to which each miner in the active workings is exposed at or below a concentration of respirable dust, expressed in milligrams per cubic meter of air... computed by dividing the percent of quartz into the number 10.” For example, when respirable dust associated with an MMU contains 20% quartz, the applicable dust standard is reduced from 2.0 to 0.5 mg/m³ (10/20 = 0.5).

Mandatory health standard 30 CFR 70.201(d) stated: “During the time for abatement fixed in a citation for violation of §70.100 (Respirable dust standards) or §70.101 (Respirable dust standard when quartz is present), the operator shall take corrective action to lower the concentration of respirable dust to within the permissible concentration and then sample each production shift until five valid respirable dust samples are taken.”

Mandatory health standard 30 CFR 70.207(a) stated in part: “Each operator shall take five valid respirable dust samples from the designated occupation in each mechanized mining unit during each bimonthly period...” Subparagraph (f)(1) stated: “Each mechanized mining unit will be assigned a four digit identification number by MSHA. The mechanized mining unit shall retain that identification number regardless of where the unit relocates within the mine.”

Mandatory health standard 30 CFR 70.208(f) stated: “MSHA approval of the operator’s ventilation system and methane and dust control plan may be revoked based on samples taken by MSHA or in accordance with this part 70.”

Mandatory health standard 30 CFR 70.220(a) stated: “If there is a change in operational status that affects the respirable dust sampling requirements of this part, the operator shall report the change in operational status of the mine, mechanized mining unit, or designated area to the MSHA District Office or to any other MSHA office designated by the District Manager. Status changes shall be reported in writing within 3 working days after the status change has occurred.”

Mandatory safety standard 30 CFR 75.350(b)(3)(iii) required that when the air from the belt air course is used to ventilate a working section: “A permanent designated area (DA) for dust measurements must be established at a point no greater than 50 feet upwind from the section loading point in the belt entry when the belt air flows over the loading point or no greater than 50 feet upwind from the point where belt air is mixed with air from another intake air course near the loading point. The DA must be specified and approved in the ventilation plan.”

Mandatory safety standard 30 CFR 75.371(t) required that the mine ventilation plan include: “The locations where samples for ‘designated areas’ will be collected, including the specific location of each sampling device, and the respirable dust control measures used at the dust generating sources for these locations.”

MSHA Policies and Procedures: The *Program Policy Manual* provided enforcement guidance for the following mandatory health standards as follows:

- Under 30 CFR 70.201(d): “When the operator does not take corrective action to reduce the concentration of dust before taking samples, and the sampling results show continuing noncompliance, the inspector shall not extend the time for abatement of the violation and shall issue the appropriate order.”
- Under 30 CFR 70.207(a): “Although this provision does not set forth exactly when during the bimonthly period, the required sampling should be conducted, it is to the operator’s advantage to conduct sampling during the first month of each bimonthly period because it would provide an opportunity to collect replacement samples if any sample is voided.”

- Under 30 CFR 70.207(f)(1): “The MMU identification number will remain the same when individual pieces of equipment within that unit are replaced. The only time the MMU number sequence at a mine will change is when an existing unit of equipment is permanently removed from the mine or a new (or different) unit is placed in a mine.”
- Under Section I.103-4, Respirable Dust Sampling at Underground Coal Mines:

MSHA does not take respirable dust samples during each of the four annual coal mine underground inspections. Instead, in line with the understanding between MSHA and the General Accounting Office, MSHA began in September 1975 to emphasize proper respirable dust control measures at underground coal mines. Each coal mine operator develops plans for monitoring compliance with the 2.0 milligram or lower standard. MSHA reviews and tests the operator's respirable dust control plan by taking samples. Once the plan is approved, inspectors measure the engineering parameters during each inspection to assure that all of the plan's elements are followed. If the plan is not being followed, the appropriate citation/order is issued.

Chapter 1 of the *Coal Mine Health Inspection Procedures Handbook*, PH 89-V-1 (rev. 2008), established procedures and guidelines for conducting respirable dust sampling inspections, evaluating sampling results, establishing and removing sampling entities, establishing reduced dust standards due to quartz, and monitoring the operators' respirable dust control and sampling programs. It provided enforcement personnel the following direction:

The District Manager must be able to reliably ascertain whether the approved ventilation plan's minimum control parameters (e.g., air quantity, number of sprays, water pressure, etc.) allow for effective and consistent control of respirable dust and methane. Data based on samples collected when control parameters significantly exceeded the ventilation plan minimums (and/or when production is significantly below normal levels) cannot reasonably or reliably serve as the basis for justifying the continued approval of a ventilation plan.

While operator samples were used to determine compliance with respirable dust standards, MSHA sampling was conducted to determine continued adequacy of the dust control parameters approved in the mine ventilation plan. As part of this function, the Handbook directed inspectors to sample all underground entities on a quarterly basis, including each producing MMU. MSHA determined plan adequacy by measuring parameters and collecting gravimetric samples to determine if the parameters can attain compliance based on the average of five samples collected by inspectors. This could be the average of five different occupations sampled concurrently on an MMU or the average of up to five samples taken on one occupation over a period of time. MSHA directed enforcement personnel to issue a citation or order when compliance samples do not meet the requirements of the applicable dust standard.

After an inspector collects respirable coal mine dust samples and monitors the mine operator's dust control parameters, the inspector was directed to complete a “Respirable Dust Sampling and Monitoring Data” form (MSHA Form 2000-86). The Handbook provided detailed instructions for completing the form, including direction for inspectors to complete a separate form for each producing MMU and shift that the inspector visits during one of these activities. During these inspections or investigations, inspectors were required to evaluate and record the respirable dust controls in use.

On sections mining extended cuts while using flooded-bed scrubbers, parameter checks were to include Pitot tube measurements to determine the operating volume of the scrubbers. Inspectors were to conduct a full Pitot tube traverse at least every other quarter, while a centerline measurement can be made on non-measurement inspections.

To establish a reduced respirable dust standard at an underground mine, MSHA respirable dust samples meeting certain criteria were analyzed for quartz. Depending on the quartz concentration of the MSHA samples, the mine operator may be notified of the option to collect a respirable dust sample from the affected area or occupation to verify the quartz content. In certain cases, the operator will be afforded the opportunity to collect and submit a second optional sample. As a result, the reduced standard will be

based on either: the average quartz content of the MSHA and operator's optional sample(s); the average of the MSHA and operator's highest quartz content; or the quartz content of the MSHA sample alone. When MSHA collects respirable dust samples from entities already on a reduced dust standard, the applicable standard will be adjusted using this same procedure. Every six months, MSHA automatically reevaluated the reduced standard by analyzing operator's samples.

A reduced standard, as well as any citation issued for exceeding the reduced standard, remained with an MMU when it moved to a new location. The Handbook also directed districts to complete an MMU/DA/DWP Data form (MSHA Form 2000-142, revised October 1985) for manual data entry when assigning new MMUs or updating existing MMUs. The Handbook included instructions for completing the form, indicating that the applicable respirable dust standard [Item 7C] can be set at the time of entry into the computer system.

When belt air is used to ventilate a working section, a DA shall be established in accordance with 30 CFR 75.350(b)(3). When a new DA is to be established, the District Manager must (1) notify the mine operator in writing, (2) identify the date that bimonthly sampling will begin for the newly established entity, and (3) require that the mine operator submit a short addendum to the approved ventilation plan showing the location of the new DA to be sampled bimonthly, the position of the sampling unit within the DA, and the type of dust controls that are to be maintained.

The *General Coal Mine Inspection Procedures and Inspection Tracking System Handbook* directed that, during each regular inspection, "Dust controls used on the section shall be inspected to determine compliance with applicable standards and the approved mine ventilation plan."

The *Citation and Order Writing Handbook for Coal Mines and Metal and Nonmetal Mines, PH08-I-1*, stated "Inspectors shall give primary consideration to the health and safety of miners in establishing abatement times for all citations. [Emphasis on original] The termination time for a citation must be specific and provide a reasonable time for mine operators to abate the conditions, practices, or circumstances which caused issuance of the citation. Citation abatement times shall not be established for the convenience of the mine operator, or for the inspector...." [Emphasis on original]

Program Information Bulletin (PIB), P09-31, Operator Respirable Dust Sampling Requirements stated "Submitting either voided or invalid samples will not satisfy the bimonthly sampling requirements. Therefore, it may be necessary for an operator to collect and submit additional samples during a bimonthly period. Failure to take the required number of valid respirable dust samples within a bimonthly period would constitute a violation. For this reason, it is to the operator's advantage to collect and submit the required number of samples early in the bimonthly period. This would allow ample opportunity for the collection and submission of additional samples if necessary."

Continuous Mining Machine Sections

Statement of Facts: With one exception, the Operator provided written notification to District 4 when there was a change in operating status for the continuous mining machine units at UBB. On March 16, 2010, the Operator received a section 104(a) citation under 30 CFR 70.220(a) for failing to notify the District that the 040-0 MMU had been activated after an idle period.

The District 4 Health Department standard operating procedure (SOP) for MMU plan review and approval, dated October 14, 2009, specified the acceptable provisions, methane and dust control parameters, and safety precautions for recommending plans and supplements for approval by the District 4 Manager. These criteria were included as minimum requirements on plan approval checklists for the specialists' use when reviewing such plans.

The Health Department SOP also required that the extraction equipment (continuous mining machine or longwall shearer) for each MMU be listed in the plan by manufacturer, model, and serial number. Since some of the older MMU plans and supplements had been approved using previous District 4 SOPs, not all of the plans included the serial numbers as required by the latest SOP. Therefore, tracking the movement of these mining machines between the various sections at UBB was very difficult.

District 4 routinely approved new MMU plans, submitted by the Operator, which specified a line curtain setback of 20 feet or less. When activated, District 4 assigned the newly approved MMU a respirable dust standard of 2.0 mg/m³. Inspectors or specialists evaluated the methane and dust control parameters outlined in each plan or supplement after the MMU started producing coal.

At UBB, it was common practice for the Operator to deactivate an MMU operating under a reduced standard and activate another previously approved MMU to mine in the same physical location. District 4 did not apply the reduced standard of the previous MMU to the new MMU. This occurred on eight occasions during the review period. In six of these instances, the Operator replaced an MMU after the first set of MSHA respirable dust samples resulted in a reduced standard; the other two were replaced after the second set of samples resulted in a reduced standard.

District 4 allowed sets of mining equipment on working sections to be assigned new MMU identification numbers even though the Operator replaced only one piece of equipment, the continuous mining machine. By deactivating an existing MMU and replacing it with another MMU in this manner, the Operator was able to: (1) avoid complying with a reduced respirable dust standard and resume mining at the same location under a respirable dust standard of 2.0 mg/m³ and (2) terminate an outstanding citation for excessive respirable dust concentrations without verification that dust control parameters effectively controlled respirable dust. At UBB, MMUs generally were deactivated, and replacement MMUs activated, on the same day. In some cases, MMUs were deactivated after the replacement MMUs were already activated.

By replacing MMUs in this manner, the Operator potentially exposed miners to harmful levels of respirable dust for extended periods of time. The Operator's manipulation of MMUs on a section at UBB is best illustrated with the example of 3 Section. This section was operated as a super section from the last quarter of fiscal year 2008 through the second quarter of fiscal 2010. Beginning on November 4, 2008, the section utilized two continuous mining machine units, MMU 060-0 and MMU 061-0. Based on MSHA respirable dust sampling conducted on December 8, 2008, the respirable dust standards for the MMUs were reduced to 1.0 and 1.3 mg/m³, respectively. Subsequent MSHA respirable dust sampling on March 9, 2009, further reduced the standard for MMU 060-0 to 0.4 mg/m³. The Operator deactivated the MMUs on March 24 and April 28, 2009, respectively.

To continue mining on 3 Section, the Operator replaced MMUs 060-0 and 061-0 with two different continuous mining machine units, designated as MMU 064-0 and MMU 065-0, which the Operator activated on March 23 and April 28, 2009, respectively. Each MMU started production with a respirable dust standard of 2.0 mg/m³. As a result of the first MSHA respirable dust sampling on May 20, 2009, both MMUs were placed on reduced standards (0.7 mg/m³ and 0.4 mg/m³, respectively). The Operator submitted bimonthly respirable dust samples for MMU 064-0, collected June 8-11, and results indicated an average dust concentration of 3.73 mg/m³, more than five times the applicable reduced standard. The maximum exposure concentration was 14.4 mg/m³.

On June 18, 2009, District 4 issued a section 104(a) citation for the overexposure on MMU 064-0. The citation required the Operator to submit an MMU plan supplement for approval prior to abatement sampling, but it did not require interim changes to the dust control parameters. The inspector set the termination due date for July 21, which was 33 days after the issue date. MSHA received an MMU plan supplement from the Operator on July 24, three days after the termination due date.

District 4 allowed MMU 064-0 to continue operating during the plan review process, including a period during which the District requested additional information from the Operator and waited for a response. Respirable dust sampling on September 1, 2009, maintained the reduced standard for MMU 065-0 at 0.4 mg/m³. Subsequent MSHA respirable dust sampling on October 7, 2009, further reduced the standard for MMU 064-0 from 0.7 mg/m³ to 0.5 mg/m³. This reduction was based on the 22% quartz content of the MSHA sample, since the Operator's optional sample was voided because it contained oversized particles.

District 4 approved the MMU plan supplement on October 27, 2009, which was 95 days after issuing the citation. The Operator collected five bimonthly samples from October 27-30, 2009; however, two were voided because they were collected during shifts with less than average production. The remaining three

valid samples indicated noncompliance with the reduced standard. The citation was extended for a sixth time on November 4 until November 18 to allow additional samples to be collected by the Operator. Before additional samples were collected, the Operator deactivated MMU 064-0 on November 2 and MMU 065-0 on November 9.

To resume mining on 3 Section, the Operator replaced MMUs 064-0 and 065-0 with MMU 066-0 and MMU 067-0, for which it had previously submitted and received District 4 approval of MMU plans. The Operator activated MMU 066-0 and MMU 067-0 on November 2 and November 9, respectively. Again both MMUs started production under a 2.0 mg/m³ respirable dust standard.

On November 19, 2009, a section 104(b) order was issued for continued noncompliance. The order was terminated when the continuous mining machine was taken out of service and removed from the Mine on December 4. In all, 192 days had elapsed since issuance of the initial citation and termination of the subsequent order.

District 4 sampled MMU 067-0 on December 7 and MMU 066-0 on December 8, 2009. As a result of subsequent analyses conducted at the MSHA Dust Division Laboratory in Pittsburgh (the laboratory), MMU 066-0 remained on a 2.0 mg/m³ respirable dust standard. MMU 067-0, however, was placed on a reduced standard of 0.8 mg/m³ after the designated occupation sample's quartz content was found to be 18.7%. On December 22, District 4 sent a letter to the Operator requesting an upgraded MMU plan supplement for MMU 067-0, but did not set a deadline for submission. The Operator never submitted the requested supplement.

District 4 again sampled MMU 066-0 and MMU 067-0 on March 23, 2010. As a result, the respirable dust standard for MMU 066-0 was reduced to 1.7-mg/m³ and the reduced respirable dust standard for MMU 067-0 was increased to 1.3 mg/m³. The Operator deactivated both MMUs on April 1, 2010.

In the MSHA Standardized Information System (MSIS), the only identifiers for an MMU and/or a working section are the 4-digit entity number and the location description, which is a freeform text field. There is no place designated to record a serial number for the continuous mining machine, nor is there an explicit reference to the section or location in the mine. Thus, the means for tracking the movement or replacement of specific mining machinery or MMUs in a given mine is not readily available.

During his interview, the Chief of the Coal Health Division stated that when a new MMU number is assigned by using MSHA Form 2000-142 and Item 7C of the form is left blank, the MSHA computer system automatically sets the respirable dust standard to 2.0 mg/m³, even when the new MMU starts mining in an area of the mine where a reduced standard was in effect. Although Item 7C on the form states: "Headquarters Only," the instructions for the form explain that the district can enter a lower value to retain the reduced standard. The Health Division Chief also stated the issue had not been brought to headquarters' attention, and he expected information about entering a reduced standard had been conveyed to new employees in the District Health Departments.

In interviews, District 4 managers, supervisors, and specialists indicated that they were not aware that, when appropriate, the District could maintain a reduced dust standard associated with the former MMU when a new MMU replaces it on the same working section. Rather, they believed only MSHA headquarters could override the pre-programmed designation.

The MSHA Directorate of Program Evaluation and Information Resources (PEIR) provided training to the districts on the respirable dust database in February 2009. According to PEIR, this topic was reviewed, but not emphasized.

In May 2011, PEIR analyzed the MSHA respirable dust database for actions since October 1, 2008. The analysis showed the following:

- Of the 352 deactivations recorded nationally on MMUs that had been cited for exceeding a reduced respirable dust standard, 29% occurred within 140 days of a citation's issuance. Seven of these deactivations occurred at UBB; 29% (2 of 7) occurred within 140 days.

- Of the 518 MMU activations recorded nationally, only 16 showed dust standard reduction within 30 days. Of those, only one appeared to be a manual over-ride of the applicable respirable dust standard (MSHA Form 2000-142, Item 7C), and it did not involve UBB.

The long timeframes (greater than 100 days in many cases) make the pattern discussed above at UBB difficult to detect at other mines by examining data alone. Temporary deactivations occur regularly and appear to be part of a normal mining cycle. Using data alone, it is difficult to identify mine operators deactivating and moving units to avoid reduced dust standards, as opposed to deactivations and moves for legitimate reasons.

Longwall Mining Section

Statement of Facts: On September 10, 2009, the Operator provided District 4 written notification that the 1 North Longwall (MMU 050-0) was being activated. In 2006, the last respirable dust standard for the previous longwall (MMU 031-0) was 1.7 mg/m³. The new longwall section was subject to a respirable dust standard of 2.0 mg/m³. This issue is discussed in detail in the “Longwall 050-0 MMU Plan – Specific Issues” section of the Internal Review report.

The first District 4 respirable dust survey on the longwall section was conducted on November 10, 2009. Results from this survey indicated compliance with the existing 2.0 mg/m³ respirable dust standard. One of these samples was analyzed for quartz, per standard operating procedures. Laboratory results indicated a quartz content of 6%, which should have resulted in a reduced standard of 1.59 mg/m³. The average concentration of the samples was in compliance with this reduced standard.

However, MSHA did not place the section on the 1.59 mg/m³ reduced standard and the applicable respirable dust standard for the longwall remained at 2.0 mg/m³. This was due to District 4’s data entry error, which coded the longwall MMU as a continuous mining machine section in MSIS. As a result of this error, the laboratory identified the mismatch between the specified mining method (continuous mining machine) and the designated occupation (longwall operator - tailgate side). The laboratory voided the samples and reported the discrepancy to District 4 in a report dated November 16, 2009. District 4 corrected the error on December 17, 2009, when the MMU category was changed to “longwall.”

Although the 1 North Longwall (MMU 050-0) was activated on September 10, 2009, there were no samples submitted by the Operator for the September-October 2009 bimonthly sampling cycle. District 4 did not cite the Operator for a violation of 30 CFR 70.207(a). Although mine operators are encouraged to sample early in a bimonthly cycle, existing enforcement guidance does not address an operator who does not submit five valid samples when the MMU operates for less than the entire bimonthly time frame.

The first longwall bimonthly respirable dust samples were submitted by the Operator on December 13-17, 2009. The corresponding lab reports indicated that the Operator miscoded these samples, and they were subsequently voided.

Replacement samples were collected by the Operator from December 28-30, 2009 and submitted to the laboratory. The average respirable dust concentration of the samples was 1.71 mg/m³, which would have exceeded the reduced standard of 1.59 mg/m³, if the MSHA samples collected in November 2009 had not been voided.

The Operator submitted four valid respirable dust samples collected between January 26 and January 30, 2010, for the January - February 2010 bimonthly cycle. The average concentration of these four samples was 2.58 mg/m³, which exceeded the existing 2.0 mg/m³ respirable dust standard. Three of these samples exceeded the respirable dust standard, and the highest concentration was 3.18 mg/m³. After being notified via an advisory generated by the laboratory, District 4 issued a citation under 30 CFR 70.207(a) on March 10, 2010, for the Operator’s failure to collect the required five valid samples on MMU 050-0 for the bimonthly cycle. The termination due date was set at March 31, allowing 21 days to abate the violation. In this case, District 4 could not cite a violation of 30 CFR 70.100(a) for exceeding the 2.0 mg/m³ respirable dust standard because the Operator did not submit five valid samples.

The citation was later extended after the Operator collected two additional respirable dust samples in March. However, both samples were subsequently voided, one because the cassette did not match the corresponding respirable dust card and the other because the sample type submitted by the Operator was invalid. The citation was then extended until April 29, 2010, and terminated following the explosion.

On March 23, 2010, MSHA again conducted respirable dust sampling on the longwall. On March 29, 2010, the results were mailed to the Operator indicating the silica content of the samples was 8.0%. Consistent with Agency policy, this quartz content was used to reduce the respirable dust standard to 1.3 mg/m³ because the Operator did not provide optional samples for analysis. The average exposure measured during this survey was 1.39 mg/m³.

MSHA Respirable Dust Sampling

Statement of Facts: The District 4 Health Department conducted some respirable dust sampling inspections, evaluated sampling results, established and removed sampling entities, established reduced dust standards due to quartz, and monitored mine operator respirable dust control and sampling programs.

District 4 inspectors and specialists conducted respirable dust sampling at UBB during regular quarterly inspections. An MSHA Form 2000-86 was completed for each MMU sampled and included in the respective inspection report. The results of MSHA respirable dust sampling conducted throughout the review period indicated compliance with the applicable respirable dust standards. A review of the inspection reports and MSIS data revealed that District 4 did not collect a sufficient number of valid samples on four producing MMUs as follows:

- Fourth regular inspection for fiscal 2009 (July-September 2009) – On July 8, 2009, an inspector attempted to sample for respirable dust on MMU 029-0 and MMU 040-0, but ventilation problems on the Headgate super section resulted in the samples being voided for inadequate production. Afterward, MMU 040-0 continued to produce for the rest of the quarter. However, status updates from the Operator showed that the MMU 029-0 was only in “producing” status from July 1 through August 11, 2009. Follow-up sampling was conducted by the specialist on MMU 040-0 on September 24, 2009. District 4 did not collect follow-up samples from MMU 029-0 during the inspection.
- Fourth regular inspection for fiscal 2009 (July-September 2009) – On September 1, 2009, an inspector attempted to sample respirable dust on MMU 065-0, but ventilation problems on the section resulted in the samples being voided for invalid sampling time (less than 360 minutes). District 4 did not collect follow-up samples from this MMU during the inspection.
- First regular inspection for fiscal 2010 (October-December 2009) – On November 10, 2009, an inspector collected five personal samples on MMU 050-0, but the designated occupation sample was voided due to a mismatched MMU code. MMU 050-0 was initially designated in the computer system as a continuous mining section rather than a longwall section. The error was corrected on December 17.
- Second regular inspection for fiscal 2010 (January-March 2010) – District 4 did not sample MMU 063-0. Status updates from the Operator showed that the MMU was in “producing” status from January 1–18, 2009, and from February 26 – March 16, 2009. The inspection report did not contain an explanation for the failure to collect samples from the MMU.

The *Coal Mine Health Inspection Procedures Handbook* specifies that district inspectors must sample all underground entities on a quarterly basis, including each producing MMU. While District 4 collected valid samples for 31 respirable dust surveys at UBB during the review period, in the four instances identified above, District 4 did not fulfill this obligation. However, the Handbook does not provide guidance on when re-sampling is necessary to satisfy this requirement.

For the 31 valid respirable dust surveys, the Internal Review team reviewed the corresponding MSHA Form 2000-86’s for adherence to the guidelines in the Handbook. None of the forms contained all of the

requisite information to document a complete dust survey, yet each was signed by the field office supervisor indicating the forms had been reviewed. The team also reviewed the field notes for each sampling shift. In some cases, the field notes contained information that should have been recorded on the form.

On the majority of the MSHA 2000-86 sampling forms, the inspector or specialist did not document the method used to determine the tonnage mined during the sampling shift or the average tonnage over the last 30 production shifts. Since the validity of MSHA samples depends on the MMU producing at least 80% of a 30-shift average, it is important to document how this information was obtained. The Handbook directs inspectors to document this information in the comment section of MSHA Form 2000-86.

The Handbook also states that the primary sampling objective is to assess the effectiveness of the dust control parameters in the approved ventilation plan. On 15 of the 31 forms, the observed or measured dust control parameters did not coincide with the approved MMU plan. In these cases, the number of operational water sprays or the water spray pressure exceeded 120% of the plan minimums, and the respirable dust samples collected were in compliance. However, District 4 did not require the Operator to supplement the respective MMU plans to incorporate the enhanced dust control parameters, and the Operator did not unilaterally supplement its MMU plans.

To ensure that all dust control parameters stipulated in the approved ventilation plan are in place and functioning properly during the sampling shift, the inspector is required to make two complete parameter checks, which are to be initiated at least at the beginning of the shift and between the fourth and fifth hour of operation. On 26 of the 31 forms, the inspector or specialist did not document a second parameter check during the respirable dust inspection.

During the review period, two MMUs (029-0 and 040-0) were approved to use flooded-bed scrubbers while mining extended cuts. Inspectors conducting respirable dust surveys were to take Pitot tube measurements during sampling shifts to determine the scrubber volume. In fiscal 2009, Pitot tube measurements were required to be taken on eight sampling shifts. Records indicate that these measurements were only documented on three sampling shifts. In the first half of fiscal 2010, Pitot tube measurements were required to be taken on four sampling shifts. Records show that these measurements were documented on only one sampling shift.

Performance Coal Company Respirable Dust Sampling

Statement of Facts: The respirable dust standards for all of the twelve MMUs (eleven continuous mining machine MMUs and one longwall MMU) operated at UBB during the review period were eventually reduced due to the presence of quartz. At some time during the review period, respirable dust sampling on each MMU indicated a quartz concentration greater than 5%, and the associated standard was reduced below 2.0 mg/m³.

To comply with 30 CFR 70.207(a), the Operator was required to submit five valid samples for each producing MMU on a bimonthly basis. With twelve MMUs operated at various times during the review period, the Operator should have submitted samples on 58 separate occasions to fulfill this requirement. However, as shown in Table 23, the Operator did not submit five valid samples for 19 separate bimonthly cycles. This accounted for approximately 33% of the 58 required bimonthly samples. District 4 issued only three citations for failure to comply with 30 CFR 70.207(a). On the remaining 16 occasions, the Operator deactivated and then reactivated the MMUs, which reduced the number of days that each operated during the bimonthly period. Although the explosion interrupted the March-April 2010 bimonthly period, it has been included in the table, as the Operator had sufficient time prior to the event to conduct the required bimonthly respirable dust sampling on each MMU because operators are advised to collect samples early in the bimonthly period.

Table 23 - Bimonthly Sampling Periods for Active MMUs without Five Valid Samples

Bimonthly Period	MMU	Valid Operator Samples	MSHA Action Taken	Number of Days Producing
Mar - Apr 2009	060-0*	0	None	23 days
Mar - Apr 2009	062-0	0	None	39 days
Mar - Apr 2009	063-0	0	None	39 days
Jul - Aug 2009	029-0*	0	None	41 days
Sep - Oct 2009	029-0*	1	None	29 days
Sep - Oct 2009	050-0	0	None	52 days
Sep - Oct 2009	064-0*	3	Citation Issued	61 days
Sep - Oct 2009	065-0*	0	Citation Issued	61 days
Nov - Dec 2009	040-0*	0	None	33 days
Nov - Dec 2009	062-0*	4	Citation Issued	61 days
Nov - Dec 2009	065-0*	0	None	8 days
Jan - Feb 2010	062-0*	0	None	25 days
Jan - Feb 2010	063-0*	0	None	17 days
Mar - Apr 2010	029-0	0	None	36 days
Mar - Apr 2010	040-0*	0	None	20 days
Mar - Apr 2010	050-0	4	None	36 days
Mar - Apr 2010	063-0*	0	None	15 days
Mar - Apr 2010	066-0*	0	None	28 days
Mar - Apr 2010	067-0*	0	None	28 days

*MMU on a reduced respirable dust standard due to excess quartz

During interviews, the Health Department supervisor stated that District 4 had a long-standing practice of not citing mine operators for such failures if the MMU did not operate for at least 45 days during the bimonthly sampling period. However, given District 4's practice, there was at least one instance in which the Operator should have been cited for failing to submit five valid bimonthly samples – i.e., the September-October 2009 bimonthly period for MMU 050-0, which was in active status for 52 days during the period.

The Health Department supervisor further stated that this topic was discussed at a Coal Health supervisors meeting in Beckley, West Virginia, on May 24-25, 2011. Discussion between the health department supervisors revealed no consistency between Coal districts in the number of days an MMU must be in active status before a citation is issued for failure to submit the required bimonthly samples.

The Chief of the Coal Health Division confirmed that district offices follow varying approaches when determining compliance with the bi-monthly sampling requirement regarding the submission of respirable dust samples. Some districts do not cite the operators unless the MMU is active for the entire 60 days; some districts expect samples to be collected if the MMU is active for at least 30 days; and others base enforcement actions on 45 days in active status during the bi-monthly period. These approaches were developed in response to earlier legal decisions vacating MSHA citations that were issued to operators who had not produced coal during some or all periods of the bi-monthly cycle.

District 4 health specialists issued five section 104(a) citations at UBB for violations of 30 CFR 70.100(a) or 30 CFR 70.101 when miners' exposures exceeded the applicable respirable dust standard as indicated by the Operator's bimonthly sampling results. Table 24 illustrates the subsequent actions (extensions and terminations) with corresponding time frames for the respirable dust citations issued.

On each occasion, the Operator submitted an MMU plan supplement with enhanced or additional engineering controls. For section 104(a) citation Nos. 9968791, 9968749, and 9968302, the Operator collected and submitted five valid, compliant samples, as required by 30 CFR 70.201(d), and the respective citation was terminated. Due to the explosion, section 104(a) citation No. 9968854 was terminated before this requirement could be met.

For section 104(a) Citation No. 9968698 and subsequent section 104(b) Order No. 8078369, the Operator never achieved compliance with respirable dust standards during sampling on 3 Section (MMU 064-0). Instead, the Operator waited for over five months and then deactivated the MMU and replaced it with previously approved MMU 066-0. The Operator activated the new MMU under a 2.0 mg/m³ respirable dust standard. District 4 did not confirm by sample analyses that the quartz content of respirable dust was reduced to warrant a change in the standard. (See previous discussion under “Continuous Mining Machine Sections.”)

Inspectors set initial termination due dates for these citations ranging from 14 to 33 days after issuance to allow the Operator time to submit MMU plan supplements. These citations were subsequently extended 24 times for periods ranging from 8 to 25 days. Sixteen of the 24 (67%) extensions were granted to allow additional time for the plan review process. On average, it took 124 days for an excessive respirable dust citation to be terminated. In these cases, dust overexposures may have existed for months.

Table 24 - Respirable Dust Citations and Subsequent Actions

Citation Number	MMU	Date Issued	Termination Due Date	Date Extended	Date Extended To	Number of Days	Date Terminated
9968791	029-0	12/04/09	12/31/09	12/31/09	01/21/10	21*	4/8/10
				01/22/10	02/11/10	20*	
				02/10/10	03/04/10	22	
				03/03/10	03/24/10	21	
				03/25/10	04/08/10	14	
9968749	040-0	09/29/09	10/20/09	10/22/09	11/16/09	25*	04/08/10
				11/18/09	12/09/09	21*	
				12/10/09	12/28/09	18*	
				12/31/09	01/21/10	21*	
				01/22/10	02/11/10	20*	
				02/10/10	03/04/10	22	
				03/03/10	3/24/10	21	
				03/25/10	04/08/10	14	
9968302	041-0	09/10/08	9/24/08	10/01/08	10/15/08	14*	12/16/08
				10/22/08	11/12/08	21*	
				11/18/08	11/26/08	8*	
				12/04/08	12/11/08	7	
9968698	064-0	06/18/09	7/21/09	07/24/09	08/17/09	24*	Replaced by Order 11/19/09
				08/20/09	09/10/09	21*	
				09/10/09	09/24/09	14*	
				09/24/09	10/15/09	21*	
				10/15/09	11/05/09	21*	
				11/04/09	11/18/09	14	
8078369 [†]	064-0	11/19/09	---	---	---	---	12/04/09
9968854	066-0	03/02/10	03/16/10	03/18/10	04/08/10	21*	04/08/10

* Extension granted for District 4 plan review.

[†] Section 104(b) order for continued non-compliance.

Figure 23 shows the average number of days in each Coal district to terminate citations issued for violations of 30 CFR 70.100(a) or 30 CFR 70.101 when miners’ exposures exceeded the applicable respirable dust standard during the review period. The average time to abate violations of 30 CFR 70.100(a) and 30 CFR 70.101 at UBB was consistent with the average time to abate similar violations at other mines in District 4. However, the average time to abate violations of these respirable dust standards in District 4 was almost three times the average for all other districts.

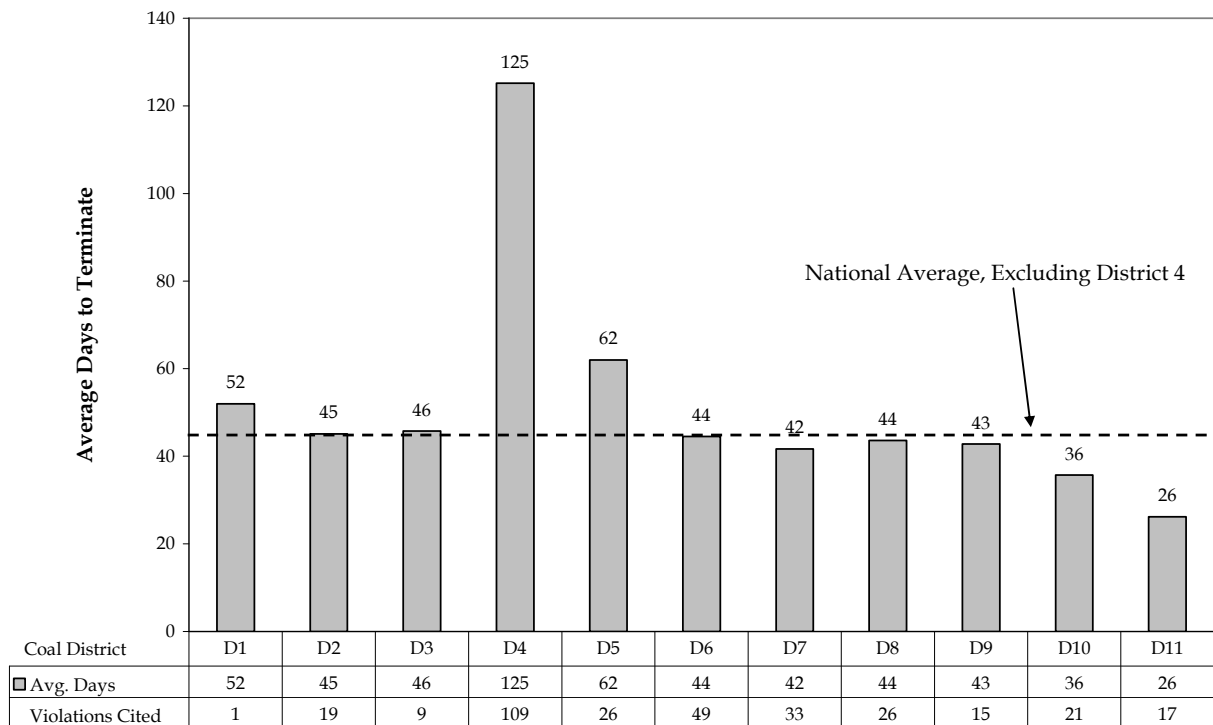


Figure 23 - Average Days to Terminate Violations for Exceeding Respirable Dust Standards.

The District 4 Health Department supervisor stated in an interview that, when a mine operator was cited for an overexposure under 30 CFR 70.100(a) or 30 CFR 70.101, the district required an upgrade to the existing plan to enhance dust controls. If noncompliance continued, a section 104(b) order was issued and the MMU was shut down until “meaningful” changes to the plan were made and additional dust control measures were implemented. During the review period, District 4 inspectors and specialists issued nine section 104(b) orders, including the aforementioned order at UBB.