

FEDERAL MINE SAFETY AND HEALTH REVIEW COMMISSION

OFFICE OF ADMINISTRATIVE LAW JUDGES  
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FALLS CHURCH, VIRGINIA 22041

November 20, 1995

SECRETARY OF LABOR,	:	CIVIL PENALTY PROCEEDING
MINE SAFETY AND HEALTH	:	
ADMINISTRATION (MSHA),	:	Docket No. WEVA 94-377
Petitioner	:	A.C. No. 46-04421-03721
v.	:	
	:	Amonate #31 or #32
CONSOLIDATION COAL COMPANY,	:	
Respondent	:	
	:	
SECRETARY OF LABOR,	:	CIVIL PENALTY PROCEEDING
MINE SAFETY AND HEALTH	:	
ADMINISTRATION (MSHA),	:	Docket No. WEVA 94-379
Petitioner	:	A.C. No. 46-04421-03722-A
v.	:	
	:	Amonate #31 or #31
ROBERT G. WYATT,	:	
Employed by	:	
CONSOLIDATION COAL COMPANY,	:	
Respondent	:	
	:	
SECRETARY OF LABOR,	:	CIVIL PENALTY PROCEEDING
MINE SAFETY AND HEALTH	:	
ADMINISTRATION (MSHA),	:	Docket No. WEVA 94-380
Petitioner	:	A.C. No. 46-04421-03723-A
v.	:	
	:	Amonate #31 or #31
DANNY E. CRUTCHFIELD,	:	
Employed by	:	
CONSOLIDATION COAL COMPANY,	:	
Respondent	:	

## DECISIONS

Appearances: Robert S. Wilson, Esq., Office of the Solicitor,  
U.S. Department of Labor, Arlington, Virginia,  
for the Petitioner;  
David J. Hardy, Esq., John Bonham, Esq.,  
Jackson and Kelly, Charleston, West Virginia;  
for the Respondent Consolidation Coal Company;  
Robert B. Allen, Esq., King, Allen and Arnold,  
Charleston, West Virginia, for the Respondent  
Robert G. Wyatt;  
Ricklin Brown, Esq., Bowles, Rice, McDavid, Graff  
and Love, Charleston, West Virginia, for the  
Respondent Danny E. Crutchfield.

Before: Judge Koutras

### Statement of the Proceedings

These consolidated proceedings concern proposals for assessment of civil penalties filed by the petitioner against the respondents pursuant to the Federal Mine Safety and Health Act of 1977, seeking penalty assessments for alleged violations of certain mandatory safety standards found in Part 75, Title 30, Code of Federal Regulations.

Docket No. WEVA 94-377 concerns two alleged violations and proposed civil penalty assessments of \$100,000, filed against the corporate respondent Consolidation Coal Company (Consol) pursuant to section 110(a) of the Act.

Docket No. WEVA 94-379 concerns a civil penalty assessment proposal of \$9,000 against the individual respondent Mine Superintendent Robert G. Wyatt pursuant to section 110(c) of the Act. Mr. Wyatt is charged as an agent of Consol with "knowingly authorizing, ordering, or carrying out" one of the violations filed against Consol (Order No. 2724034).

Docket No. WEVA 94-380 concerns a civil penalty assessment proposal of \$8,000 against the individual respondent Mine Foreman Danny E. Crutchfield pursuant to section 110(c) of

the Act. Mr. Crutchfield is charged as a Consol agent with "knowingly authorizing, ordering, or carrying out" one of the violations filed against Consol (Order No. 2724034).

A consolidated hearing was conducted in these cases in Beckley and Charleston, West Virginia, and the parties submitted posthearing briefs that I have reviewed and considered in the course of my adjudication of these matters.

Applicable Statutory and Regulatory Provisions

1. The Federal Mine Safety and Health Act of 1977, 30 U.S.C. ' 801 et sea.
2. Commission Rules, 30 C.F.R. ' 2700.1 et seq.
3. Sections 110(a) and 110(c) of the Act. Section 110(a) provides for assessment of civil penalties against mine operators for violations of any mandatory safety or health standards, and section 110(c) provides as follows:

Whenever a corporate operator violates a mandatory health or safety standard or knowingly violates or fails or refuses to comply with any order issued under this Act or any order incorporated in a final decision issued under this Act, except an order incorporated in a decision issued under subsection (a) or section 105(c), any director, officer, or agent of such corporation who knowingly authorized, ordered, or carried out such violation, failure or refusal shall be subject to the same civil penalties, fines, and imprisonment that may be imposed upon a person under subsections (a) and (d). (Emphasis added)

4. An "agent" is defined in Section 3(e) of the Act (30 U.S.C. ' 802(e)) to mean "any person charged with responsibility for the operation of all or part of a coal mine or other mine or the supervision of the miners in a coal or other mine."
5. 30 C.F.R. 75.334(b)(1) and 75.364(a)(2).

## Issues

In Docket No. WEVA 94-377, the issues include (1) whether Consol violated the cited mandatory safety standards, (2) whether the violations were "significant and substantial" (S&S), (3) whether the violations resulted from an unwarrantable failure to comply with the cited standards; and (4) the appropriate civil penalties to be assessed, taking into account the civil penalty assessment criteria found in section 110(I) of the Act.

In the two individual section 110(c) cases, the principal issue is whether or not the named respondents knowingly authorized, ordered, or carried out the alleged violation, and if so, the appropriate civil penalties that should be assessed for the violation. Additional issues raised by the parties are identified and disposed of in the course of these decisions.

The parties stipulated, in relevant part, to the following (Tr. 11-12; Exhibit ALJ-1):

1. Consol is the corporate owner and operator of the Amonate No. 31 Mine, and the mine operations are subject to the jurisdiction of the Act.
2. In 1993, the Amonate No. 31 Mine produced 614,339 tons of coal and Consol produced approximately 39.7 million tons of coal in all of its operations.
3. The maximum penalty which could be assessed for the violations against Consol pursuant to 30 U.S.C. ' 820(a) will not affect its ability to remain in business.
4. Robert G. Wyatt was employed by Consol as Superintendent of the Amonate No. 31 Mine on December 29, 1992, and was an "agent" of the operator within the meaning of Section 3(e) of the Mine Act.
5. Danny E. Crutchfield was employed by Consol as Mine Foreman of the Amonate No. 31 Mine on December 29, 1992, and was an "agent" of the operator within the meaning of Section 3(e) of the Mine Act.
6. Copies of section 104(d)(1) Order Nos. 2724034

and 2724035 may be admitted into evidence for the purpose of establishing their issuance and not for the purpose of establishing the accuracy of the statements asserted therein.

7. MSHA Inspector William Uhl, Jr., was acting in his official capacity as an authorized representative of the Secretary of Labor when he issued the subject orders.
8. True copies of the orders were served upon Consol or its agent as required by the Act.

### Background

On Tuesday, December 29, 1992, at approximately 2:00 p.m., on the day shift, a methane explosion occurred on the 2-1/2 (MMU 015) section. (MSHA has characterized the incident as an "explosion," and the respondent has characterized it as an "ignition.") Although there were no fatalities, five miners suffered serious burns and have not returned to work.

According to MSHA's Report of Investigation (Exhibit G-2), the mine was ventilated by three exhausting main fans, one gob fan, three intake shafts, and one intake drift. The Greasy Creek shaft and Dunford shaft were utilized for both intake and return air courses. There were four mechanized mining units on retreat at the time of the incident, and coal was extracted from the working sections by remote-controlled continuous-mining machines. Coal was transported by shuttle cars to the section dumping points and then carried by belt conveyor to two underground track loadout areas. Haulage continued along the track to the surface. The mine employed 128 underground miners and eight surface miners. Production averaged 3,482 clean tons of coal per 24 hours, on three shifts per day, 5 to 6 days a week. The mine liberated approximately 3,800,000 cubic feet of methane per 24-hour period. A regular MSHA AAA inspection was on-going on December 29, 1992. Respondent Robert G. Wyatt was the general mine superintendent, and respondent Danny Crutchfield was the general mine foreman.

MSHA initiated an accident investigation on December 30, 1992, and it continued in January and February 1993. Spot inspections were also conducted concurrently with the investigation, and several 104(a) citations, a section 104(d)(1) citation, and several section 104(d)(1) orders were issued for alleged violations of certain mandatory safety and health standards. Two of the orders are the subject of these proceedings.

Section 104(d)(1) "S&S" Order No. 2724034, March 3, 1993, cites an alleged violation of 30 C.F.R. 75.334(b)(1), and the cited condition or practice is described as follows:

An adequate bleeder system was not provided to control the air passing through the worked-out area of the 2-1/2 section, MMU 015, to continuously dilute and move away methane-air mixtures from the active workings and into a return aircourse. Air measurements taken by MSHA ventilation specialists indicated that only 2,037 cubic feet per minute of air was passing through the bleeder regulator. This condition was revealed during an MSHA AFB accident investigation after a methane explosion had occurred.

Section 104(d)(1) "S&S" Order No. 274035, March 3, 1993, cites an alleged violation of 30 C.F.R. 75.364(a)(2), and the cited condition or practice is described as follows:

Based on evidence obtained during this accident investigation, it is determined that adequate weekly examinations were not being made to determine the effectiveness of the 2-1/2 section bleeder system. Statements given by company officials, Bob Wyatt, superintendent, and Danny Crutchfield, mine foreman, were that no one was examining the bleeder regulator and the area was inaccessible. The approved ventilation map indicates that the back side of the 2-1/2 section, MMU 015, can be examined. This is a contributing factor to the methane explosion which occurred on 2-1/2 section, MMU 015, December 29, 1992.

MSHA presented the testimony of five miners who were working when the December 29, 1992, ignition occurred. Continuous miner operator and helper Jackson M. Whitaker, who suffered injuries and has a pending law suit against Consol, testified that drill holes were used as a bleeder and he was aware of regulators on other sections, but was not aware of other drill holes that were used as bleeders. He stated that the roof in the gob area was falling good, and that three or four pillar rooms were pulled, but he could not see back to the drill holes at the back of the section.

Mr. Whitaker stated that he could not recall exactly what was going on the day of the ignition. He stated that mining began at the No. 4 entry and the methane monitor on the miner machine "gassed off" the machine when the monitor showed 1.5 percent methane. It was not common to find that much methane

on the section. Section foreman Bill Bandy came to the area and made gas checks while waiting for an electrician, and he checked the monitor. The problem was cleared up by the existing air and a mechanic certified that the monitor was functioning properly. Mine foreman Crutchfield came to the area after he was notified of the incident.

Mr. Whitaker stated that he made methane checks after the machine stopped and he found none. He proceeded to the No. 5 entry and timbers were installed and curtains were hung before mining continued. He confirmed that he was in the No. 5 entry when the explosion occurred and he had just completed mining a lift. Before the explosion, the roof was dripping and he observed one crack of three or four inches and it was "not out of the ordinary." He loaded out one car and the roof started cracking again. He backed out and decided to take one more load with no problem. The roof "started working a little bit" and started "acting up pretty good and dropping. Things got loud in the gob" and the roof felt like it was going to fall and he started to run down the No. 5 entry. He believed he would be covered up and he looked back and saw "a ball of fire" coming out of the middle of the gob in the roof that had not fallen and he started burning and was picked up and thrown down. He described the injuries he received. He stated that the roof crack was "hairline" before the ignition, but that it kept increasing.

On cross-examination, Mr. Whitaker confirmed that Foreman Billy Bandy instructed him to make ventilation adjustments before the explosion occurred in order to force more air to the return. He confirmed that the check curtains at the No. 3 and 4 entries were properly installed.

Mr. Whitaker stated that ten shuttle cars of coal were loaded out of the Nos. 4 and 5 entries on December 29, prior to the ignition. He confirmed that there were three or four miner "gas-offs," and it was believed that something was wrong with the miner because .1 and .2 percent methane was detected when checked with methane detectors. He confirmed that Mr. Bandy was not consulted about all of the "gas offs" and that Mr. Crutchfield was not present all of the time when these occurred (Tr. 180-254).

Clifford A. Payne testified that he was working on the 2-1/2 section day shift on December 29 as a roof bolter, and the section was in retreat and had been in that mode for more than a week. He stated that he was not familiar or involved with the drill holes on the section. He was aware that drilling was taking place, but has never seen regulators that had been

drilled through solid coal blocks.

Mr. Payne stated that he was in the crosscut between the No. 4 and 5 entries when the methane explosion occurred. He described what he observed and heard and stated that he saw "a big ball of flame" that covered the entry. He confirmed that he walked off the section together with two other miners who were in the area (Tr. 30).

On cross-examination, Mr. Payne stated that at the time of the explosion, he had no reason to withdraw himself because he was not aware of any gas in the area, and had no other reason to withdraw because of any hazardous conditions on the section. He stated that when he was at the area where the miner was operating prior to the explosion, the roof "was working hard" and the miner was backed out. The roof started "rumbling" again approximately 20 minutes prior to the ignition (Tr. 30-41).

Worley Whitt testified that he was working on the 2-1/2 section on December 28, 1992, as a scoop operator on the evening 4:00 p.m. to midnight shift, and that he was not involved in the explosion that occurred on the day shift the next day. The section was engaged in retreat mining and was advancing and retreating for approximately two weeks prior to the explosion. He stated that he helped drill some of the holes at the back of the section. He explained that the holes were initially drilled with two inch diameters and they were re-drilled to three inch diameters and he drilled five of the holes. He was told the holes were used for ventilation, and in his mining experience he had never seen drill holes used as ventilation regulators (Tr. 41-56).

On cross-examination, Mr. Whitt stated that he had a general understanding of his safety rights under the BCOA agreement and was aware of his right to withdraw from unsafe areas. He stated that in December 1992, the section was taking weight, including broken timbers, blocks that were split, and increased rib sloughage. He confirmed that there were no methane problems on the section and that it had "good air."

In response to further questions, Mr. Whitt stated that when he returned to the section on December 30, 1992, the area from the track to the dinner hole appeared different in color. It appeared grey in color and darker than it did before the ignition. He confirmed that he has exercised his safety rights in the past without any problems (Tr. 56-73).

Joseph M. Curry testified that he worked on the 2-1/2 section as a day shift shuttle car operator on December 29,



1992, and was injured in the methane explosion that day and has not returned to work. He was engaged in retreat mining at that time, and this mining had taken place for approximately a month prior to the explosion. He was not familiar with the drill holes at the back of the section, but knew they were there and believed they were being used as a regulator. Regulators are normally constructed with cinder blocks or non-combustible materials.

Mr. Curry marked the location of a regulator on a diagram of the 2-1/2 section and explained that it was cut through where there was a lot of air and four or five ventilation curtains were installed to control the air. He explained that it took two or three days to construct the regulator.

Mr. Curry could not recall how many pillars were pulled on December 29, 1992, and he stated that the miner machine was two breaks back from the gob and that the roof had fallen close to where he was working. The roof had also fallen in the drill area. He confirmed that on December 29, 1992, it was not possible to look back to the drill holes from the pillar line and he could not see back into the gob area. He would be about 50 feet from the gob while loading the shuttle car.

Mr. Curry stated that he arrived on the section at 8:40 a.m., on December 29, 1992, and after a brief safety meeting he proceeded to begin loading. He stated that the miner machine "gassed off" three times that day. On the first occasion, the operator believed the methane monitor had malfunctioned. He parked the machine and waited for an electrician. However, the methane cleared up and none was detected when checked with hand held detectors. The electrician checked the monitor later and found that it was functioning properly. Foreman Bandy stated that he had found methane in the No. 5 entry, and foreman Crutchfield came to the area and some ventilation curtains were changed and tightened up outby the No. 5 entry. Three curtains were tightened and Mr. Curry marked their location on the diagram. He confirmed that it was not common to find methane on the section.

Mr. Curry stated that he never heard Mr. Crutchfield say anything about methane when he came to the section and that he was there for about 15 minutes. After the curtains were tightened, Mr. Curry proceeded to the No. 5 entry and 20 shuttle cars were loaded out. He was at the feeder dumping a load when the explosion occurred. He stated he saw "blue light fire" go down the belt line and come back and that it was hot. He dropped to the ground and went to the breaker by the intake. It was dusty and smoky and he walked out of the area with other miners (Tr. 74-112).

On cross-examination, Mr. Curry described his injuries and confirmed that he has a pending law suit against Consol. He stated that when the miner "gassed out" the second time, electrician Harold Perry checked it out and he did not know if foreman Bandy was notified. When the machine gassed out the third time, Mr. Perry was not needed. Mr. Curry saw Mr. Crutchfield speaking with Mr. Bandy but could not recall observing Mr. Crutchfield making any methane checks. However, he was not with him all of the time and could not recall telling the MSHA investigator that Mr. Crutchfield was present for 30 minutes. Mr. Curry stated that there was a lot of air pressure between the gob and the regulator and that he was not familiar with any mine map that shows an additional drill hole

regulator in the mine.

Mr. Curry confirmed that he was at the No. 5 entry for three minutes before the ignition and that the roof "was working" at that time. The miner operator had backed the machine out and was waiting for the roof to quiet down, and stated that he would load only one more load before pinning the roof (Tr. 112-149).

Eugene Dawson testified that he worked on the 2-1/2 section for approximately a year prior to the methane explosion on December 29, 1992. He has not worked since that time. He was a roof bolter, but worked as a shuttle car operator on the day shift on the day of the explosion. The section had been on retreat for at least a month or two prior to that event. He could not recall complaining to anyone about the conditions, and could not recall the conditions on the section when he arrived at 8:00 a.m., on December 29, 1992. He operated the off-standard shuttle car that day and loaded out ten car loads on the No. 4 entry before his lights went off. He took the car out of service approximately an hour before the explosion. He had little knowledge about the drill holes being used as a regulator and had never seen this in the past. He had no knowledge of the gob roof conditions on December 29, 1992.

Mr. Dawson believed the miner "gassed out" one time on December 29, 1992, and that Mr. Dean, the operator, asked for a mechanic. He had no knowledge of the two subsequent occasions when the machine quit. He recalled roof falls in the gob area prior to December 29, but was never concerned about them.

Mr. Dawson stated that he was in the belt entry with a shuttle car waiting for the electrician when the ignition occurred. He described what occurred and thought it was a roof fall. He smelled heat and felt like his hair and clothes were on fire. After the explosion, he walked off the section to the man bus with Mr. Dean, Mr. Curry, Mr. Payne, and Mr. Whitaker (Tr. 157-170).

On cross-examination, Mr. Dawson confirmed that he has a pending law suit against Consol. He stated that the cut-through on the left side of the section where curtains were installed was made out of concern for the ventilation. There were no methane problems on the section and he was not aware of any other drill holes in the mine (Tr. 171-190).

Franklin M. Walls has been employed by MSHA since August 1970, at the Princeton District No. 4 Field Office. He was hired as an electrical inspector, and in 1986 worked as a refuse and impoundment inspector. He also reviewed and processed mine ventilation plans from 1987 through 1994, and he explained how

this was done (Tr. 193-196). He was familiar with the Amonate No. 31 Mine, and since 1990 has been involved in reviewing the mine ventilation plan supplements submitted to MSHA and his usual Consol contact was mine engineer Frank Underwood (Tr. 197).

Mr. Walls was familiar with the 2-1/2 mine section and was involved in the approval of the ventilation plan supplement and map relating to that section (Tr. 198). On voir dire by Consol's counsel, Mr. Walls stated that he reviewed and compared a diagram of the section prepared by MSHA and the original mine ventilation map projections and found them to be consistent. He confirmed that mining was authorized to be conducted anywhere within the areas depicted in the red or pink hash marks shown on the map (Tr. 199-210). Mr. Walls explained the lines, markings, and projections shown on the diagram. He stated that the projections indicate how Consol intended to mine and they are used to develop the ventilation plan. Once they are placed on the ventilation map they become part of the mining plan (Tr. 208-209). However, MSHA can only cite a violation of the plan and not the projections (Tr. 209).

Mr. Walls described the entries that were previously first mined and developed on the section during an earlier time. He explained that Consol intended to mine through the previously mined areas to the back of the section and then come out again during second mining. Once mining is completed, the roof falls and the area is then considered a worked-out gob area (Tr. 213-214).

Mr. Walls confirmed that he was involved in the review and approval of the section ventilation plan and he met and discussed it with mine superintendent Wyatt and company engineer Frank Underwood. He explained the plan that was to be followed, and it included cutting through two places at the back of the section that were to serve as the main bleeder system. He explained as follows (Tr. 215):

We had two projections on the map. We would cut through and put controls in them. One of them would be a stopping. The other would be a regulator. And we would cut through that block of coal out into the old, existing mine works which was part of the mine bleeder system that went to the fan.

After that was accomplished, we would start retreat mining, retreat back out of this area, with the ventilation basically coming from behind, across the mine, going through the gob and out the back end, which our belief was that was a good way to carry the methane

that may be released or any other toxic substances that may be released. It would be carried away from the miners, out the back end of the block, to the fan, to the outside.

Mr. Walls stated that the original mine map had a hand-written notation that stated, "[t]his area can be examined," and it is represented on the diagram that he referred to (Tr. 219). He stated that Mr. Underwood placed the notation on the map to facilitate the plan approval process without the need for an additional cut through drilling plan that would normally be required if an area that is to be cut through cannot be examined (Tr. 220-222).

Mr. Walls stated that there was no discussion as to how the regulator would be constructed because, "we understood what a regulator is when we talk about a plan," and "we basically know what we're going to do" when building a regulator (Tr. 222). He explained that in building a regulator after cutting an entry through, "we take our cinder blocks or cement blocks, some form of incombustible material, and we reduce the size opening to the size that it takes to ... whatever amount of ventilation we decide is going to go through it. It's normally built out of cinder blocks with a certain size opening in it" (Tr. 222-223).

Mr. Walls confirmed that the September 15, 1994, ventilation plan was the twenty-first plan review that he was involved in processing, and that it was still in effect in 1992, subject to any subsequent supplements that may have been submitted and made a part of the plan (Tr. 224; Exhibit G-39). He confirmed that the plan described how regulators and other ventilation controls are to be constructed (Tr. 224-225).

Mr. Walls stated that he has reviewed an average of fifty ventilation plans a year from 1986 or 1987 through 1994, and that he has never seen a proposal to use drill holes as a regulator (Tr. 226). He confirmed that when he discussed the first plan supplement with Mr. Wyatt and Mr. Underwood, it was felt that there should be a minimum of 10,000 cfm of air going through the regulator (Tr. 229).

Mr. Walls further explained the discussion concerning how the bleeder would be evaluated on retreat mining pursuant to the plan supplement (Exhibit G-40), as follows (Tr. 229-230):

Q. Now, was there any discussion as to how the bleeder would be evaluated on retreat mining?

A. Yes.

Q. Would you explain how that would be done?

A. Yes. We were going to -- the air that passed through that regulator would be back into a bleeder system that had air movement from other areas of the mine, to evaluate what was going across the gob and out that hole, we would take cross-sectional readings across the entries of the section, itself, and reduce the air that was traveling normal returns, the air that was traveling back out of the belts, air coming into the section.

And we would deduct all that was leaving the section by those returns outby and the belt outby from what was coming through the section and make the assumption that the remainder was going out the regulator we put in the back end of the section.

Mr. Walls confirmed that the March 6 letter to him from Mr. Underwood concerning proposed ventilation changes and new projections, when read together with the ventilation map and diagram, constitutes the first supplemental ventilation approval (Tr. 236).

Mr. Walls stated that a later additional plan supplement and map were submitted with a limited number of changes to the section ventilation and he reviewed the map and diagram and confirmed that they are accurately depicted on the approval map (Tr. 245). He also confirmed that the second plan supplement and August 31, 1992, map was received by MSHA on September 2, 1992, in the Princeton, West Virginia Office (Tr. 246; Exhibit G-57). (The first supplement is Exhibit G-56; Tr. 247). None of these plan supplement changes affect the requirement for a regulator at the back side of the section (Tr. 248). Mr. Walls stated that he did not discuss the use of drill holes as the regulator, and no one from the mine ever asked him if drill holes were acceptable as a regulator (Tr. 249).

Mr. Walls further explained the cross-sectional readings for evaluating the bleeder system with only one regulator where the air would be leaving the gob and going into the return. Under the proposed changes as reflected in Exhibit G-57, additional regulators would be in the gob. He did not believe there was any way of determining by cross-sectional readings where the air was going once it entered the gob if there was more than one regulator. The additional regulators had to be measured in order to accurately determine what the ventilation was doing, but he did not know when additional regulators were established. The

face plan that was with the plan showing how the regulator would be evaluated by cross-sectional readings only showed the one regulator at the back end of the section (Tr. 250). However, if one could travel into the return entries to those regulators, actual air measurements could have been made to determine how much air was coming out (Tr. 250-251).

Mr. Walls stated that if the additional regulators were accessible, cross-sectional readings could be combined with readings of the air leaving those regulators. However, he did not know if the regulators were accessible. He believed those regulators would provide a better overall means of evaluating the overall ventilation (Tr. 254). He confirmed that he was not involved in issuing the violation, but believed it was issued because the additional regulators were inaccessible and did not provide a means for evaluating the gob (Tr. 255).

On cross-examination, Mr. Walls stated he has a high school education and no formal college or engineering training (Tr. 9). He could not comment on whether Consol provided an adequate bleeder system, "because I was not involved in any of that," and that he only knew about what the ventilation plan called for and was not involved in the MSHA accident investigation (Tr. 9).

Mr. Walls stated that the approved written plan, rather than any conversations leading to plan approval, is controlling and he agreed that conversations are not incorporated as part of the plan (Tr. 11). He confirmed that the twenty-first plan review approved in 1989 was the base plan applicable to the section, and the first supplement was approved in approximately March and April 1992 (Tr. 13-14). There were two meetings concerning this supplement, and Mr. Wyatt and Mr. Underwood were at the first meeting, but Mr. Wyatt was not at the second one (Tr. 18-19). Mr. Walls stated that the notation on the ventilation plan indicating that the place at the back section where the holes were drilled was accessible was made by Mr. Underwood at his (Walls) instruction in order to avoid the filing of a cut-through plan (Tr. 21).

Mr. Walls stated that a face ventilation plan, which was part of the plan approved during March/April 1992, showed the holes being developed at the back of the section, and a notation on the plan indicated that the air going through the holes "could be evaluated by cross-sectional readings, something to that effect" (Exhibit G-40; Tr. 2). He confirmed that BEP Ten, the bleeder evaluation point shown on the plan, is the evaluation point that was in place for the air from other mine areas coming through the area where the drill hole cut through was located (Tr. 24-25).

Mr. Walls agreed that Consol was free to mine anywhere on the section within the hash marks shown on Exhibit G-56. He also agreed that when the plan supplement modified projections of August 31, 1992, were submitted, the projections for the five entries shown on Exhibit G-57 had not been driven all the way to the back of the section (Tr. 29). He confirmed that the additional plan ventilation controls are only proposed controls and Consol could install them as needed (Tr. 31). The three proposed regulators shown in pink on Exhibit G-57, and the one regulator at the back of the section as shown on Exhibit G-56, could have been installed at Consol's discretion (Tr. 31). He explained that these ventilation controls were "additional controls that would be added. Everything is proposed. There is no time limit on it. He puts the controls as he needs to as he goes" (Tr. 35). MSHA's counsel conceded that Consol was free to choose the sequence and direction of mining within the section area, but stated that Consol was "always required to have an adequate bleeder system on that section" (Tr. 39).

Mr. Walls stated that he has had many contacts with Mr. Wyatt over the years in connection with reviewing ventilation plans and considers him to be a good mine superintendent who took an interest in his mine. He stated that, "I think a lot of him in that respect" (Tr. 39). Mr. Walls stated that he also had a high regard for Mr. Underwood and considered him to be a good engineer (Tr. 40). He did not believe that Mr. Wyatt would engage in any "knowing" violations or aggravated conduct (Tr. 40).

Mr. Walls stated that on December 29, 1992, BEP 10 was not an approved evaluation point for the section. The face test plan simply indicated that the section air was going in the direction of BEP 10 and was blended with air coming from other mine areas, but the approved evaluation method on retreat mining was the cross-sectional readings as shown on the plan (Tr. 41-48). Mr. Walls agreed that regulators not designated as BEP points do not have to be accessible and there are many of those all over the mine (Tr. 49).

Mark D. Hrovatic testified that he formerly served as the assistant mine superintendent for three years and was so employed on December 29, 1992. He is currently employed by the Commonwealth of Virginia as a safety and training technical specialist and has been so employed for two years (Tr. 65). He confirmed that he visited the section once or twice a week and he was familiar with the submitted ventilation plan supplements. The original development plans called for driving entries to the back of the section and cutting through one entry into an



existing return air course and establishing a regulator. At a certain point, however, mining deviated from the original plan and pillar mining proceeded to the left hand side of the section, and mining then continued developing the original projected five entries (Tr. 67-68).

Mr. Hrovatic stated that regulators are normally constructed with concrete and cinder blocks with some of the blocks removed for air passage. A similar type regulator was discussed for the back of the section, but a series of holes were drilled instead, ten feet from the back return entry out of concern that the stopping would crush out allowing more air to go through the section, robbing other mine areas of air (Tr. 71). He discussed this with Mr. Wyatt, Mr. Crutchfield, and Chief Engineer Mike Delgrande. Mr. Hrovatic stated that he was concerned about the possibility of the drill holes crushing out, but did not express these concerns (Tr. 73).

Mr. Hrovatic stated that Mr. Crutchfield informed him of the decision to drill the holes, but did not indicate who made the decision and simply pointed to Mr. Wyatt's office (Tr. 74). He stated that while driving the No. 5 entry, drilling was taking place ahead of the mining to avoid cutting through the return entry, and because the back side of the entry was not accessible. At that time, he was not aware that the ventilation plan indicated that the back area could be examined and only became aware of this after the ignition occurred. He was not aware that anyone had been in that area prior to the cut-through and the roof conditions there were adverse (Tr. 75).

Mr. Hrovatic stated that he "probably" spoke with Mr. Wyatt and Mr. Crutchfield about having 10,000 to 12,000 cfm of air going through the drill holes that were functioning as a regulator. He observed that twenty holes, an inch-and-one half in diameter were drilled and he took an air reading of 6,000 cfm through the holes. An additional five holes were drilled and he decided that the holes should be enlarged. Mr. Wyatt then instructed him to enlarge the five holes to three inches and Mr. Hrovatic instructed the evening shift to do this. After the five holes were enlarged, Mr. Hrovatic measured 6,000 or 7,000 cfm of air passing through the holes. He then ordered the day shift foreman to ream out the rest of the holes with a scoop to assure the passage of 10 to 12,000 cfm of air through the holes. The scoop batteries were low, and he then told the evening shift crew to ream out the remaining 20 holes. However, he learned the evening after the ignition that the holes were never enlarged.

Mr. Hrovatic stated that he was told that there was approxi-

mately 50,000 cfm of air on the section, with 10,000 cfm going through one regulator, and 15,000 cfm through the other three regulators (Tr. 84-86). He stated that after he told Mr. Wyatt that he was going to enlarge the drill holes to three inches, Mr. Wyatt never inquired as to whether or not the holes were redrilled (Tr. 87). He confirmed that methane was never a problem while developing the section and driving the entry, and he occasionally found .2 to .4, but no more than that (Tr. 88). He was aware of other drill holes in the mine that were used as a regulator in the past, but these were not on an active section (Tr. 89).

On cross-examination, Mr. Hrovatic stated that his intake readings on the section would fluctuate between 50,000 and 57,000 cfm's of air and he marked a map with the locations of these readings (Tr. 92-93). He confirmed that after reaming out five of the drill holes there were 6,000 cfm's coming through the holes (Tr. 93). He made the decision to ream out the 25 holes to three inches and he was satisfied that this would provide the desired 10,000 cfm at the back of the section. He agreed that if the holes were drilled out, Mr. Wyatt would be left with the clear impression that there would be 10,000 to 12,00 cfm of air going through the holes (Tr. 94). He further agreed that Mr. Wyatt was conscientious about safety and the welfare of the miners and that he would never engage in any aggravated conduct or a knowing violation of any MSHA regulations (Tr. 95).

Mr. Hrovatic confirmed that he was Mr. Crutchfield's immediate supervisor and that he never told him that enlarging the holes would increase the air flow to 10,000 to 12,000 cfm through the holes. He did not know if Mr. Crutchfield was at any meetings subsequent to the discussions about the advantages and disadvantages of a traditional regulator and the drill hole regulator. He considered Mr. Crutchfield to be a competent supervisor who had the best safety interests of the people working for him at heart and he believed that Mr. Crutchfield would not knowingly authorize, order, or carry out a violation of the Mine Act (Tr. 98). Mr. Hrovatic stated that Mr. Crutchfield would have been aware of the original projections for the supplemental plan for the section and that he was aware of the drill holes at the back of the section.

Billy T. Bandy testified that prior to his retirement in March 1993, he was employed at the mine as a section foreman and was in charge of the day shift on December 29, 1992, filling in for the regular foreman who was on vacation. He arrived on the section at 8:25 a.m., and found no problems in the No. 4 entry or on the section (Tr. 100-103). He performed pre-shift and

on-shift examinations, including methane checks along the gob line. He detected one percent methane coming out of the gob at the breaker timbers at the No. 5 heading and this occurred around the same time the continuous miner gassed off in the No. 4 entry. He believed the methane monitor on the miner machine was set to shut off at one and one-half percent methane. He then called Mr. Crutchfield to come to the section and informed him about the methane he found and the machine gassing off (Tr. 106-107).

Mr. Bandy stated that Mr. Crutchfield came to the section and stayed there about a half an hour. No ventilation changes were made until the miner was moved to the No. 5 entry a hour and a half later. He described the ventilation changes that pushed the air over the miner machine. He confirmed that Mr. Crutchfield came to the section after these changes were made, and that he did not immediately notify Mr. Crutchfield about the miner gassing out (Tr. 111).

Mr. Bandy stated that Mr. Crutchfield was summoned to the section after the miner had cleared up, and that the ventilation changes that were made were routine changes when mining moved to the No. 5 entry and they were not made in response to the miner machine gassing off (Tr. 114). He confirmed that he had no knowledge of the drill holes at the back of the section and could not remember any drill holes used as a regulator. He made no ventilation changes after the machine gassed off because he and Mr. Crutchfield believed that "everything had cleared up" (Tr. 116).

Mr. Bandy stated that his on-shift examination included an evaluation to determine if the section bleeder was operating properly, and he stated that "any time I can get seventeen thousand feet of air into a bleeder line, I know the bleeder is operating properly" (Tr. 116). He confirmed that he measured 17,000 cfm of air going into the gob right over the miner machine and he measured this with an anemometer at the last pillar block going into the gob line from rib to rib. He recalled that some roof was hanging inby the No. 5 entry into the gob, but did not know how much (Tr. 118). He stated that the bleeder was working and he determined this by checking the amount of air and observing the air pressure on the ventilation curtains (Tr. 120-121).

On cross-examination, Mr. Bandy stated that when he called Mr. Crutchfield to come to the section, he told him he would be right down and arrived 20 to 25 minutes later. He stated that Mr. Crutchfield proceeded to check out the section and he observed him taking readings in the No. 4 and 5 work areas. Mr. Crutchfield then informed him that the section was "okay"

(Tr. 123).

Mr. Bandy stated that he has worked with Mr. Crutchfield for more than 20 years and considered him to be a knowledgeable and sensitive person about his job, and absolutely concerned with safety on the job. He stated that Mr. Crutchfield never asked him to perform any unsafe act that would endanger his safety or the safety of miners (Tr. 125). He also worked with Mr. Wyatt for four or five years and agreed that he was concerned with the welfare and safety of everyone in the mine, and that he would never knowingly violate any MSHA regulations or ask anyone else to do so (Tr. 126).

Mr. Bandy further explained the ventilation adjustments that he made and he believed he had good positive air flow across the gob (Tr. 128-132). He confirmed that company policy required pre-operational checks to be made on the equipment while he conducted his fire boss or on-shift checks, and clean up is done all of the time when there is no loading taking place (Tr. 137).

MSHA Inspector Donald White testified that he participated in the accident investigation by conducting a rock dust survey after the explosion occurred, but had no input into the issuance of any of the violations. He confirmed that Appendix C to the accident report is a map of the locations where the rock dust samples were to be taken. The map was plotted prior to his visit to the section and not all of the requested sample areas were accessible. He identified Appendix D as the results of his sampling (Tr. 166-170).

On cross-examination, Mr. White confirmed that the sample results show the incombustible percentages at the time the survey was taken, and he agreed that samples taken immediately prior to or close to the ignition would be a better indication of the conditions that existed at the time of the ignition, as opposed to the samples taken six or seven days later (Tr. 172, 176-177). He agreed that an ignition or explosion would have an effect on his sample readings (Tr. 178). He also agreed that the combustibility level of an area cannot be determined by "eyeballing it," and that any citations he issues must be verified by samples (Tr. 179). He confirmed that he has read a Bureau of Mines report by Mr. Don Mitchell, where it was stated that the percent of incombustible content was greater after an explosion than before (Tr. 180).

Clete R. Stephan, principal engineer, MSHA Ventilation Division, Pittsburgh, Pennsylvania, testified that he is a registered professional engineer, holds a B.S. degree in civil engineering from the University of Pittsburgh (1976), and has

worked for MSHA since 1977 conducting accident investigations (Exhibit G-50 , Tr. 182-185). He was qualified and accepted as an expert in explosions and mine fires, and he confirmed that he participated in the accident investigation in question, and authored pages 23, 25-31 of the report, and Appendix E and J (Exhibit G-1, Tr. 189).

Mr. Stephan confirmed that he concluded that "the ignition that occurred was the result of frictional heating or piezoelectric discharges that occurred during the fall of the roof in the gob" (Tr. 197). Although other potential ignition sources were identified, Mr. Stephan stated that they were eliminated because of the direction of the ignition sources with respect to where the explosion occurred (Tr. 198).

Mr. Stephan explained frictional heating and discharges, the elements necessary for a methane explosion, and the extent and area covered by the explosion (Tr. 199-206). He confirmed that page 27 of the report reflects that the original methane accumulation probably averaged 5.5 to 6.5 percent and he explained that this was based on "the extent of the flame and the magnitude of the forces" (Tr. 207).

In response to a bench comment concerning any opinion by Mr. Stephan concerning any inadequacies with respect to the cited bleeder, petitioner's counsel responded as follows (Tr. 214-215):

JUDGE KOUTRAS: Is there some way we can speed this up so we can get into his opinion as to why the bleeders were inadequate?

MR. WILSON: Your Honor, Mr. Stephan is not a ventilation expert.

JUDGE KOUTRAS: He is not going to get into that?

MR. WILSON: No, he is not going to get into that.

On cross-examination, Mr. Stephan stated that he did not interview any of the miner eyewitnesses who were on the section at the time of the explosion, including Mr. Wayne Dean. He confirmed that he did not review Mr. Dean's statements to MSHA and State of West Virginia investigators with respect to what he saw when the ignition occurred. He further confirmed that he was not aware of any eyewitness testimony prior to writing his report (Tr. 219). Mr. Stephan expressed several opinions based on the statements of witnesses during the hearing concerning a roof crack previously described by Mr. Dean and the source and

location of the ignition (Tr. 220-226).

Mr. Stephan confirmed that he was in the mine only one time on January 4, 1993, for less than one shift, for approximately three hours (Tr. 234). He stated that he was satisfied that he had enough information through his personal inspection or as provided by others involved in the investigation to render an opinion (Tr. 238-239).

Gary G. Wirth, MSHA Mining Engineer, Technical Support Group, Bruceton, Pennsylvania, stated that he has been employed by MSHA since 1989, and previously worked for a construction company and as a mining engineer for U.S. Steel Mining Company. He received a B.S. degree in mining engineering in 1984, from the University of Pittsburgh, and is enrolled in a master's program at West Virginia University (Exhibit G-49). He is a registered professional engineer and conducts mine ventilation surveys at the request of MSHA's district managers. He was accepted as a mine ventilation expert (Tr. 13, 19). He confirmed that he spent three days at the mine on January 4, 5 and 26, 1993, conducting a ventilation survey of the 2-1/2 section (Tr. 14-19).

Mr. Wirth stated that the survey was conducted by two teams. One person conducted the survey in the outby area or mouth of the section, and he covered the inby face areas, and the drill hole area. He also observed the roof conditions in the gob. He confirmed that he prepared the ventilation part of the accident report, at pages 13 to 19, and Appendix L. He was not involved in the drafting or review of any of the violations issued in these proceedings, or in the investigation and special penalty assessments concerning the individual respondents (Tr. 20-22).

Mr. Wirth stated that a ventilation survey is conducted to determine the extent of the ventilation system, including air flow amounts and directions, and the pressure differentials associated with the air flow. His survey of the 2-1/2 section was intended to encompass the air flow entering and leaving the section. In view of the inaccessibility of several exit points for the section gob, he could not conclusively determine where all of the air flow was going (Tr. 23-24). He confirmed that he visited the drill hole area on January 5, to try and determine the air quantity exiting the holes. He did this by taking anemometer readings inby and outby the holes that exited into a bleeder entry designated as a return on a mine map, and pitot tube and magnahelic gauge readings at each individual drill hole. The pitot tube readings are reflected on Appendix L to the report, but the anemometer readings are not in the report (Tr. 24-32).

Mr. Wirth stated that his calculations reflect that 447 cfm of air would pass through all of the drill holes at a certain pressure differential of water gauge inches, and that regardless of the existence of the gob, he believed that the maximum air flow that could pass through the drill holes was 2,828 cfm of air, regardless of any changes in the conditions (Tr. 37-38). He denied that his inability to reach the regulators on the left hand side of the section had any impact on his evaluation of the drill holes (Tr. 41-42).

Mr. Wirth stated that on January 4, 1993, he measured 10,000 cfm in the No. 5 entry, and 7,000 to 8,000 through all of the curtains. He had no particular reason to question Mr. Bandy's air measurement of 16,000 to 17,000 cfm going into the gob, but did not believe that Mr. Bandy could determine the adequacy of the bleeder system from that one measurement. Measurement of air entering a gob area is only one component of the bleeder system, and one needs to know how much air is entering the gob at different locations, the air distribution within the gob, how much air is leaving the gob, and the methane/oxygen concentrations within the gob and at the gob exit points (Tr. 44).

Mr. Wirth stated that with 17,000 cfm of air going into the gob, and less than 3,000 cfm going through the drill holes, some of the air would return, some would have gone back to the drill holes, and the rest would have gone to the two regulators on the left-side or down the left side return. In short, the difference between the air going through the drill holes and circulating through the gob would eventually work its way back and go out of the regulators (Tr. 46). He confirmed that all of this air circulation constitutes an air bleeder system within the meaning of section 75.334(b)(1) (Tr. 47).

Mr. Wirth was of the opinion that the requirements of section 75.334(b) were not being met on December 29, 1992, because the methane that is usually present at any gob area would migrate to the high right side of the section and would not be diluted because of the limited air quantity and insufficient air velocity in the gob. Given the fact that the section had very little methane in the past, the one percent detected in the No. 5 return, and the gas-off of the machine in the No. 4 push was an alarming factor that led Mr. Wirth to conclude that they were having some sort of problem (Tr. 52-54).

Referring to Map Exhibits G-58, G-59, and diagram Exhibit G-60, Mr. Wirth further discussed what he believed to be the air flow patterns on the section. He stated that the one percent methane found by Mr. Bandy was in the return air entry taking the air out of the mine (Tr. 59). He believed

that methane that had accumulated in the gob due to the low air flow toward the drill holes had migrated to the No. 4 entry causing the miner machine to gas out. This indicated to him that the bleeder system was not working properly. He agreed that the air flow pattern was sweeping the gob gas and reducing it to one percent in the return and that the remaining air was exiting through the left side regulators (Tr. 61). Mr. Wirth believed that after moving into the No. 5 entry and making ventilation changes, the body of gas that exited was pushed away from the face and back into the gob area (Tr. 62, 64-65).

Mr. Wirth believed that after the miner machine gassed out, air was then available to dissipate the methane detected by the machine monitor, but that the air was again pushed back into the gob. When asked if the foreman knew that, he responded "apparently they didn't" (Tr. 65).

Conceding that the air was sweeping the gob area and had diluted and dissipated the methane that caused the machine to gas out, Mr. Wirth was still of the opinion that the bleeder system did not do what it was supposed to do because the methane was not completely removed from the gob area and was only contained there. Under the circumstances, he concluded that "this was an indication that they had a problem and that the bleeder was not working effectively" (Tr. 66). He did not believe that the gassing out of the machine was an indication of a pocket of methane because methane higher than .3 or .4 percent was never previously encountered on the section. He stated, "That is why it should have alerted them, and in fact it did. Mr. Bandy called for help" (Tr. 67).

Mr. Wirth explained his understanding of cross-sectional readings for evaluating the bleeder system, and he agreed that this would have been an effective way of evaluating the 2-1/2 section pursuant to the initial ventilation plan and map projections where five entries were to be driven to the back of the section and one regulator was to be installed at the location where the drill holes were made. He agreed that the initial plan that showed air exiting the gob at one location at the back of the section was an acceptable method for evaluating how much air was flowing into the bleeder and how much was exiting. However, he did not believe this was an effective bleeder evaluation method on December 29, 1992, because mining had taken place to the left side of the section and additional regulators were installed. Upon pulling back from the back end of the section, there were three outlets from the gob area into the bleeder system and cross-sectional air readings would not indicate the air flow distribution within the gob. It would



only indicate how much air was entering the gob, and would not indicate where it was exiting or how much air was exiting at each gob location. He believed that any prudent experienced mining person would know this (Tr. 69-70).

Mr. Wirth testified that the April 1992, ventilation plan supplement testified to by Inspector Walls was the initial plan that provided for cross-section air readings for evaluating the bleeder system as stated by the notation that appeared in the upper right hand corner of the plan (Exhibit G-40). The notation states that "upon retreat mining the bleeder system will be evaluated by the difference in intake and return readings on the section."

Mr. Wirth stated that the April plan notation constituted a projection given to MSHA as to the bleeder evaluation method, but that a subsequent plan supplement submitted in August or September 1992, did not contain the notation in question (Exhibit G-42; Tr. 73-75). He did not believe that cross-sectional readings were a valid bleeder evaluation method after mining started to the left side of the section and two new regulators were added because no one was travelling to the three regulator locations as required by the regulations, and management had no idea where the air was going (Tr. 77-79).

Mr. Wirth further explained that the three regulator locations were inaccessible and could not be traveled. Weekly examination measurements of the methane, oxygen, and air flow direction where air enters the bleeder were required as part of the bleeder evaluation, but this was not being done because the regulators were not accessible, and "MSHA was told they could travel to this area" (Tr. 79).

Mr. Wirth gave his opinion as to where he believed the "body of methane" was located in the gob area prior to the explosion, and what he believed to be the air pattern that was ventilating the gob area (Tr. 85-87). He stated that approximately 2,000 to 3,000 cfm of air would have been going back toward the drill holes (Tr. 87). He confirmed that in all of his ventilation surveys he has never seen drill holes used as a regulator. The location of bleeder evaluation point BEP 10 has always been unclear to him and he was unsure as to whether he had ever traveled there (Tr. 90).

On cross-examination, Mr. Wirth stated that at the time of his ventilation evaluation on January 4 and 5, 1993, it was his intent to evaluate the section as it was at the time of the ignition, but he was told that there were some differences. The right return regulator had been blown out and some of the

right side stoppings were damaged and leaking (Tr. 92). He was told that an attempt had been made to restore the section to the condition it was in at the time of the ignition, and he was under the impression that "they attempted to do that, and when they got finished, that was the best they could do" (Tr. 95).

Mr. Wirth stated that he was aware of conflicting accounts about the accuracy of the ventilation schematic of the section at the time of the ignition, as depicted in Appendix G to MSHA's accident report, and he denied that this schematic was the foundation of his opinion concerning the adequacy of the bleeder system (Tr. 97, 105). He explained the conflicting information (Tr. 97).

Mr. Wirth did not believe that a pocket of methane released from the strata in the number 4 entry caused the mining machine to gas off, but agreed that this was a possibility (Tr. 107). If this occurred, he further agreed that the pocket of methane "would be ventilated out," and some would go into the gob and some would go out the return in the No. 5 entry (Tr. 108). However, in light of no prior encounters with methane on the section, he believed that the existence of a strata methane pocket would be an abnormality (Tr. 109).

Mr. Wirth agreed that assuming the one percent methane detected by Mr. Bandy in the No. 5 entry occurred at the time the machine gassed off in the No. 4 entry, this would be consistent with the possibility that sufficient methane was released in the No. 4 entry to gas off the machine and that part of that methane went into the gob and part went to the return as it was supposed to do (Tr. 109-110). This would indicate that "the return is doing its job as far as taking return air from the face. It doesn't say anything about the gob" (Tr. 110).

Mr. Wirth could not state whether the "body of methane" reached into the No. 5 entry. He explained that equipment movement could affect the air flow patterns, and he agreed that the methane body was being diluted down to one percent in the No. 5 entry, but that the concentration of any methane body is indeterminable and could vary within seconds in different areas. He believed that changed air flow patterns moved the body of methane, and he stated that his opinion in this regard "is speculation, but it is also ventilation engineering knowledge" (Tr. 114).

Mr. Wirth believed that all of the machine gas offs occurred in the No. 4 entry before mining moved to the No. 5 entry, and he did not dispute Mr. Bandy's air measurement of 17,000 cfm of air (Tr. 116). He stated that the adequacy of the bleeder system

is dependent on whether it is moving methane out of the gob area into the return, and this should be determined by methane tests at the gob exit points (Tr. 117).

Mr. Wirth confirmed that he took a series of bottle samples on January 5, to determine the methane and oxygen content of the air exiting the gob area, and he believed that one to two percent methane was detected in the samples. He stated that this "would indicate that methane was coming from the gob exiting the drill holes" (Tr. 120). He did not believe his test results are in his report (Tr. 119). Referring to an MSHA report concerning air test samples collected on January 5, 1993 by Inspector George Martin (Exhibit R-63), Mr. Wirth could not recall if Mr. Martin took those samples and he had not previously seen that particular report (Tr. 123, 125).

Mr. Wirth believed that the methane in the gob on December 29, 1992, would have been consumed by the ignition, and the process would have had to start over again on December 30, and whether or not an inactive bleeder on that day would have resulted in very high methane readings at the drill holes would be speculative. However, it was his opinion that high methane readings probably would have occurred at the drill holes on December 29. He concluded that the methane would have been discoverable by the weekly examinations which he claimed were not conducted, and although he was of the opinion that it accumulated over a period longer than a week, he also stated that he did not know how long it took to accumulate (Tr. 131-132, 135).

Mr. Wirth was of the opinion that under the conditions present on December 29, 1992, no reasonably prudent mining person would have evaluated the section gob or bleeder system based on cross-sectional readings (Tr. 136). He learned through hearsay that the conditions were abated when personnel "went back to the drill hole regulators and picked and shoveled a hole through the block of coal" (Tr. 143).

Mr. Wirth recalled a note he gave to his supervisory accident investigator, "Skip" Castanon, at his deposition stating that it was impossible to completely evaluate the section gob because he could not access the two left side regulators. He believed that his inability to reach those regulators would not affect his opinion about the bleeder system. However, he conceded that it was not possible for him to perform and develop a complete air quantity balance of the entire system (Tr. 146-147).

Mr. Wirth confirmed that he never reviewed the section weekly examination books, or the section pre-shift or on-shift books for the days preceding the ignition to determine whether air readings were taken at the air intake because he did not

believe they were relevant to his evaluation of the section (Tr. 150-151).

Mr. Wirth agreed with his prior deposition testimony that it was possible that methane could be released and ignited by a two-inch crack or fall of roof, with a possible release of methane and ignition source from a piezoelectric spark (Tr. 151-153).

Mr. Wirth believed that he had sufficient general information to render his opinion as to the situation that existed on the section at the time of the ignition (Tr. 169). He also believe that he was able to evaluate the ventilation system and the gob air flow, but conceded that he could not determine the exact amount of air exiting the gob (Tr. 170).

Mr. Wirth stated that he has never seen pipes in stoppings used as a regulator. He agreed that at the time of the ignition, pillar recovery was taking place, and a bleeder system existed on the section and it was being used to control the air passing through the area. He did not believe that the air was diluting the methane air mixtures (Tr. 172-173). However, he agreed that the air bottle samples taken on January 5, 1993, showing 1.38 percent methane at one of the regulator drill holes indicated less methane than was being liberated in the gob area, and that it was diluted with the air and carried out through the drill holes and into the bleeder entry return air course (Tr. 176-178).

Mr. Wirth agreed that falling rock was the explosion ignition point, and he did not totally discount the crack in the roof as the origin of the ignition, or that methane could have been liberated from that crack. Even if he were to accept the eyewitness account of Mr. Dean, he would still conclude that the flame traveled back into the gob and ignited the methane in the gob. He did not believe there was a body of methane in the No. 5 entry beneath the crack because there was sufficient ventilation at that location and the crack would not have liberated a body of methane that would have exploded in that entry (Tr. 183-184). Mr. Wirth was aware of no evidence that Mr. Wyatt knew about the miner machine gas offs (Tr. 185).

MSHA Inspector William M. Uhl, Jr., testified that he also serves as a special investigator, was familiar with the subject mine, and was the resident inspector there for 12 to 18 months in 1988 and 1989. He was "more or less" the lead coordinator in the accident investigation conducted in this case, working under the direct supervision of ASkip@ Castanon. He confirmed that the

only injured miner he interviewed was Mr. Dean. He stated that he based his conclusion that an explosive range of methane was present in the gob area on the fact that "... it was obviously there. An explosion occurred which resulted in the burns, the men being burnt" (Tr. 200).

Referring to Map Exhibits G-40 and G-42, Mr. Uhl explained what was required and intended in the two mine ventilation plans in question (Tr. 204-210). He further explained why he believed the cited bleeder system was inadequate. He stated that Inspector Walls accepted a plan that would allow the development of five entries to the back side of the section. The air was to be passed through the regulator that was projected on the plans, but it was never established, and Mr. Walls "gave the company an alternative means of evaluating this system" (Tr. 213). Mr. Uhl believed that the only way to effectively evaluate the bleeder was to absolutely follow the projections and "use this regulator, determine the intake, determine the return air, find the difference, which will automatically tell you that the rest of it is going here" (Tr. 213). However, Consol deviated from its projections, and when it decided to pillar the area, it lost access to the two regulators that had previously been established, and the bleeder was no longer effective (Tr. 214).

Mr. Uhl acknowledged that MSHA was aware of violations of the ventilation plan, but elected not to cite the violations "because of a grace period and some other confusion that entered in" (Tr. 212). He further explained that when an effective evaluation cannot be done, mining must stop and the area re-ventilated or sealed. In the instant case, the mining sequence established by Inspector Wall was not followed through and the weekly examinations indicate only air intake and belt readings, with no return readings (Tr. 215).

Mr. Uhl acknowledged that the 2,000 cfm of air exiting the gob may have been constantly diluting the methane, but the law requires it to be rendered harmless. He believed that the machine gas off should have alerted someone that something was wrong with the functioning of the bleeder and that it was not continuously diluting and carrying away the buildup of methane. He stated that, "Mr. Wyatt may have previously experienced similar situations and I know Mr. Wyatt would not have accepted anything less than ten thousand at that point" (Tr. 218). He further indicated that Mr. Wyatt was given "assumptions," accurate measurements were never taken, and he was never given the actual amount of air that was passing through the drill holes (Tr. 218).

With regard to whether Mr. Wyatt and Mr. Crutchfield acted reasonably and prudently, Mr. Uhl stated that "Mr. Wyatt's plan for the drill holes themselves it not the issue. The issue is the air that he wanted back there and never got there. I think he talked ten to twelve thousand, ... and to me, that would be reasonable@ (Tr. 230). Mr. Uhl stated that as the mine superintendent and mine foreman, Mr. Wyatt and Mr. Crutchfield direct everything that goes on at the mine (Tr. 231).

Mr. Uhl stated that the manner in which Mr. Wyatt and Mr. Crutchfield initially intended to mine the section "was great" and that "they can drive anywhere they want to within these boundaries provided it does not subject these people to an unsafe condition." However, he concluded that when they deviated from the initial planned projections and destroyed access to the regulators as a means of measuring the air leaving the gob "they started destroying the ventilation plan, as it was originally designed for this section" (Tr. 232). Mr. Uhl believed all of this was taking place over a period of "about a month or so" (Tr. 232).

When asked about the 2,000 cfm's of air exiting the back of the gob, Mr. Uhl stated that based on his experience in working with Mr. Wyatt, "he just would not accept two thousand at this area" (Tr. 235). Mr. Uhl agreed that Mr. Wyatt was seeking an amount of air that he believed would be adequate to ventilate the area (Tr. 236). In response to a question as to why Mr. Wyatt was charged with a "knowing" violation, Mr. Uhl responded that "he has knowledge of what took place on this section. He has knowledge that he can not get to these areas and he directed this to be pulled back, and Mr. Wyatt is a knowledgeable man, he knows what needs to be done" (Tr. 236).

Mr. Uhl concluded that it was impossible to evaluate the bleeder "other than the way these experts came in and used complicated equipment to determine where the air was going, ... common sense tells us that the air is not going to flush the gob, it is simply going to skirt the gob ..." (Tr. 236). He also believed that Mr. Crutchfield and Mr. Watt should have conducted a bleeder evaluation to insure that the system was operating and functioning properly (Tr. 237). When asked when Mr. Crutchfield and Mr. Wyatt began discussing the drill holes, Mr. Uhl responded, "I had no knowledge of -- and MSHA had no knowledge of the drill holes" (Tr. 238).

Mr. Uhl testified to his gravity and negligence findings concerning the inadequate bleeder citation, No. 2724034, and he stated that he based his "high negligence" unwarrantable

failure finding on the following (Tr. 239-240):

A. Well, we determined the high negligence because of the knowledge that both Mr. Wyatt and Mr. Crutchfield would have had. This is their plan. They hand carried this through. They were fully aware of the stipulation and the direction and where all of the regulatory measures going to be maintained on the section. They had first-hand knowledge of that.

Mr. Uhl testified to the abatement actions taken and he stated that the violations were verbally issued to Consol Vice President Ron Wooten during the first part of the investigation, with "conversations@ with the superintendent and mine foreman, and then reduced to writing in March, 1993. The violations were intended to refer back to the day of the ignition on December 29, 1992 (Tr. 241-242).

Mr. Uhl explained the notation he made on the order that Mr. Wyatt and Mr. Crutchfield stated that "no one was examining the bleeder regulator and that the area was inaccessible" (Tr. 244). He believed that if the bleeder evaluation had been properly made, Mr. Wyatt and Mr. Crutchfield would have been aware of the worsening situation and would have been able to take corrective action. He believed that the mine examiners were not doing anything wrong and falsely believed that the bleeder was working effectively (Tr. 245).

Mr. Uhl stated that Mr. Wyatt and Mr. Crutchfield verbally stated that the one regulator was not being examined, but had indicated on the map that the area was accessible (Tr. 246). When asked about Mr. Walls' testimony about how the map notation was made, Mr. Uhl responded, "that as far as he was concerned, that was to speed up the administrative work as far as the map" (Tr. 247). If the regulator was inaccessible, Consol would have to file for relief not to travel the area. It must otherwise follow its projected mining sequence, and if it decides to deviate from that it must comply with whatever ventilation adjustments are required (Tr. 249).

Mr. Uhl explained some photographs that he took depicting the condition of the gob area (Exhibits G-45; Tr. 251-256). He stated that he based his unwarrantable failure finding for failure to conduct adequate weekly examinations, No. 2724035, on the following (Tr. 256):

THE WITNESS: Well, because of knowledge that management would have of the overall conditions which

would tell a person, a prudent person, you know, that it would be impossible to make that evaluation the way it was being done.

Mr. Uhl did not know whether any air evaluations were being made when mining was taking place on the left side of the section prior to the start of the pillaring from the back of the section, and when asked if there was any evidence that no evaluations were made while mining to the left, he responded, "I don't recall looking at that" (Tr. 258). He agreed that for the week prior to the ignition two evaluations were made with regard to how much air was coming on the section and how much was coming down from the belt.

On cross-examination, Mr. Uhl stated that he was not a mining engineer and has a high school education, with no degree in anything related to mining or mining ventilation. He last worked in the coal mining industry for a coal company in 1975. He served as an assistant mine foreman, but was never involved in any ventilation plan submissions to MSHA (Tr. 261).

Mr. Uhl confirmed that he was familiar with BEP 10, and upon review of an August 31, 1992, map, he noted a seven-inch diameter drill hole reference on the map, but had no knowledge of the hole and could not explain what it was used for (Tr. 264). He acknowledged that if the air was going through the drill hole, it would be routed to BEP 10, as shown by the map arrows (Tr. 266).

Mr. Uhl stated that pursuant to section 75.364(a)(2)(iii), the entire bleeder system must be traveled in its entirety at least once each week, or to other approved locations in the ventilation plan for the purpose of measuring the methane and oxygen to determine if the air is moving in its proper direction (Tr. 270). He stated that Inspector Walls would accept an evaluation of the bleeder by taking a cross-sectional reading, provided the projected regulator was installed and the mining projections followed as stated and approved in the plan (Tr. 72).

Mr. Uhl confirmed that the area mined to the left was being evaluated by cross-sectional readings, and that once the regulators became inaccessible, cross-sectional readings would be made (Tr. 276). Mr. Uhl stated that Mr. Wyatt would not willfully violate the law, and that he never accused Mr. Wyatt of acting recklessly or deliberately (Tr. 282).

Mr. Uhl confirmed taking bottle air samples on January 12, 1993, and that they show that almost one percent methane was coming through the drill holes at the back of the section, and he acknowledged that with 2,000 cfm of air going through the holes on December 29, 1992, methane was exiting through those



holes (Exhibit R-64; Tr. 284-287). He acknowledged that he was the primary author of the MSHA investigative report, and that the sample results were not included in the report, but he did not believe they were relevant (Tr. 288).

Mr. Uhl stated that he interviewed Mr. Dean in March, 1993, and again in preparation for the instant hearing, and on both occasions Mr. Dean stated that immediately prior to the ignition he was looking at the roof crack and saw blue flame come out (Tr. 292-298). Mr. Uhl identified photographic Exhibit G-45-G as the area where Mr. Dean and Mr. Whitaker said the roof was shifting and where he saw the crack (Tr. 300-301).

Mr. Uhl believed that retreat mining in the area of the drill holes probably began approximately less than two full weeks prior to the ignition, and the last inspector was there about November 15, 1992 (Tr. 303). He confirmed that no re-evaluation of the gob area was made on December 30, 1992, when Consol was permitted to move its equipment out of the section (Tr, 312).

Mr. Uhl reviewed the weekly examination records for methane and hazardous conditions on the section on December 21, 1992, and confirmed that readings were made and recorded on the main intake and belt (Exhibit G-47; Tr. 313). He also confirmed that the weekly records for December 9, 1992, show a full cross-sectional reading for the left and right return, the intake to the pillar, and a belt reading (Tr. 314). He agreed that full and partial cross-sectional readings were made on the section, but was of the opinion that they were not relevant to the evaluation of the bleeder (Tr. 315).

Mr. Uhl stated that he has known Mr. Crutchfield for 20 years and attended mine foreman school with him. He has not alleged that Mr. Crutchfield willfully violated the law, but he believed that Mr. Crutchfield is responsible "to know the activities within the mine properties that he is working at ... and if anybody had reason to know, Mr. Crutchfield would have known." He further stated that, "I am saying he had knowledge of this ventilation system there, and that there was more than a normal negligence shown in this activity here" (Tr. 318).

Mr. Uhl believed that it was reasonable to expect that Mr. Crutchfield knew and understood the ventilation plan, but he had no information that Mr. Crutchfield delivered the plan to Mr. Walls (Tr. 319). He further believed that any reasonable mine foreman "would look at this situation and have all the reason in the world to know that this is not an effective way of ventilating this section, and that it is not an effective means

of evaluating the bleeder system (Tr. 319).

Mr. Uhl confirmed that Mr. Crutchfield voluntarily gave him testimony, and that he knew that Mr. Crutchfield responded to Mr. Bandy's call to come to the section, and that he stayed there at least 30 minutes conducting methane tests (Tr. 320). Mr. Uhl responded as follows when asked to explain the meaning of "aggravated conduct" in the context of a section 110(c) knowing violation (Tr. 323):

THE WITNESS: Aggravated conduct, he had more than the normal reason to know. He had -- I just drew a blank for the word I am trying to come up with. More than normal negligence. You know, it would take a reasonable man with blinders on not to see this condition with the experience these people had.

And (Tr. 324-325):

JUDGE KOUTRAS: Do you think that a reasonable -- well, let me try it -- that a reasonable mine foreman would normally go into a mine with his eyes wide open, walking into a situation where he knows the bleeder system is not being properly carried out, subjecting not only himself, but the rest of his people to a hazard?

THE WITNESS: I believe that he believed exactly what his section foreman told him; that there was not any hazard up there at that time, and his findings convinced him of that, also.

BY MR. BROWN:

Q. His findings he testified to in your investigation indicated he found no methane after he went to the section and specifically tested for methane, right?

A. Yes, sir.

Q. Now do you believe a reasonable mine inspector in November of 1992, would go into that section of the mine with any knowledge of the ventilation plan that you have testified to?

THE WITNESS: I don't think anyone with any knowledge of this here would have found anything different. If they didn't have any knowledge of this, then they would have found the same thing that the section boss found right there.

Mr. Uhl believed that Mr. Crutchfield was a reasonable and competent foreman who was concerned with the safety and welfare of his workers and who would never engage in any intentional act that would endanger their lives (Tr. 326). Mr. Uhl confirmed that Mr. Hrovatic was Mr. Crutchfield's supervisor, and that Mr. Hrovatic was responsible for overseeing the drilling of the holes at the drill hole regulator (Tr. 328).

In response to his understanding of Mr. Wall's testimony concerning the map notation regarding the accessibility of the drill holes, Mr. Uhl stated as follows (Tr. 329):

A. I think what he said was that if that is an accessible area and that you put that on the map, that when Mount Hope or the ventilation people see that, there would not be a holdup as to them looking for a cut-through plan.

Q. That is exactly right. And he testified that the sole purpose of that language being placed on that map was to preclude the necessity of the preparation of the cut-through plan, right?

A. That is what I heard him say.

Mr. Uhl stated that the drill hole area was accessible to him after some additional supports were installed, but that during the investigation Mr. Wyatt and Mr. Crutchfield told him the area was not accessible and no one was traveling there.

Mr. Uhl stated that he had no reason to doubt Mr. Wyatt's belief that approximately 10,000 cfm of air was going through the drill holes, and that Mr. Hrovatic confirmed this. Mr. Uhl stated that his investigation confirmed that the drill holes were put in because Mr. Hrovatic considered it would be safer than cutting through in light of the excessive pressure and the closeness and proximity of that area to the Dunford fan (Tr. 334).

Mr. Uhl confirmed that the violation was abated by enlarging the drill holes and MSHA accepted this as part of the abatement (Tr. 335). He confirmed that he was aware of no evidence that Mr. Wyatt knew anything about the gas offs or gas problem on the section on December 29, 1992 (Tr. 335).

Mr. Uhl stated that he has worked with Mr. Wyatt for many years and that Mr. Wyatt has always been "truthful and up front and candid" with him, is very safety conscious, and would not "willfully hurt anybody" (Tr. 337). When asked if Mr. Wyatt would "knowingly" endanger anyone, Mr. Uhl responded as follows (Tr. 338-339):

A. In the context you are using it, it is the same as willfully, and I am saying he would not willfully endanger someone.

Q. Or knowingly? Can you use that word?

A. No, sir.

Q. You can't use that word. Why can't you use that word?

A. Because that would be saying -- to me, that would be saying that he willfully did this. Someone had brought it to his attention, he decided well, no I know what you are saying and I know that is against the law, I am going to go ahead and do it my way anyhow. He is not that kind of an operator.

#### Respondent's Testimony and Evidence

Cecil W. Dean, formerly employed by Consol, stated that he was working as a miner helper when the ignition of December 29, 1992, occurred and that he was an eye witness to that event. He stated that he gave a taped interview to MSHA Inspector Uhl in March, 1992, and was again recently interviewed by Mr. Uhl, Mr. Castanon, and MSHA counsel Wilson (Tr. 27). Mr. Dean

explained where he was located and what he was doing when the ignition occurred (Tr. 27-30).

Mr. Dean confirmed that he initially told the MSHA investigator that the ignition occurred instantaneously when the roof dropped down (Tr. 30). He explained that after taking a 40-foot lift to the right, the miner was backed out, and "the top cracked and set down about one to two inches ... there was a bluish flame coming out of the gob line, looked like an atomic bomb rolling out from under -- coming out of the roof crack, and stated that "it came out of the gob line" (Tr. 33). He confirmed that in his more recent interview with the aforementioned MSHA officials, he told them that he observed a blue flame, but denied telling them it came from the roof crack (Tr. 33).

Mr. Dean stated that when he was interviewed in March, 1993, he had been out of the hospital for less than a week and had been unconscious for 21 days (Tr. 35). (The tape of the interview was played in open court (Tr. 38).) Mr. Dean stated again that he could not remember telling Mr. Uhl that the flame came from the roof crack (Tr. 39-41).

On cross-examination, Mr. Dean stated that he was aware of the drill holes and foreman Larry Brewster told him they were to be used as a regulator. Mr. Dean stated that he helped drill the holes, but was concerned that they would crush out with the weight of the coal (Tr. 47). He stated that on December 29, 1992, one could not look through the gob and see the drill holes while standing in the No. 4 entry (Tr. 48). He confirmed that he has a law suit pending against Consol as a result of the ignition (Tr. 52).

Danny E. Crutchfield, mine foreman, stated that he has 27 years underground mining experience and has never previously been cited individually by the State of West Virginia or MSHA. He served as mine foreman at the subject mine for 10 years, and spent approximately six hours of each shift underground. He stated that he was on vacation a week prior to the December 29, 1992, ignition, and had returned the day before that incident (Tr. 53-59).

Mr. Crutchfield identified a mine ventilation map associated with the April 1992 ventilation plan, and discussed the location of several regulators and BEP points (Tr. 59-63; Exhibit RCR-1).

He identified two inaccessible regulator locations outside the cited section and indicated that the ventilation passing through those areas would be determined by BEP points and cross-sectional air readings (Tr. 64-65). He identified one other drill hole location and stated that MSHA inspectors never questioned or cited it (Tr. 65).

Mr. Crutchfield confirmed that he attended a preliminary meeting with Inspector Walls, company mine engineer Underwood, and superintendent Wyatt to discuss the section ventilation and mining projections. He explained that the initial projection was to drive to the back of the panel and establish a regulator and use cross-sectional air readings with BEP-10 as the evaluation point. In view of falls in the old works, a decision was later made to mine to the left of the initial projected area, and two regulators were installed. After that area was mined, retreat mining commenced and pillars were pulled from the back of the section, as initially projected, and the retreat operations were inspected by MSHA (Tr. 68-70, 71-72).

Mr. Crutchfield stated that the drill holes in question were established because the area was subject to crushing and no one ever mentioned that anyone would travel to that area (Tr. 74). He stated that assistant mine superintendent Hrovatic was assigned to drill 25 holes, and Mr. Crutchfield stated he only saw one test hole. Mr. Hrovatic informed Mr. Wyatt of the progress of the drilling, including enlarging the holes from 1-1/2 inches to 2 to 3 inches, and testing the air passing through the holes. Mr. Hrovatic reported that he had 2,000 to 4,000 cfm of air, and Mr. Wyatt told him that he needed 10,000 to 12,000 passing through the holes (Tr. 76).

Mr. Crutchfield stated that Mr. Wyatt did not tell Mr. Hrovatic how many holes to drill, and when there was a problem with the drill bit, Mr. Hrovatic assigned the evening shift maintenance foreman the job of repairing the bit. Mr. Crutchfield heard nothing further about the matter and the last thing he heard Mr. Hrovatic say after drilling five holes was that the bit needed to be repaired and the drilling finished (Tr. 77). Mr. Hrovatic never reported back to him and Mr. Crutchfield had no reason to go to the area to examine the work because Mr. Hrovatic was assigned to take care of it (Tr.78).

Mr. Crutchfield explained the underground work he performed on December 29, 1992. He received a message from Mr. Bandy to go to the 2-1/2 panel, and Mr. Bandy informed him that he had some methane in the right-hand return. Mr. Crutchfield proceeded to the section and Mr. Bandy informed him that he found one percent methane at the No. 5 breaker timbers. Mr. Dean informed him that the miner machine gassed off in the No. 4 entry. Referring to a diagram, Mr. Crutchfield explained what transpired next (Exhibit RCR-2; Tr. 78-83). He confirmed that he made several methane checks at the breaker timbers and found none. The largest amount he found was .2 percent in the left-hand return, and none in the other areas he tested (Tr. 86-87). He observed no problems with

the ventilation on the section and explained where he checked the ventilation curtains, and the other areas that he examined before leaving. The curtains "were in good shape," and they had air ventilation pressure, and he saw no ventilation hazards on the section (Tr. 89-90). He confirmed that it was unusual to find methane on the section (Tr. 94).

Mr. Crutchfield stated that in the 27 years he has been mining coal, he could not recall receiving a section 104(d) citation or order. He had no reason to know that the ventilation was inadequate on the day of the ignition because all of the plans had been approved, he assumed there was 10,000 to 12,000 cfm of air going through the drill hole regulator, and he had never experienced any prior ventilation problems on the section (Tr. 97-98).

Mr. Crutchfield stated that the cited bleeder system was evaluated by cross-sectional readings and BEP 10, which was visited every 24 hours by the fire boss. When the methane would rise, it would be checked and monitored every shift. He had no indication of any methane buildup in the gob on December 29, and if he had, he would have shut the section down (Tr. 101).

Mr. Crutchfield stated that the mine map was up-dated each shift to reflect the areas that were mined and it is available in the mine office for anyone to review (Exhibit R-17; Tr. 104). He also identified a working mine map kept at his desk and he discussed it with each boss every morning (Exhibit R-18; Tr. 107-109).

On cross-examination, Mr. Crutchfield stated that he did not know how much air was going from the 2-1/2 section to BEP 10, but that approximately 180,000 to 186,000 cfm of air was at BEP 10, and approximately 64,000 cfm was going into the section. This section air would eventually go to BEP 10, and he explained how the air would be monitored at BEP 10 (Tr. 114-115).

Mr. Crutchfield explained the ventilation cross-sectional readings evaluation system as follows (Tr. 116-117):

A. You take the return. You take the intake. You take the air going off the belt and you take your other return. You add what air is going off, take it away from what is going up on the intake.

Q. And that tells you what?

A. That tells you what is going out your bleeder taps.

Q. It doesn't tell you, though, how much air is going out each individual outlet, does it?

A. No, it does not. But it tells you that you do have air going into the gob.

Q. And that is all it tells you, is how much air you have going into the gob, right?

A. The same way it would with the rest of them, yes.

Mr. Crutchfield stated that cross-sectional readings would not indicate how much of the air is going to the drill hole regulator or of the other regulators on the left side of the section. One of those regulators was accessible, but three were not, and on December 29, 1992, he would have no way of knowing how much air was going to any of those three regulators (Tr. 117).

Mr. Crutchfield reviewed weekly examination records for December 21, 1992, and confirmed that he countersigned them when he returned from vacation and that Mr. Hrovatic was acting in his place while he was absent that week. He agreed that the two recorded readings do not reflect how much air was going into the gob, and no return readings are recorded (Tr. 118).

Mr. Crutchfield confirmed that Mr. Hrovatic left his employment with Consol two months after the ignition, after 20 years of employment, but did not know if his departure had anything to do with this case (Tr. 123). He stated that Mr. Hrovatic's wife is an MSHA inspector at the Richland's office (Tr. 131).

Mr. Crutchfield confirmed that the section examination book reflects that BEP 10 was evaluated on a daily basis; and that it was the checkpoint for the panel (Exhibit R-2; Tr. 135, 139-140). He explained some of the entries, including the recorded methane levels. He stated that BEP 10 was used to evaluate the gob, and that it was an MSHA approved point for evaluating the section (Tr. 141-146). He stated that the BEP 10 location is marked on the map with directional arrows showing air being coursed to that location, and he considered that to be the evaluation checkpoint for the section, just as he has other similar locations shown on the map for other mine areas (Tr. 147-149).

Mr. Crutchfield stated that he was surprised to learn



that the drill holes had not been drilled to allow more air to pass through. He believed the holes had been drilled after Mr. Hrovatic was assigned that project, and stated, "I thought all the time there was ten to twelve thousand feet of air passing through there because that is what Bob wanted through there@ (Tr. 158).

Mr. Crutchfield was recalled by the Court and stated that he was interviewed at the mine after the ignition and could not recall discussing the BEP-10 evaluation location with the MSHA investigators. He did not believe that the section examination records (Exhibit R-2) were given to the investigators, but believed that they looked at them (Tr. 10).

Mr. Crutchfield stated that the purpose of the drill holes in question was to ventilate the gob area that would be created after driving the projections and pillaring back (Tr. 13-14). The air ventilating the gob would be monitored by taking cross-sectional readings and monitoring BEP-10 (Tr. 14). He confirmed that BEP-10 was established before the section was developed and that air from at least one other section was also being monitored at that location (Tr. 15).

Robert G. Wyatt testified that he has worked in the mines for 40 years, has a tenth grade education, and was the general mine superintendent for six or seven years beginning in May, 1987. Prior to that he served as general superintendent at another Consol mine for 12 years. He stated that prior to this case, none of his mines received a (d) order or citation, and he has never been charged personally for any violations (Tr. 18-21).

Mr. Wyatt stated that in mid-November 1992, he had a medical problem resulting in his hospitalization in intensive care, and returned to work at the end of that month. He had not been underground from November 4 to the day of the ignition, and Mr. Hrovatic served as assistant superintendent and was assigned to work for him. Mr. Hrovatic was a mining engineer, and had full authority other than any major changes or policy matters.

Mr. Wyatt stated that he had weekly meetings with Mr. Hrovatic, Mr. Crutchfield, and Mike Delgrade, the chief electrician, to discuss the conditions on the section, and ventilation plans were handled by Frank Underwood, the mine engineer (Tr. 26-27). He confirmed that the decision to mine and pillar the section was his and he explained how the development plans were formulated, including a meeting with Mr. Crutchfield, Mr. Walls, Mr. Underwood, and a UMWA safety committeeman (Tr. 29-36). He explained how a ventilation plan

is developed and discussed and he described the mine ventilation system (Tr. 37-42).

Mr. Wyatt confirmed that BEP-10 was intended to be used to test any methane coming through the gob and to evaluate the section bleeder system (Tr. 45-49). He believed this was a safe method for evaluating the bleeder air, and he explained how the areas with excessive methane liberation were monitored. He confirmed that BEP-10 was monitored on a daily basis for the B-right section, and the same procedure was used to monitor the 2-1/2 section where all of the air was routed to BEP-10 (Tr. 51-60).

Mr. Wyatt stated that he was not aware of the notation that the drill-hole regulator area could be examined for quite some time, and it was not discussed during the meeting he attended with Mr. Walls. Mr. Wyatt believed that Roy Smiley, a draftsman working for Mr. Underwood at Conso's Bluefield office, made the notation (Tr. 62).

Mr. Wyatt stated that all of the ventilation plans that were submitted before the 2-1/2 section was mined showing multiple areas going into the BEP-10 were approved by MSHA, and he confirmed that the March 6, 1992, submission (Exhibit G-40), for the 2-1/2 section was approved by MSHA on April 21, 1992 (Tr. 63-64). He explained why changes had to be made in the original mining projections, including mining to the left, and providing for ventilation changes and bleeder controls, and all of this was handled by Mr. Underwood in consultation with Mr. Walls. The ventilation changes are reflected in the letters of September 1 and 30, 1993, with Mr. Underwood (Exhibit G-42; Tr. 65-73).

Mr. Wyatt further explained how the air on the section would be controlled through four regulators, and he believed it was a safe and efficient plan. All of the air would eventually sweep the section and would eventually be directed to BEP-10 (Tr. 79-82).

Mr. Wyatt stated that he has had occasion in the past to use drill-hole regulators. He confirmed that two stopping cut-throughs were initially projected for the back of the section, but out of concern for safety, and the fact that it was not uncommon for such stoppings to crush out, thereby robbing other areas of air, he decided to use something other than a standard stopping and regulator and instructed the drilling of the holes, and Mr. Hrovatic was put in charge of the drilling (Tr. 91).

Mr. Wyatt stated that Mr. Hrovatic informed him of the

progress of the drilling and that he informed Mr. Hrovatic that he wanted 10,000 cfm air through the holes. He later informed Mr. Hrovatic to go ahead and put 12,000 through and Mr. Hrovatic informed him that he had 12,000 to 14,000 cfm of air going through the holes. Mr. Wyatt stated that AI was well pleased with it, with the whole system (Tr. 95).

Mr. Wyatt explained the use of cross-sectional readings to evaluate the bleeder air on the section (Tr. 96). He believed the use of a drill hole regulator would be safer than a standard type stopping or regulator, and that it was not a matter of convenience and supplies were available to construct a standard size of regulator (Tr. 98-100)

Mr. Wyatt stated that he would never knowingly violate the law, and that he has in the past shut down mines and withdrawn miners out of safety concerns. He would have done so in this case if he believed there was a potential problem on the section (Tr. 101). With respect to Mr. Crutchfield, whom he has known for six years, Mr. Wyatt stated that he operated the mine in a safe manner, and would never cut corners (Tr. 104-105):

On cross-examination, Mr. Wyatt confirmed that he was not at the meeting with Mr. Walls when the second ventilation plan supplement was submitted and it did not show any projections for driving the left side of the section (Tr. 110-112). He was aware of the ventilation plan requirement for constructing drill holes out of non-combustible materials, and reiterated that he wanted 10,000 cfm of air passing through the drill holes (Tr. 112-113). He did not confer with engineer Underwood or MSHA about the use of drill holes (Tr. 114). He still believes today that he had an adequate bleeder system, and he would never accept 2,600 cfm of air through the drill holes (Tr. 117).

Mr. Wyatt further explained his understanding of the face ventilation diagrams (Tr. 120). He explained that after the ignition occurred, Mr. Hrovatic informed him that the drill holes had been redrilled to three inches, and that 12,000 to 14,000 cfm of air was going through the holes before the ignition (Tr. 122-123). Mr. Hrovatic also informed him that 6,000 cfm of air was going through the holes when they were drilled with the 1-1/2 inch diameters, and that he had 6,000 to 8,000 cfm of air when five of the holes were re-drilled to three inch diameters (Tr. 123). He then instructed Mr. Hrovatic to put 12,000 cfm through the holes, but did not specifically tell him how many additional holes should be drilled. Mr. Hrovatic assured him that this had been done (Tr. 124-125).

Mr. Wyatt stated that while he was in the hospital in November 1992, Mr. Hrovatic served as acting mine superintendent (Tr. 132). When asked if he ever asked Mr. Hrovatic how he measured the air going through the holes, Mr. Wyatt stated as follows (Tr. 133):

A. No, sir, I don't recall questioning him. You know, he is an engineer. We got a tenth grade education. You know, I wouldn't question the boy on the numbers. I'm sure he is qualified to take the air readings. Or the man. Excuse me. I didn't mean to call him a boy.

Mr. Wyatt stated that he was not aware of the gob roof conditions on December 29, 1992, and he described the conditions as they appeared to him the next day (Tr. 134-137). In response to further questions, he confirmed that he had no knowledge of the mining machine gas-offs prior to the ignition (Tr. 137). He believed that the ignition was caused by a major crack in the roof that released methane gas under pressure and our bleeder system got overrode, ... and we've had some kind of an ignition source in there that you don't normally expect to have (Tr. 141).

Mr. Wyatt stated that in his years of mining experience prior to the ignition he has never known of methane ignitions or explosions originating in the gob area. He believed that the failure of the bleeder results in a loss of pressure going in the gob that releases methane on to the active section where there are ignition sources. He has always been trained to keep gas away from the working place and to keep a positive pressure on the gob (Tr. 142-145).

Donald W. Mitchell, consulting mining engineer specializing in ventilation, mine fires, and explosions, was accepted as an expert witness. His resume reflects that he has a B.S. degree in mining engineering from Penn State, and an MS degree in mining engineering from Columbia University. He has authored approximately 100 publications and a book on mine fires that will soon be published as a third edition. Mr. Mitchell was previously employed by the U.S. Bureau of Mines, MESA, and MSHA, from 1951 until July, 1978, was involved in the passage of the 1969 Coal Act, and served as an assistant chairperson of a task force that drafted the regulations that were promulgated in March, 1970. The task force responsible for writing the ventilation regulations worked under his direction. He has also worked as an international consultant in Nova Scotia, Australia, Columbia, Great Britain, India, and China in matters concerning mine

fires and explosions (Tr. 151-156; Exhibit R-6).

Mr. Mitchell stated that he became involved in the analysis of the December 19, 1992, ignition in August, 1993, and has worked on that project as a consultant Aoff and on@ to the present time. He considered a number of documents that are part of the record as hearing exhibits, including preshift, on-shift, and daily reports, records of methane readings, roof control plans, photographs, locations of core drill holes, weather data, a 1990 ventilation survey he conducted at the mine, a January, 1993 ventilation survey, ventilation fan data, equipment location data, ventilation maps, and schematics showing the ventilation as of August, 1990, ventilation plan supplement of October 30, 1990, additional plan supplements, several drawings that he made, computer analysis of the mine and section ventilation, computerized ventilation simulations, recent studies of frictional ignitions, and various research papers concerning massive roof falls and wind blasts and ignitions, coking, shock waves, reports of methane ignitions caused by roof falls in the gob areas, methane ignitions caused by sandstone roof and equipment frictional sources, and reports and papers concerning frictional ignitions in several foreign mines (Tr. 157-213).

Mr. Mitchell was of the opinion that the ignition in question was Aa result of a fall of roof igniting methane associated with the rock that was fallin@ (Tr. 206). He confirmed that he reviewed all of the aforementioned written information and approximately 29 interviews taken during the investigation in making his analysis of the ignition (Tr. 213).

Mr. Mitchell stated that occluded methane in rock is usually not affected or dissipated by the ventilation system because there is no way to dissipate it and it does not release until the rock breaks (Tr. 215). He confirmed that he went underground as part of his analysis and visited all five headings up to the gob line in the 2-1/2 section. He looked back toward the gob drill hole area in each of the headings, but was unable to see the drill holes (Tr. 218).

Mr. Mitchell acknowledged that he misspoke when he gave his deposition indicating that he could see all the way back toward the drill holes when he was underground and that he could see the barrier pillar. He stated that Athere was no way I could see at least a distance of 100 to 150 feet at minimu@ (Tr. 222).

Referring to two drawings that he made, Mr. Mitchell explained his opinion as to the cause of the ignition.

Referring to the testimony of miner witness Whittaker and Curry that they could hear the roof cracking and working Ahigh up,@

Mr. Mitchell stated that the cantilever roof structure started to fail, and a tension crack started forming close to the edge of the pillar. Since there is nothing holding up the weakened roof, it falls. Based on his best estimation, he believed that there was a fall of a 30 foot block of sandstone roof from the No. 5 heading to the No. 4 heading, four to six feet on the edge of the gob (Tr. 222-224).

Mr. Mitchell stated that based on his miner discussions, the term "from the gob" means in by the breaker posts. He described two locations on his drawings as the point of ignition. He believed the No. 1 crack location was the point of ignition because it is more consistent with the testimony of flame coming from the gob, than location No. 2, but stated that "both could be or either could be" (Tr. 227). He further explained as follows (Tr. 228-229):

I take the position that it is not reasonable to assume that we had many or more than one simultaneous fall of a large block of stressed rock at the same instant. And therefore, I am taking this as a point that in my opinion, the most probably point of ignition was the fall -- was the breaking up, the forming of the crack one and the forming of the crack two.

\* \* \* \*

Q. Mr. Mitchell, do you agree with MSHA's conclusion that the ignition source was a frictional ignition?

A. Yes, I agree with that conclusion. That is my opinion and finding as the most probable source.

Q. From where did the methane gas come?

A. It is my opinion that the methane, the great majority, if not all of the methane that was involved in this ignition, came from the fractional planes propagated and came out, was liberated through the fracture planes in that sandstone, as indicated by lines one and two on that exhibit.

Mr. Mitchell stated that the fact that the ignition occurred does not indicate that the gob was poorly or improperly ventilated. He explained as follows (Tr. 230-231):

A. This major outflow of methane -- there is no gob in the United States, no ventilation system

in the United States that is capable of handling sudden outbursts. In fact, we were not even able -- in most mines where we have outbursts of methane in active workings, we have no means to militate against these even where we have positive, strong ventilating currents.

With regard to Citation No. 2724034, Mr. Mitchell stated that the air measurement of 2,037 cfm of air passing through the bleeder regulator had no relation to the ignition because it was only one of four regulators that were controlling the air flow from the active working faces and through the gases contained within the gob, into the bleeder. He believed the rest of the air circulating through the gob was keeping methane within the gob from coming out on the working face and directing that methane and other contaminants within the gob to the four regulators that intersect the bleeder system for the 2-1/2 section (Tr. 232).

Mr. Mitchell stated that he was involved in the drafting of the original regulation in 1970 concerning the ventilation of the gob and the bleeder system, and that the intent of the standard was to keep the methane that was normally associated with the gob away from the working faces where it could be ignited by the equipment and by the people in the active workings. He further stated that at the time the regulation was promulgated, none of us considered any possible outbursts of gas in the gob. This was something alien to our knowledge (Tr. 233).

Mr. Mitchell was of the opinion that the violation was issued because there was an ignition (Tr. 235). He was of the further opinion that the drill hole regulator did not contribute to the alleged violation because that particular cited location was only one of four exit points that allowed methane/air mixtures to move from the worked out area into a return air course as required by the regulation (Tr. 241). Based on his experience and understanding of section 75.334(b)(1), he did not believe that Citation No. 2724034 described a valid violation (Tr. 242).

In response to questions as to whether he believed there was a proper and good bleeder system on the section prior to the December 29, 1992, ignition, Mr. Mitchell stated that given the pressure against the curtains and the flow of air in the November 5 heading, there was a good bleeder system in action (Tr. 242). With regard to the No. 4 entry, he believed that the gas-offs indicated that the bleeder system was working

(Tr. 243). He concluded that the bleeder system did the job intended (Tr. 242), and he disagreed with Mr. Wirth's body of methane in the gob testimony, notwithstanding his original perception that the probable source of the ignition fuel was a body of methane in the gob (Tr. 246-248).

Mr. Mitchell stated that based on his review of his pressure differential calculations from the No. 4 and No. 5 active faces to the back of the bleeder and the four regulators, and the gas bottle sample readings obtained by Mr. Wirth and by Mr. Uhl, he concluded that as of January 5, 1993, the drill hole regulator was regulating the flow of air from the active workings through the worked-out area, and into the return air entry (Tr. 250).

Mr. Mitchell was of the opinion that the drill hole regulator in question met the definitional test of non-combustible material as stated in regulatory section 75.301, but does not meet the ventilation plan requirement that it be constructed of incombustible material, because coal is capable of being burned (Tr. 250-253).

Mr. Mitchell stated that he has questioned mining personnel at other mines in the area and found that they were ignorant of the phenomenon of a sudden inundation of methane and an ignition resulting from friction (Tr. 254). He believed that the event in question was an ignition and not an explosion, and he explained his conclusion in this regard (Tr. 255-262).

On cross-examination, Mr. Mitchell expressed agreement with Mr. Wirth's calculations concerning the amount of air going through the drill hole regulator (Tr. 264). He was aware that Mr. Wirth took additional readings of the air passing through the regulator when he returned on January 26, 1993, and that Consol engineers did not measure the air, but relied on a balance analysis. He agreed that his 1990 ventilation survey was made when the 2-1/2 section was not in existence, and that he took a later survey of that section more than a year after the ignition, but never went to the drill holes (Tr. 267). He agreed that he may have stated that it would have been desirable to go to the drill holes when he gave his deposition and, in any event, agreed that it would have been a good thing to do. He did not go to the drill holes because he was tired (Tr. 268-269).

Mr. Mitchell confirmed that he was in error when he stated in his prior deposition that the roof was hanging all the way back to the drill holes, and that he has corrected his prior statements (Tr. 270-273). He conceded that he changed his prior testimony that he could see back to the gob where the coal



barrier was during the earlier hearing in this matter and after Mr. Wyatt corrected him and indicated that they could only see 150 feet (Tr. 276).

Mr. Mitchell stated his judgment that at one point in time on December 29, 1992, the bleeder system was inadequate and this was when the 15,000 or more cubic feet of air was returning down the No. 5 heading into the main return, rather than into the gob.

He would have preferred a positive ventilation at that entry, rather than a return. However, he believed this was corrected when the No. 5 entry ventilation was changed and it became an intake (Tr. 280-281). He then, ~~in retrospect,~~ corrected his prior opinion as to the inadequacy of the bleeder, and indicated that his opinion had nothing to do with the bleeder system, but rather, the available air being directed into the gob (Tr. 281-282).

### MSHA's Arguments

#### Fact of Violation

Order No. 2724034, 30 C.F.R. 75.334(b)(1)

MSHA asserts that after an exhaustive investigation, it determined that the explosion that injured five miners resulted from an inadequate bleeder system which allowed methane to accumulate in the gob in the explosive range. MSHA concludes that the body of methane was ignited in the gob by frictional heating or piezoelectric discharges during a roof fall, and it rejects Consol's position that the explosion was the result of a sudden and unpredictable release and inundation of methane from the overlying roof strata.

MSHA argues that the clear intent of section 75.334(b)(1) is to prevent an accumulation of methane which could result in an explosion, and it maintains that the evidence is overwhelming that the 2-1/2 section bleeder system was not in compliance with the requirements of section 75.334(b)(1) on December 29, 1992, when the explosion occurred.

In support of its theory that a body of explosive methane in the gob caused the explosion, MSHA asserts that the credible eyewitness testimony of Mr. Whitaker and Mr. Dean reflect that the flames came out of the gob. MSHA further relies on the fact that the gassing off of the miner machine prior to the explosion was an indication that the bleeder system was failing and allowing methane to accumulate in the gob. Since the section had not previously encountered significant amounts of methane, MSHA

concludes that it was unlikely that pockets of methane would be encountered in quantities that were encountered when the miner gassed off, particularly since the miner gassed off at least three times a few hours prior to the explosion. MSHA rejects Consol's arguments that it was purely coincidental that these events occurred so close in time, and takes the position that such a coincidence is highly improbable and completely unsupported by any credible evidence.

MSHA argues that the only evidence to support Consol's theory is the testimony of its expert witness Donald Mitchell. However, MSHA asserts that the evidence relied on by Mr. Mitchell is not credible, and his opinions and conclusions are likewise not credible. MSHA points out that Mr. Mitchell based his opinion upon a ventilation survey done two years prior to the existence of the 2-1/2 section, a partial survey by Consol engineers after the explosion which Mr. Mitchell admits contained errors, non-existent eyewitness statements that the explosive flame came from the roof, and his own observations when he visited the section more than a year after the explosion.

In further support of its case, MSHA states that Mr. Mitchell's observations are not credible. MSHA argues that in his deposition, Mr. Mitchell stated that when he went to the section he was able to see through the gob from the No. 3 and 4 entries and was able to see the drill holes at the back side of the gob. However, MSHA points out that these statements were contradicted by every witness, including Mr. Hrovatic and Mr. Crutchfield who testified it was impossible to see to the drill holes from where Mr. Mitchell was because a cap lamp would not shine that far and because the roof in the gob had caved in.

MSHA notes that Mr. Mitchell changed his testimony on this point at the hearing after hearing the other witnesses contradict his deposition statements.

MSHA takes issue with the accuracy of Mr. Mitchell's statements and observations about the gob roof conditions and the source of the flame at the time of the explosion in a paper that he published on wind blasts caused by rock falls. MSHA maintains that Mr. Mitchell's theory that the explosion was the result of a sudden release of methane from the roof is not plausible, and it concludes that his testimony was designed to justify Consol's theory regarding the cause of the explosion. In this regard, MSHA points to a report submitted by Consol pursuant to Part 50 of the regulations explaining the cause of the accident which states that the methane gas was liberated from the Pocahontas # 5 seam with the pillar fall. Amonate # 31 Mine produces coal from the # 4 seam, which lies below the # 5 seam@ MSHA

concludes that it is clear that rather than reviewing the facts and then drawing conclusions from those facts, Mr. Mitchell developed a theory which would substantiate a conclusion which had already been reached months earlier by Consol. Under the circumstances, MSHA believes that Mr. Mitchell's conclusions and opinions in this matter should be given no weight.

MSHA argues that the evidence supports a finding that the explosion resulted from an ignition of a body of methane in the gob, and that the methane was allowed to accumulate because the bleeder system was inadequate. MSHA asserts that the manner in which the bleeder system was set up, and because it was not being properly evaluated, allowed the methane to accumulate in the gob. MSHA points to the testimony of Mr. Wirth and Mr. Uhl that the bleeder system was not adequately ventilating the worked-out area between the pillar line and the drill holes because the drill holes were not allowing enough air to exit through that location and because the other regulators on the left side of the section caused the air going into the gob to go directly to where those regulators were located and to simply sweep the fringe area of the gob.

MSHA further argues that all of the testimony presented by both sides indicates that a minimum of 10,000 to 12,000 cubic feet per minute of air was considered to be the amount of air flow necessary at the drill hole regulator on the back side of the section to adequately ventilate the gob. MSHA cites Mr. Wirth's testimony that at the time of the explosion slightly more than 2,000 cfm of air was going through the drill holes, and that at no time was more than 2,828 cfm going through the holes.

With regard to Mr. Hrovatic's testimony that he measured a greater amount of air flow at the drill holes, MSHA concludes that these measurements were not reliable because Mr. Hrovatic improperly used an anemometer to make the measurements. Further, MSHA emphasizes the fact that no other witness contradicted Mr. Wirth's testimony concerning the amount of air going through the drill holes, and that Mr. Mitchell agreed that Mr. Wirth's calculations were consistent with the best engineering principles.®

MSHA asserts that an additional factor contributing to the inadequacy of the bleeder was the fact that the regulators on the left side of the section were drawing the air along the pillar line. MSHA relies on the testimony of Mr. Wirth and Mr. Uhl that the air flow pattern in the gob was such that as the air entered the gob from the section, and it followed the path of least resistance, and split toward the left hand side of the section, skirting the fringe of the gob, and traveled to

the left side regulators. Since the air between the pillar line and the drill holes was a path of relatively high resistance because the roof in the gob had caved in, and because only slightly more than 2,000 cfm was exiting the drill holes, MSHA believes that the rest of the 17,000 cfm that was measured going into the gob must have been going to the regulators on the left side of the section.

In response to Consol's argument that because the section foreman measured 17,000 cfm of air going up the No. 5 entry into the gob, there was adequate ventilation of the gob, MSHA points out that, as explained by Mr. Wirth, measuring the amount of air entering the gob gives only one component of the bleeder system, and that in order to effectively evaluate the entire bleeder system Consol needed to determine the air flow patterns or distribution of air throughout the gob, where the air was exiting the gob, and the methane and oxygen concentrations at the points where the air exited the gob into the return entry.

MSHA concludes that it has proved by much more than a preponderance of the credible evidence that there was a body of methane in the gob which was ignited and that the body of methane was able to accumulate because there was an insufficient amount of air going through the worked out areas of the gob to dilute and render harmless that methane, and that even superintendent Wyatt did not seriously dispute that the bleeder system, as it was set up on December 29, 1992, was unacceptable. Accordingly, MSHA believes that the order should be affirmed.

Order No. 2724034, 30 C.F.R. 75.364(a)(2)

MSHA argues that section 75.364(a)(2) requires Consol to evaluate the effectiveness of bleeder systems every seven days. It points out that the order states that mine superintendent Wyatt and mine foreman Crutchfield indicated that no one was examining the bleeder regulator and that the area was inaccessible. MSHA asserts that the evidence establishes that the only evaluation of the bleeder that Consol was doing was taking air readings on the active section and at BEP 10, and that there is no dispute that persons were not traveling the return entry to where any of the regulators were prior to the explosion on December 29, 1992. In response to Consol's position that the approved ventilation plan allowed them to evaluate the bleeder system by using cross-sectional readings taken on the section, MSHA maintains that given how the section was developed, cross-sectional readings were not an effective method for evaluating the bleeder system.

In support of the violation, MSHA argues that even assuming that cross-sectional readings was an approved and effective method for evaluating the bleeder, Consol was not even taking proper cross-sectional readings in that such air readings must be taken in the intake, return, and belt entries. In this case, MSHA states that the most recent entry in the weekly examination book, dated December 21, 1992, shows that readings were taken only in an intake entry and in the belt entry, and that Mr. Crutchfield testified that these readings alone do not provide the necessary information for determining how much air was entering the gob. Further, MSHA points out that as explained by Mr. Wirth, although cross-sectional readings would have been an effective means of evaluating the bleeder when the section was initially intended to be developed, with one exit point in the gob for the air to enter the bleeder entry, once Consol deviated from its initial projections and installed the other regulators on the left side of the section, cross-sectional readings would not enable Consol to determine where the air was going once it entered the gob.

MSHA takes the position that Consol's mining of the section out of sequence is not, in and of itself, a violation of anything, so long as the actual mining sequence does not create a hazardous condition. Conceding that the original ventilation plan supplement allowed for cross-sectional readings as an acceptable method for evaluating the bleeder under the scenario presented to Mr. Walls, MSHA maintains that there is no question that the scenario presented to Mr. Walls is not what was present on the section on December 29, 1992 and that any reasonably prudent mining person would know that cross-sectional readings were not an effective method of evaluating the bleeder system. Since there was more than one bleeder outlet where the air exited the gob into the bleeder entry, MSHA concludes that there was no way for Consol to know where the air was going in the gob. Under these circumstances, MSHA concludes that the only information that Consol could obtain from cross-sectional readings was limited to only one component of a bleeder system, namely, how much air was going into the gob.

MSHA argues that Consol did not follow the original mining plan in that the intended projections were not followed, additional regulators were installed, a proper regulator was not established on the back side of the section, the agreed upon amount of air at that proposed regulator was not provided, the left side of the gob was not ventilated with intake air, and the regulators at the back side of the gob were all inaccessible, despite Mr. Wyatt's representation to Mr. Walls that the area near the drill holes could be examined.

In response to Consol's assertion that BEP 10 was the bleeder evaluation point for the section, MSHA agrees that the air was going to that location, but disagrees that this establishes that it was the section evaluation point. MSHA points out that air in excess of 200,000 cfm was going to BEP 10, including, at most, 64,000 cfm that was from the 2-1/2 section. Therefore, MSHA concludes that readings at BEP 10 would not have been an effective way to evaluate the section bleeder system, and the weekly examination entries for the section do not list readings taken at BEP 10.

In response to Consol's suggestion that any inadequacy resulting from cross-sectional readings was Mr. Walls' responsibility because he approved that method of evaluating the bleeder, MSHA states that it is clear that cross-sectional readings were approved on the basis of conditions quite different from those present on December 29, 1992. MSHA points out that there was a myriad of conditions and circumstances which could not possibly have been anticipated by Mr. Walls, such as Consol altering its projections for developing the section, or not installing a regulator where one was proposed. In any event, MSHA believes that Consol must be held responsible for ensuring that an adequate bleeder system is provided where one is required, and that the results of not doing so are gravely obvious from the events that occurred giving rise to this case. MSHA believes that Consol failed in this obligation, and that the order should be affirmed.

#### Consol's Arguments

With regard to the inadequate bleeder system violation, Consol asserts that in order to prove a violation, MSHA must establish by a preponderance of the evidence that the bleeder system did not move the methane-air mixtures away from the section and into a return air course. Consol believes that MSHA has failed to carry its burden because the evidence established that the ventilation on the section at all relevant times moved methane-air mixtures from the working areas, through the gob, and into the return.

Consol argues that its theory regarding the cause of the ignition is supported by expert witness Mitchell's analysis based on the existing evidence and well known scientific principles. Consol concludes that MSHA's investigators and experts ignored key evidence that should have cast doubt on their theory that the explosion resulted from the ignition of accumulated gob gases. In this regard, Consol asserts that

MSHA's characterization of the ignition as an explosion is not in accordance with the definitions of those phenomena developed at the Bureau of Mines experimental mine as testified to by Mr. Mitchell in a paper he co-authored distinguishing the damaging forces of ~~A~~explosions~~@~~ and ~~A~~ignitions~~@~~.

In support of its theory that the ignition was caused by a spontaneous outburst of methane from the type of sandstone roof found on the section, Consol relies on the eyewitness testimony of Wayne Dean that he observed the roof ~~A~~set down~~@~~ one to two inches, followed by a blue flame coming from the roof crack, and Mr. Mitchell's explanation that the existence of a blue flame is associated with higher concentrations of methane such as would be released in spontaneous outbursts from the sandstone roof. Consol further relies on Mr. Mitchell's testimony that the observation of a return flame by the miners, and the lack of flame damage in all directions, is consistent with a spontaneous methane outburst from the roof, and supports his conclusion that the methane ignition did not originate in the gob.

Consol asserts that MSHA's theory regarding an accumulation of gob gases appears to be based upon a misunderstood notation on the approved section ventilation plan. Consol points out that the inspector noted in the order that ~~A~~[t]he approved ventilation map indicates that the back side of 2-1/1 section, MMU 015, can be examined~~@~~. Given that mine superintendent Robert Wyatt and mine foreman Danny Crutchfield had informed investigators that the area at issue was inaccessible and could not be examined, Consol suggests that the investigator apparently concluded that the bleeder system must have been inadequate, and must have been the cause of the ignition.

Consol maintains that MSHA's theory is full of unexplained holes and significant omissions. As one example, Consol points out that while Mr. Mitchell relied upon personal observations and accounts of witnesses who gave a precise indication of the point of ignition, MSHA's expert witness, Clete Stephan, did not consider any witness accounts, and could only state that the ignition point was somewhere in by the continuous miner at an undetermined point somewhere along the gob fringe area. Further, Consol asserts that Mr. Stephan and MSHA expert Wirth contradicted each other with respect to the origin of the ignition, and that Mr. Wirth theorized that it occurred at the crack viewed by Mr. Dean, and that the flame traveled back into the gob and ignited accumulated methane. Contrasted with this is Consol's assertion that Mr. Mitchell supported his theory with an analysis of the rock fall and seams involved, and pertinent scientific literature regarding stress fractures, the methane holding

ability and incentive properties of different types of rock.

Consol cited further examples of omissions by MSHA, including the omission from its accident report of bottle sample methane readings taken by Mr. Wirth at the drill hole regulator.

Consol believes that the samples showed that the gob ventilation was sufficient to move air and gases through the bleeder drill holes in quantities and at velocities sufficient to dilute and render harmless methane contained in the gob.

Consol cites the failure of Mr. Wirth to recognize the significance of the 2.2 inch water gauge reading he obtained from the bleeder system, and his lack of understanding of the relation of pressure differentials and air flow in evaluating the effectiveness of the bleeder system. Mr. Mitchell, on the other hand, made it clear that such water gauge readings are a key element in evaluating bleeder systems, and that a 2.2 reading is considered ~~A~~outstanding.@

Consol points out that while Mr. Wirth indicated that a fall in barometric pressure caused methane from an unventilated gob area to flow out into the No. 4 push, leading to the gas-offs in that push, and eventually, to the ignition, he failed to include this analysis or information regarding the barometric pressure readings in his report. Mr. Mitchell, however, presented weather data for the month of December, 1992, demonstrating that the slow decrease in barometric pressure occurred too close to the time of the ignition to have any effect on gob gases.

Consol asserts that Mr. Wirth contradicted his own theory regarding the outflow of methane from the gob and indicated that the more likely explanation for the miner machine gas-off was that it hit a pocket of methane, and not that methane was flowing out from the gob. On the other hand, Mr. Mitchell stated that Mr. Bandy's finding of methane in the No. 5 entry return at the time of the gas-offs showed that the bleeder system was working to sweep air away from the active workings into the gob, and then to the return. Mr. Mitchell further opined that the methane that caused the gas-offs emanated from lesser cracks in the sandstone roof of the No. 4 entry, which led to short-lived outflows of methane that were swept away by the ventilating air.

Consol argues that MSHA's experts and investigators have proceeded in this case on the theory that a violation of section 75.334(b)(1) must have occurred because an ignition occurred. Consol asserts that this is contrary to MSHA's own pronounced acknowledgment in Secretary v. Ozark, Inc., 14 FMSHRC 941 (June 1992). Consol further argues that the occurrence of an



accident or fatality is insufficient to establish a violation, especially when eyewitness testimony demonstrates that no hazardous conditions or violations existed prior to the accident. See also: Secretary v. Ideal Cement Co., 11 FMSHRC 1776, 1783 (September 1989), Donovan v. Federal Clearing Die Casting Co., 655 F.2d 793, 797 (7th Cir. 1981), cited by Consol.

Consol argues that unsubstantiated assertions that a bleeder system is inadequate are insufficient to support a finding of a violation. Beckley Coal Mining Co. v. Secretary of Labor, 3 FMSHRC 2593 (November 1981). Relying on several Commission decisions dealing with comparable provisions of the former ventilation regulations, Consol asserts that a bleeder system is considered adequate if air is moving away from the working area, through the gob, into the bleeder and out to a return. If these ventilation facts are established, Consol asserts that a bleeder system will be considered in compliance, even though high levels of methane are located in the gob itself. Itman Coal Co., 2 FMSHRC 1986 (July 1980); Island Creek Coal Co., 15 FMSHRC 339 (March 1993); V-P Mining Co., 15 FMSHRC 1531 (August 1993). Consol concludes that these cases make clear that the test for whether a bleeder system is adequate is whether air is moving through the gob and into the bleeder, and whether methane is being diluted as it travels from the gob, through the bleeders, and into a return.

Consol emphasizes the fact that it was not cited for any violation of its mine ventilation plan, or for failing to construct regulators in a manner preferred by MSHA. Under the circumstances, Consol concludes that MSHA's arguments regarding whether it had air flowing in the appropriate directions in various entries on the section, whether drill holes can be used as regulators, and whether such drill holes are ~~non-combustible~~ are irrelevant to determining liability in this case, except to the extent, if any, they relate to the adequacy of bleeder system ventilation on the 2-1/2 section.

Consol maintains that the cited section was ~~one~~ well ventilated section, typically intaking between 50,000 and 57,000 cfm of air. Consol points out that methane was rarely found on the section, and, when found, concentrations were usually well below one percent, with methane readings of .1 and .2 percent recorded in the Preshift/Onshift Daily Report book for December 28 and 29, 1992, and well within the range of methane readings that former assistant superintendent Hrovatic testified were found on the section.

In response to Mr. Wirth's belief that the presence of even

minimal methane, and the occurrence of a gas-off on a section which typically had no methane problems, should have alerted management that methane was accumulating in the gob and backing up onto the section, Consol relies on the conclusions by the miners and supervisors who investigated the cause of the gas-offs that the machine had hit a pocket of methane, the absence of methane at the gob line across the entire section when examined by Mr. Crutchfield, and the appearance of the gob line curtains demonstrating that positive pressure existed into the gob.

Consol emphasizes several deficiencies in MSHA's theories that the bleeder ventilation was insufficient at the time of the ignition. Consol points out that Mr. Wirth did not dispute the fact that 16,000 to 17,000 cfm of air was flowing over the mining machine into the gob at the No. 5 entry at the time of the ignition, and he failed to take any smoke tests to support his conjecture that the air would skirt the edge of the gob because of the manner in which the bleeder was set up. Consol further concludes that Mr. Wirth's own testimony established that air was entering the gob at numerous points, and some of it was sweeping to the left and entering the bleeder system through the two left regulators, while other air swept to the back of the gob entering the bleeder system and right returns through the drill holes. Finally, Consol points out that none of MSHA's witnesses offered an opinion as to what quantity of air is necessary to adequately ventilate a gob, and Mr. Uhl stated that no regulation exists specifying any particular air quantity.

With regard to the alleged failure to perform adequate weekly examinations of the bleeder system to determine the effectiveness of the system, Consol asserts that in order to prove a violation, MSHA must establish that Consol failed to take methane and oxygen measurements and air direction tests at locations approved in the ventilation plan. Consol concludes that MSHA has not met its burden, since the preponderance of the evidence established that the locations for methane and oxygen measurements were approved in the ventilation plan in lieu of traveling the bleeder, the required measurements and tests were conducted not only weekly, but at least daily and, if necessary, more frequently at locations approved in the ventilation plan.

In response to Mr. Wirth's assertion that Consol failed to conduct weekly examinations that could have detected the pre-ignition body of methane that flowed from the gob, Consol points out that Mr. Wirth admitted that he never reviewed the weekly pre-shift or on-shift books before determining that the alleged methane body could have been detected through such examinations,

but instead supposedly relied upon verbal reports by unidentified others that the examinations were not performed properly. Consol concludes that had Mr. Wirth consulted the examination books, he would have learned that excessive levels of methane had not been detected on the section in the days or weeks preceding the ignition.

Consol asserts that the real dispute in this matter centers on an interpretation of the requirement in 30 C.F.R. ' 75.364(a)(2)(iii) that bleeder systems be traveled weekly in their entirety or to locations approved in the ventilation plan where measurements of methane and oxygen concentrations and a test to determine if the air is moving in its proper direction can be made. Consol contends that this regulatory option allows the required tests to be made at MSHA approved bleeder evaluation points (BEPS) that are typically designated when travel through a bleeder entry would subject an examiner to hazards caused by deteriorating roof and ground conditions.

Consol states that the allegation by Mr. Wirth and Mr. Uhl that the bleeder evaluation was inadequate was based in part on the inaccessibility of the drill hole regulator and the two left side regulators, and Consol's ability to take the required methane and air readings at those locations. Consol concludes that based on a ventilation map notation stating, "[t]his area can be examined," MSHA assumed that at least the bleeder drill hole regulator was required to be accessible, despite testimony by Mr. Walls that the notation was one of convenience placed on the map to avoid the necessity of filing a cut-through plan.

Consol argues that MSHA offered conflicting testimony as to whether regulators are required to be accessible. Consol points out that Mr. Walls stated that regulators not designated as BEPS are not required to be accessible, while Mr. Wirth testified that a specific regulation requires the operator to travel to regulators. However, Mr. Wirth neither cited any such regulation, nor indicated that Consol had been cited for violating the alleged specific requirement. Consol further points out that MSHA's argument that the bleeder system could not be adequately evaluated on December 29, 1992, unless the regulators were accessible, is called into doubt by Mr. Wirth, who testified that he was able to develop an effective and reliable ventilation survey for the section, notwithstanding his inability to access the left regulators.

In response to MSHA's contention that Consol invalidated the bleeder evaluation methane approved by Mr. Walls when it deviated from the ventilation plan approved mining sequence by first driving to the left, rather than straight to the back of the section, Consol maintains that an approved and adopted plan must

provide it with notice as to what is required for compliance. Based on all of the testimony, Consol concludes that Mr. Wyatt and Mr. Crutchfield had absolutely no indication that Mr. Walls was requiring that the section be driven first directly to the back, that driving to the left first would invalidate the use of cross-sectional readings for bleeder evaluation, or that BEP-10 was not the designated BEP for the section.

Consol asserts that both Mr. Walls and Mr. Wyatt relied on the ventilation map markings as a means of understanding the ventilation plan requirements, and that Mr. Walls initially testified that markings on the face of the ventilation map indicated to him that cross-sectional readings were to be used as the approved bleeder evaluation method, and that air on the section must pass through BEP-10 to get to the fan. Though Mr. Walls later contradicted himself, arguing that air from the section did not directly pass through BEP-10, Consol concludes that his original testimony lends support and credence to the argument of Mr. Wyatt and Mr. Crutchfield that their understanding was that the bleeder system was to be evaluated by taking cross-sectional readings and conducting the required measurements and tests at BEP-10. Consol further concludes that its interpretation of the MSHA approved ventilation map and plan as permitting the use of cross-sectional readings and evaluations at BEP-10 was not only reasonable, but supported by Mr. Wyatt's past dealings with Mr. Walls and MSHA.

### Findings and Conclusions

#### Fact of Violation - Order No. 2724034

Consol is charged with a violation of mandatory safety standard 30 C.F.R. 75.334(b)(1), because of its alleged failure to provide an adequate bleeder system for the cited 2-1/2 section on December 29, 1992. The order, on its face, states that the bleeder system did not control the air passing through the worked-out area to continuously dilute and move away methane air-mixtures from the active workings and into a return air course. MSHA has the burden of proving these allegations by a preponderance of the credible evidence. Section 75.334(b)(1) provides as follows:

During the pillar recovery a bleeder system shall be used to control the air passing through the area and to continuously dilute and move methane-air mixtures and other gases, dusts, and fumes from the worked-out area away from active workings and into a return air course or to the

surface of the mine.

As noted earlier, the event which resulted in these penalty proceedings occurred on December 29, 1992, nearly three years ago. Following a rather extensive accident investigation which began the day after the incident, and continued into January and February, 1993, MSHA concluded that the explosion occurred as a result of methane accumulations in the gob area of the 2-1/2 section due to an inadequate bleeder system and management's failure to properly examine the bleeder to determine its effectiveness.

In the course of the hearing, the parties went to great lengths in examining the cause and effect of the ignition or explosion. MSHA believes that the explosion occurred after an explosive body of methane that was allowed to accumulate in the gob was ignited during a roof fall in the gob. Consol believes that the ignition did not originate in the gob, and that it was caused by a spontaneous and unpredictable outburst from a sandstone roof crack that had suddenly developed in the roof area where the continuous miner was mining immediately before the incident.

After careful review and consideration of the entire record in these proceedings, I cannot conclude that MSHA or Consol has, with any reasonable degree of evidentiary certainty, established the cause of the ignition or explosion. In my view, both parties presented speculative causation theories based on after-the-fact best guesstimates, assumptions, and opinions based on information that I find conjectural, contradictory, or unreliable. Under the circumstances, I can only conclude that the cause of the accident remains unknown.

MSHA Inspector Frank Walls confirmed that he has no formal college or engineering training, but nonetheless has been involved with the review and approval of mine ventilation plans since 1990, and was directly involved in the plan approval process for the cited section. The testimony by Mr. Walls is primarily directed to the plan provisions. He was not involved in the accident investigation or the issuance of the violations, and he could not comment on whether or not the section bleeder system was adequate. With regard to the violation, he believed it was issued because the additional regulators that were installed were inaccessible and did not provide a means for evaluating the gob area.

Although Mr. Walls believed that accessible additional regulators in the gob area would provide a better means of evaluating

the overall ventilation, he agreed that the installation of any projected ventilation controls are discretionary and not mandatory, and that Consol could have installed them as needed.®

With regard to the accessibility of the additional regulators that were on the section at the time of the ignition, Mr. Walls confirmed that he had no knowledge as to whether they were in fact accessible. With respect to the map notation indicating that the drill hole regulator was accessible, I am convinced that the notation was made as a matter of convenience to avoid undue delay in the processing of the supplemental ventilation plan and that Mr. Walls was aware that this was the case. Further, with respect to any conversations that may have taken place between Mr. Walls and mine officials during the ventilation plan approval process, MSHA suggests that they were part of the understanding as to how the section would be developed and ventilated (Tr. 237). However, Mr. Walls testified that any such discussions, not incorporated as part of the approved plan are not controlling (Tr. 11).

Retired section foreman Billy Bandy, who was called by MSHA as a witness, and who was the foreman at the time of the ignition, testified that his on-shift examination included a determination as to whether the bleeder was operating properly, and he was of the opinion that the 17,000 cfm of air going over the mining machine and into the gob, and his air checks and observations of air pressure against the ventilation curtains, indicated to him that the bleeder was operating properly and that there was good positive air flow across the gob. Mr. Bandy's testimony regarding the air flow into the gob stands un rebutted.

MSHA Inspector Donald White, whose participation in the post-ignition accident investigation was limited to a rock-dust survey, confirmed that he had no input into the issuance of the violations. The record reflects that he collected his samples on January 4-5, 1993, and he was of the opinion that samples taken immediately prior to or close to the day of the ignition would better indicate the conditions that existed on the day of the ignition, as opposed to samples taken six or seven days later, and that an ignition or an explosion would have some effect on his sample results.

MSHA principal engineer Clete R. Stephan, who was qualified and accepted as an expert in explosions and mine fires, tendered opinion testimony concerning the probable cause and effect of the explosion. With regard to Mr. Stephens discussions concerning the ~~A~~Extent of Flame Forces,@ at page 25 of MSHA's Accident Investigation Report, I take note of his statement that part of the information in support for his conclusions ~~A~~was gathered during the underground investigation from discussions with persons who are knowledgeable of the facts surrounding the explosions,@ and from ~~A~~reports on the condition of the surviving victims after the explosion.@ However, during the hearing, Mr. Stephan testified that he was not aware of any eye witness testimony prior to writing his report, that he did not interview any of the miner eye witnesses who were on the section at the time of the explosion, and that he had not reviewed Mr. Deans statement to MSHA or State investigators with respect to what he saw when the ignition occurred.

Mr. Stephan further confirmed that he was in the mine only one time on January 4, 1993, for less than one shift. With regard to any opinion on his part as to whether the bleeder system was adequate, MSHA's counsel stated that Mr. Stephan was not a ventilation expert and that such an opinion was beyond his expertise (see Mr. Stephens previously cited testimony (Tr. 214-215)).

MSHA mining engineer Gary Wirth, who was accepted as a ventilation expert, testified that he was not involved in the review or drafting of the violations issued in these proceedings, that he was ~~A~~somewhat@ familiar with this case (Tr. 182), and that he was ~~A~~in general@ able to render an opinion with regard to the gob air flow that existed on the day of the ignition, and that he had sufficient information ~~A~~in general@ on which to base that opinion (Tr. 169). His testimony is based on a three-day post-ignition ventilation survey that was made on the section on January 4, 5, and 26, 1993. After careful scrutiny of Mr. Wirth's testimony, I have serious reservations

and doubts concerning the accuracy, consistency, and credibility of the information he relied on in support of his opinions and conclusions concerning the inadequacy of the bleeder, and my reasons in this regard follow.

Mr. Wirth stated that the intent of his January 4 and 5, 1993, ventilation survey was to evaluate the section as it was at the time of the December 29, 1992, ignition, and that an attempt had been made to restore the section to its pre-ignition condition. However, he confirmed that he was advised prior to going underground that the section conditions were not the same when the survey was made and that a return regulator was blown out and some of the right side stoppings were damaged and leaking. Although Mr. Wirth subsequently took additional air readings on January 26, 1993, he still relied on his January 4 and 5, 1993, survey information based on conditions that were different from those that existed on the day of the ignition.

I take note of the fact that Appendix G to MSHA's accident report is a ventilation schematic diagram that is labeled Ventilation Schematic Immediately Prior to Explosion and Locations of Equipment, and the report at page 14, authored by Mr. Wirth states that the schematic is a face-ventilation diagram showing the face ventilation at the time of the explosion, followed by a discussion and conclusions concerning the ventilation based on that diagram. Although Mr. Wirth denied that his diagram was at the foundation of his opinion concerning the adequacy of the bleeder system, he acknowledged that he was aware of the conflicting hearing testimony of the miner crew with respect to the accuracy of the information on the diagram.

Although Mr. Wirth was of the opinion that no reasonably prudent mining person would have used cross-section readings to evaluate the bleeder system on December 29, 1992, the MSHA-approved supplemental plan of April 21, 1992, permitted cross-sectional readings. When asked if this were true, Mr. Wirth stated that he was not familiar with the entire ventilation plan and could not state whether the plan allowed or prohibited cross-sectional readings at that time. He also acknowledged that he did not review the plan in formulating his opinion (Tr. 137-138).

In its post-hearing brief, at page 45, MSHA asserts that mine superintendent Wyatt did not seriously dispute that the bleeder system on December 29, 1992, was unacceptable (Tr. 117).

I have reviewed Mr. Wyatt's testimony in context during his cross-examination (Tr. 112-117) and find that it is not a clear-cut admission as suggested by MSHA. In fact, Mr. Wyatt



explained that no one has convinced him that the bleeder system was inadequate, and he believed, and still believes, that the bleeder was adequate, notwithstanding 2,500 cfm of air passing through the regulator. Further, Mr. Wyatt clarified his response to the question posed, and stated that he would not accept 2,600 cfm of air for that entire panel or for the entire section within the Ahack@ lines shown on the mine map (Tr. 113, 117).

Mr. Wirth testified that the adequacy of a bleeder system is based on several ventilation components, and not solely on the amount of air entering the gob area. He stated that his survey was intended to encompass the air flow entering and leaving the section. However, he confirmed that because of the inaccessibility of several gob exit points, he could not conclusively determine where all of the air flow was going, or the exact amount of air exiting the gob. Further, although anemometer and pitot tube readings were made at the drill holes, the anemometer readings are not included as part of the accident report. He also confirmed that he took a series of bottle samples on January 5 to determine the methane and oxygen content of the air exiting the gob area, but did not believe the test results are included in the accident report. He also believed that one to two percent methane was detected in the samples, and that this would indicate that methane was exiting the gob through the drill holes.

Although Mr. Wirth denied that his inability to reach the left side regulators impacted on his evaluation of the drill hole regulator, he acknowledged his prior deposition statement to accident investigation supervisor Castenon that it was impossible to completely evaluate the section gob area because he could not reach those regulators, and he conceded that it was not possible

for him to perform and develop a complete air quantity balance of the bleeder system. This contradictory and conflicting testimony casts doubts on the accuracy and credibility of Mr. Wirth's survey, and its relevance to the alleged inadequate bleeder system.

Although Mr. Wirth was of the opinion that high methane readings ~~A~~probably would have occurred at the drill holes on the day of the ignition, and that the presence of high methane at the drill holes would have been discoverable by the weekly examinations, he confirmed that he never reviewed the section weekly examination books or the pre-shift or on-shift books for the days preceding the ignition to determine whether air readings were taken at the intake because he did not believe they were relevant. Since Mr. Wirth acknowledge that intake air is a component of a bleeder system, I fail to understand why such air readings would not be relevant to a survey taken to evaluate such a system.

Mr. Wirth's opinion that the requirements of section 75.334(b) were not being met on December 29, 1993, was based on his belief that the limited air quantity and insufficient air velocity in the gob area failed to dilute the methane that had migrated to the high right side gob area. He further believed that the absence of methane on the section in the past, coupled with the one percent methane reading in the No. 5 return, and the gas-off of the miner machine in the No. 4 push with the methane monitor set at 2.5 percent, indicated a problem and an ineffective bleeder system.

With regard to the one percent methane found by Mr. Bandy in the return, Mr. Wirth agreed that the air flow pattern was sweeping the gob gas and reducing it to one percent with the return air leaving the mine, and that the remaining air was exiting through the left side regulators. With regard to the machine gas-off, Mr. Wirth conceded that the air sweeping the gob area diluted and dissipated the methane that caused the gas-off. Although he was of the initial opinion that the machine gas-off was not the result of a methane ~~A~~pocket, he later testified that assuming the one percent found by Mr. Bandy occurred with the machine gas-off, a release of methane was possible. He agreed that the return was doing the job of sweeping and diluting the return air away from the working face.

With regard to his ~~A~~body of methane theory, Mr. Wirth initially could not state whether it reached the No. 5 entry, but in fact later expressed his belief that it did not appear in that entry because there was sufficient ventilation at that location. He also agreed that the concentration of any methane

body is indeterminable and could vary within seconds in different mine areas. I believe this lends some credence to Conso's theory of a sudden release of methane from the roof strata, rather than a gob build-up resulting from an ineffective bleeder system.

Even though he believed that the bleeder system was inadequate, Mr. Wirth acknowledged that based on his bottle sampling on January 5, 1993, the methane percentage exiting one of the drill holes was less than it probably was when it entered the gob, and that this would indicate that it was being diluted and mixing with the air before exiting into the bleeder return air course. With regard to his opinion that changed air flow patterns moved the body of methane back into the gob area, Mr. Wirth acknowledged that his opinion was speculative, but also stated it was based on ventilation engineering knowledge. I cannot reconcile this inconsistent and contradictory testimony, nor can I accept it as reasonable evidentiary support for any conclusion that there was in fact a lack of sufficient air in the gob to dilute and carry away methane through the return. Indeed, the evidence, including Mr. Wirth's testimony, establishes otherwise.

MSHA Inspector Uhl confirmed that he has a high school education, is not a mining engineer, has no degree in anything related to mining or mine ventilation, and his past experience in the mining industry does not include ventilation plan submissions to MSHA. Mr. Uhl testified that the only injured miner he interviewed was Mr. Dean, and the record reflects that Mr. Dean was not called as a witness in this case by MSHA because his credibility was in doubt. Mr. Uhl further testified that his conclusion that an explosive range of methane was present in the gob area was based on the fact that it was obviously there since an explosion occurred. However, as correctly argued by Consol in its post-hearing brief, the occurrence of an accident or an injury does not ipso facto establish a violation, or a violative condition, particularly in the absence of any reliable evidence establishing the cause of the accident with any reasonable degree of certainty. Conso's expert witness Mitchell was also of the opinion that the occurrence of any ignition does not establish a poorly or improperly ventilated gob area (Tr. 230).

Mr. Uhl believed that the bleeder system began to fail earlier than December 29, 1992, and he confirmed that even though MSHA was aware of violations of the ventilation plan, no violations were issued because, as stated by Mr. Uhl, we elected not to because of a grace period and some other

confusion@ (Tr. 212). It seems to me that if MSHA believed that Consol was in violation of its approved plan, it should have cited the particular violative conditions, rather than attempting to establish an inadequate bleeder system through post-ignition investigative assumptions, theories, and conclusions based on conjecture, speculation, and contradictory information and testimony that I find lacking in credible evidentiary support.

Mr. Uhl testified that one of the reasons he believed the bleeder system was inadequate was because Consol failed to follow the initial mining projections, particularly with respect to the projected regulators. However, Mr. Walls testified that projections are not enforceable as violations until they are specifically incorporated as part of the MSHA-approved ventilation plan (Tr. 209). He also confirmed that Consol was free to mine in any direction and sequence within the pink hash marks@ shown on the mine map.

Although Mr. Uhl believed that the bleeder system was no longer effective when Consol deviated from its projections and lost access@ to the two previously established regulators when it began pillaring the section, he admitted that he was aware of no evidence that ventilation evaluations were not being made while mining was conducted to the left side of the section because he did not recall looking into that and did not consider or evaluate this activity. He indicated that the scope of his investigation consisted of looking at the overall picture as to what occurred here and what led up to it@ (Tr. 258). Mr. Uhl later testified that the area mined to the left was being evaluated by cross-sectional ventilation readings, and once the regulators became inaccessible, cross-sectional ventilation readings could be made. I find Mr. Uhl's testimony to be confusing and contradictory. On the one hand, he believed that the bleeder was no longer effective when access to the regulators was lost, and on the other hand, he stated that notwithstanding the loss of access to the regulators, cross-sectional ventilation evaluations would be permissible. As a matter of fact, he confirmed that full and partial cross-sectional ventilation readings were made on the section, but he did not believe they were relevant to any evaluation of the bleeder.

I am convinced that MSHA's post-ignition investigatory conclusion that the bleeder system was inadequate was based on two principal factors, namely, the occurrence of the ignition, and the assumption that there was insufficient air flow through the drill hole regulator to dilute and render harmless the body of methane@ that MSHA assumed was accumulating in the gob area.

As noted earlier, the occurrence of the ignition is not, in of itself, evidentiary proof of an inadequate bleeder system.

With regard to the amount of air that may have been passing through the regulator immediately prior to the ignition, Mr. Walls testified that there was no way of pinpointing the amount of air going out of the regulator (Tr. 55). He confirmed that any discussions concerning the ventilation requirements are not binding unless reduced to writing and incorporated as part of the approved ventilation plan. I find nothing in any of the ventilation plans approved by MSHA requiring 10,000 cfm of air through the drill hole regulator, and Mr. Walls confirmed that ~~A~~we did not write that on anything~~@~~ and that none of the relevant ventilation plans contain any such notation (Tr. 61). Mr. Uhl confirmed that there is no regulatory requirement for any specific amount of air through a regulator.

Mr. Walls further clarified his testimony concerning the requirement for a minimum of 9,000 cfm of air at the pillar intake. He explained that this is the amount of air going into the gob area as a whole, and not what is required through the regulator (Tr. 58). Further, MSHA's counsel confirmed that although there is no regulatory requirement for any specific amount of air passing through the regulator, Consol would be held to a standard of adequacy ventilating the system~~@~~ (Tr. 60). When asked if the reported 2,360 cfm~~s~~ air exiting the regulator was relevant to that key issue, counsel responded, ~~A~~we will let the experts discuss that~~@~~ (Tr. 60).

Mr. Wirth~~s~~ post-accident air measurements of January 5, 1993, at the drill hole regulator showed 2,037 cfm of air passing through the holes, and re-measurements made at Conso~~l's~~ request on January 27, 1993, showed just over 2,000 cfm. Using these readings, Mr. Wirth concluded that at no time prior to the explosion was there more than 2,828 cfm of air going through the drill holes.

Mr. Hrovatic testified that he measured 5,000 to 6,000 cfm of air passing through the regulator when the holes were drilled at 1-1/2 inch diameters, and he described the measuring instrument as a standard, three or four inch anemometer larger than the measured holes. After the holes were enlarged to three inches, Mr. Hrovatic calculated 6,000 to 7,000 cfm~~s~~ of air passing through the holes, using the same type anemometer and following the same procedures as his prior calculations. Mr. Wyatt testified credibly that Mr. Hrovatic informed him that 6,000 cfm of air was going through the 1-1/2 inch diameter holes, and when five of the holes were enlarged to three inches, 6,000 to

8,000 cfm was passing through the regulator (Tr. 123). Although Mr. Wirth believed that Mr. Hrovatic's use of an anemometer was improper, I note that he too used such an instrument in making his survey.

Mr. Uhl believed that with only 2,000 cfm of air passing through the regulator, a methane-air mixture was exiting through the regulator holes and into the return air course. Mr. Wirth believed that methane was exiting the gob through the regulator, and, as noted earlier, he acknowledged that the air flow pattern was sweeping the gob gas and reducing it to one percent and diluting it with the air leaving the mine, and that the air sweeping the gob was diluting and dissipating the methane that caused the miner machine to gas-off. This is precisely what a bleeder system is designed to do, as required by cited section 75.334(b)(1). Under all of these circumstances, I remain unconvinced that the amount of air that MSHA assumed was passing through the regulator, a factor that is but one component of the total bleeder system, supports a conclusion that the bleeder was inadequate and failed to provide a means for controlling the air passing through the cited gob area to continuously dilute and move away methane-air mixtures from the active workings and into a return air course. Accordingly, I conclude and find that MSHA has failed to establish a violation of section 75.334(b)(1), and the contested order **IS VACATED**.

Fact of Violation - Order No. 274035

Consol is charged with a violation of mandatory safety standard 30 C.F.R. 75.364(a)(2), because of its alleged failure to perform adequate weekly examinations to determine the effectiveness of the 2-1/2 section bleeder system. Section 75.364(a)(2) provides as follows:

At least every 7 days, a certified person shall evaluate the effectiveness of bleeder systems used under ' 75.334(b) and (c) as follows:

(i) Measurements of methane and oxygen concentrations and a test to determine if the air is moving in its proper direction shall be made where air enters the worked-out area.

(ii) Measurements of methane and oxygen concentrations and a test to determine if the air is moving in its proper direction shall be made immediately before the air enters a return split of air.

(iii) At least once each week, bleeder entries used as a part of a bleeder system under ' 75.334,

shall be traveled in their entirety, or to locations approved in the ventilation plan where measurements of methane and oxygen concentrations and a test to determine if the air is moving in its proper direction can be made.

The initial mine ventilation plan approved by MSHA pursuant to 30 C.F.R. 75.316, on September 15, 1989, prior to the development of the 2-1/2 section, provided for the evaluation of bleeders when travel to those areas was unsafe. (Item 14, at page 4 of the plan, Exhibit G-39). Under this provision, a bleeder evaluation was required at least once each week, and the evaluation method was left to the discretion of Consol pursuant to section 75.316-2(f)(2), which simply required an adequate evaluation.

The first supplement to the approved ventilation plan was submitted to Mr. Walls on March 16, 1992, by Consols mining engineer Frank Underwood, and it included a diagram of projections for the 2-1/2 panel, which contains a hand-written notation indicating that upon retreat mining the bleeder system will be evaluated by the difference in the intake and return readings on the section. The plan supplement, including this cross-sectional bleeder evaluation method, was approved by MSHA on April 21, 1992 (Exhibit G-40).

A subsequent ventilation plan supplement was submitted to Mr. Walls by Mr. Underwood on September 1, 1992, covering the pillar line and bleeder controls for the 2-1/2 panel. A mine map was included as part of the submission, and it contains the notation, "[t]his area can be examined" at the approximate location of the drill hole regulator (Exhibits G-41 and R-28).

It would appear to me from the foregoing plan approvals that Consol was permitted to generally conduct an adequate evaluation of its bleeders, and this was to be done at least once a week. During retreat mining, Consol was permitted to evaluate the bleeder system by cross-sectional readings. The subsequent approved supplemental plan, which contained the mine map notation indicating that the bleeder area could be examined, did not specifically revoke or otherwise affect MSHA's prior approval of cross-sectional readings as an adequate method for evaluating the bleeder. In short, it was still in effect on December 29, 1992.

The essence of the alleged violation is found in subsection 2(iii) of section 75.364(a), which requires weekly examinations of the effectiveness of a bleeder system by traveling to a bleeder entry used as part of a bleeder system, or to other locations approved in the ventilation plan, and making measurements of the methane and oxygen concentrations and testing to determine whether the air is moving in its proper direction. My interpretation of this evaluation requirement is that Consol had two options for insuring the effectiveness of the bleeder regulator in question. The first option was to travel to the regulator area and make the required tests. If this could not be done, Consol could make the tests at another location approved in the ventilation plan.

Mr. Wirth, who confirmed that the location of BEP-10 was never clear to him, and that he was not sure that he ever traveled to that area, believed that a violation occurred because no one was traveling to the inaccessible regulators to test for methane, air, and air direction.



I find MSHA's testimony concerning the accessibility of the cited regulator to be confusing and contradictory. Mr. Wirth testified that the regulator was required to be examined weekly ~~by~~ law,<sup>@</sup> but this was not done because it was inaccessible (Tr. 78-79). However, Mr. Walls confirmed that a regulator that is not designated as a BEP point was not required to be accessible (Tr. 48-49). Since the regulator in question was not a designated BEP point, I conclude that Consol was not obliged to keep it accessible as long as it provided an alter-nate plan approved location where methane and air readings could be made. Consol asserts that this location was BEP-10. Mr. Uhl testified that once the regulator became inaccessible, cross-sectional readings to evaluate the bleeder could be used (Tr. 276). This lends support to Consol's assertion that cross-sectional readings, coupled with the recorded BEP-10 air and methane readings, complied with the cited standard.

In view of the MSHA approved cross-sectional readings evaluation method during retreat mining, it would appear to me that this evaluation method was still available to Consol, notwithstanding the notation that the bleeder was accessible when in fact it could not be traveled.

MSHA concedes that Consol was not prohibited from mining out of sequence within the established parameters of the 2-1/2 section, and agrees that air readings were taken on the section and at BEP-10. MSHA further agrees that cross-sectional readings were an effective means of evaluating the bleeder regulator when the section was initially developed. The crux of MSHA's case is that once Consol deviated from its initial mining projections and installed additional regulators, it could no longer rely on cross-sectional readings because access to those regulators was lost when the area was mined out, and there was no effective way of monitoring or evaluating the air ventilating the gob. MSHA also disputes Consol's claim that BEP-10 was the bleeder evaluation point for the section.

Consol's pre-shift and on-shift daily inspection reports for the 2-1/2 section reflect that daily inspections for hazardous conditions, methane in the working places, and methane in the returns were being made immediately prior to December 29, 1992, in the gob line, pillars, returns, intake, and haulage areas (Exhibit G-46). The weekly examination reports of full sectional air and methane readings reflect air readings for October, air readings for November, and air readings in the left and right return entries for December, 1992 (Tr. G-47). The daily reports of examinations for hazardous conditions

and methane include notations for daily tests made at BEP 10 and other intake and return locations for the period October through December 30, 1992 (Exhibit R-2).

Mine foreman Crutchfield, a man with 27 years of underground mining experience, testified credibly that during a preliminary meeting with Mr. Walls concerning the initial mining projections for the section, it was his understanding from the approved ventilation plan that cross-sectional air readings on the section could be used to evaluate the drill hole regulator area, and that BEP-10 would be the section evaluation point (Tr. 67).

With regard to the violation in question, Mr. Crutchfield stated that the bleeder system was evaluated by taking cross-sectional readings, and visits to BEP-10 every 24 hours by the fire boss to monitor any methane (Tr. 100-101). He believed that BEP-10 was the check point for the 2-1/2 panel (Tr. 135), and he identified the weekly examination book records showing the daily examinations of BEP-10 (Tr. 140; Exhibit R-2). He further testified that the ventilation plan print showing the flow of air toward the direction of BEP-10, coupled with these locations shown on the mine map, led him to conclude that BEP-10 was an approved checkpoint for evaluating the bleeder system on the 2-1/2 section, and that this was no different from similar BEP locations in other mine areas (Tr. 147-148).

Mine Superintendent Wyatt, a man with over 40 years of mining experience, including 18 years as a superintendent, and a credible witness, confirmed that during the initial meeting with Mr. Walls, the projected mining and evaluation of the section was discussed. Mr. Wyatt stated that once retreat mining began, the regulator at the back of the section was established to allow air from the gob to pass through the regulator and be routed into the return to BEP-10. Even though air from other areas was routed to BEP-10, Mr. Wyatt was not concerned and believed that this was a safe method for evaluating the 2-1/2 section, and he confirmed that it was normal procedure to use a bleeder evaluation point covering different mine areas (Tr. 49-52). He explained that BEP-10 was monitored daily, and if there was an unusual rise in the methane readings, the working section would be monitored every shift to determine if there was a problem. He believed that Mr. Walls was well aware of the section ventilation system (Tr. 53-60).

Mr. Walls confirmed his discussions with Mr. Wyatt and Mr. Underwood concerning bleeder evaluation during retreat mining. Although he denied that BEP-10 was an approved bleeder evaluation point for the section, Mr. Walls agreed that it was the evaluation point for air coming from other mine areas

through the same drill hole regulator area where air was routed into the return fan area and out the mine (Tr. 215). He agreed that a ventilation plan sketch indicated that the air ventilating the gob area would be routed through the regulator and to BEP-10, which was located near the fan drawing air from the section after it passed through the regulator (Tr. 230, 24).

Mr. Walls testified that all of the aforementioned air from the section routed to BEP-10, ~~A~~has to go through BEP-10 to get to the fan,~~@~~ and he confirmed that once mining started, with the regulator in place, ~~A~~that would be the way it would be evaluated.~~@~~ Further, if the regulator was accessible, cross-sectional readings could be combined with the readings of the air passing the regulator (Tr. 25, 225). This testimony, in my view, lends support to Mr. Crutchfield~~s~~ and Mr. Wyatt~~s~~ belief, which I find reasonably plausible and credible, that cross-sectional readings and the daily air and methane evaluations at the BEP-10 location was an acceptable method for evaluating the cited bleeder.

After careful review and consideration of all of the testimony and evidence with respect to this alleged violation, I conclude and find that MSHA has failed to establish by a preponderance of the credible evidence that Conso~~k~~s weekly examinations of its section bleeder system was less than adequate. To the contrary, I conclude and find that Consol was in substantial compliance with the requirements of the cited standard by using cross-sectional readings and daily monitoring at the BEP-10 location as a reasonably proper method for evaluating the cited bleeder in question. Accordingly, the contested order **IS VACATED**.

Docket Nos. WEVA 94-379 and WEVA 94-380

Mr. Crutchfield and Mr. Wyatt were only cited in these section 110(c) proceedings with allegedly ~~A~~knowingly~~@~~ violating mandatory safety standard 30 C.F.R. 75.334(b)(1), as stated in contested section 104(d)(1) Order No. 2724034. Since I have vacated that order, the section 110(c) proceedings filed against these respondents, including the proposed civil penalty assessments, should be dismissed. In this regard, even if I were to find a violation of the cited standard, I would not conclude that the evidence adduced by MSHA established a ~~A~~knowing~~@~~ violation by Mr. Crutchfield or Mr. Wyatt, within the intent and meaning of section 110(c) of the Act.

**ORDER**

In view of the foregoing findings and conclusions,

**IT IS ORDERED** as follows:

1. Section 104(d)(1) AS&S@ Order No. 2724034, March 3, 1993, 30 C.F.R. 75.334(b)(1), **IS VACATED**, and the proposed civil penalty assessment **IS DENIED AND DISMISSED**.
2. Section 104(d)(1) AS&S@ Order No. 274035, March 3, 1993, 30 C.F.R. 75.354(a)(2), **IS VACATED**, and the proposed civil penalty assessment **IS DENIED AND DISMISSED**.
3. The proposed civil penalty assessments filed against the section 110(c) respondents, Robert G. Wyatt and Danny E. Crutchfield, **ARE DENIED AND DISMISSED**, and these proceedings **ARE DISMISSED**.

George A Koutras  
Administrative Law Judge

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