CCASE: SOL (MSHA) v. VALLEY CAMP COAL VALLEY CAMP COAL v. SOL (MSHA) DDATE: 19850813 TTEXT: Federal Mine Safety and Health Review Commission Office of Administrative Law Judges

> , CIVIL PENALTY PROCEEDING HEALTH MSHA), Docket No. WEVA 84-352 ITIONER A.C. No. 46-061 03-03508

Valley Camp No. 45 Surface Mine

SECRETARY OF LABOR, MINE SAFETY AND HEALTH ADMINISTRATION (MSHA), PETITIONER

v.

VALLEY CAMP COAL COMPANY, RESPONDENT

VALLEY CAMP COAL COMPANY, CONTESTANT

v.

SECRETARY OF LABOR, MINE SAFETY AND HEALTH ADMINISTRATION (MSHA), RESPONDENT CONTEST PROCEEDINGS

Docket No. WEVA 84-168-R Order No. 2127007; 3/6/84

Docket No. WEVA 84-169-R Order No. 2127008; 3/6/84

Docket No. WEVA 84-170-R Citation No. 2127009; 3/6/84

Docket No. WEVA 84-172-R Citation No. 2352241; 3/7/84

Docket No. WEVA 84-173-R Citation No. 2352240; 3/7/84

No. 45 Surface Mine

DECISIONS

Appearances: Janine C. Gismondi, Esq., U.S. Department of Labor, Office of the Solicitor, Philadelphia, Pennsylvania, for the Petitioner-Respondent; Laura E. Beverage and Allen R. Prunty, Esqs., Jackson, Kelly, Holt & O'Farrell, Charleston, West Virginia, for the Respondent-Contestant.

Before: Judge Koutras

Statement of the Proceedings

These consolidated proceedings concern civil penalty proposals filed by MSHA against the Valley Camp Coal Company

pursuant to section 110(a) of the Federal Mine Safety and Health Act of 1977, 30 U.S.C. 820(a), seeking civil penalty assessments for four alleged violations of certain mandatory safety standards promulgated pursuant to the Act. The proceedings also include five contests filed by Valley Camp Coal Company challenging the legality of the citations, and an imminent danger order issued pursuant to section 107(a) of the Act.

Dockets WEVA 84-169-R, WEVA 84-170-R, WEVA 84-172-R, and WEVA 84-173-R concern the contested citations, with "S & S" findings, issued pursuant to section 104(a) of the Act, and Docket WEVA 84-168-R, concerns the validity of the imminent danger order. The civil penalty proceeding, WEVA 84-352, concerns the proposed civil penalty assessments for the four contested citations.

Hearings were held in Charleston, West Virginia, on March 12 through 14, 1985, and April 1 through 4, 1985. The parties were afforded an opportunity to file post-hearing proposed findings and conclusions, and the arguments presented therein have been carefully considered by me in the course of these decisions.

Issues

The issues presented in these proceedings are as follows:

1. Whether or not the conditions and practices cited in the imminent danger order constituted an imminent danger within the meaning of section 107(a) of the Act.

2. Whether or not the conditions or practices described in the citations issued pursuant to section 104(a) of the Act constituted violations of the cited mandatory safety standards, and if so, whether or not these violations were significant and substantial.

Additional issues raised by the parties are identified and disposed of in the course of these decisions.

Applicable Statutory and Regulatory Provisions

1. The Federal Mine Safety and Health Act of 1977, P.L. 95-164, 30 U.S.C. 801 et seq.

2. Commission Rules, 29 C.F.R. 2700.1 et seq.

~1199 Stipulations

The parties agreed that Valley Camp Coal Company is subject to the Act, and that the presiding Judge has jurisdiction to hear and decide these cases. They also agreed as to the identification, authenticity, and admissibility of their respective hearing exhibits. Any objections to the admissibility of any documentary exhibits were heard and disposed of during the course of the hearing, and they are noted where relevant in the findings and conclusions made in these proceedings.

The order and citations at issue in these proceedings are as follows:

WEVA 84-168-R

Section 107(a) Imminent Danger Order No. 2127007, issued on March 6, 1984, states as follows:

The investigation of a fatal haulage accident at this mine revealed that the following conditions collectively constitutes an imminent danger: the haulage roadway extending from the coal pit was not constructed of material selected to insure stability in that a section of the roadway 200 feet outby the pit was constructed of spoil material with cracks and slips along the elevated edge, the width of the roadway was reduced from 25 to 14 feet where the rock haulage truck involved in the fatal accident slipped from the roadway surface resulting in crushing injuries to the operator as the truck overturned while descending the elevated embankment. 77.1605(k). The berm provided along the outer edge of the elevated roadway was not adequate to retain the heavy equipment utilizing the roadway in that loose, unconsolidated earth material was used to construct the berms.

77.1600(c). The haulage roadway involved in the accident was not conspicuously marked or warning devices installed to insure the safety of the workers in that the roadway width was reduced from 25 to 14 feet 2 inches with no markers or devices to indicate the change.

77.1713(a). At least once during each working shift an adequate examination was not made by Ray Hanshaw, day shift foreman, or Lewis Maggard, 2d shift foreman, in that the foreman had traveled the area of the roadway included in the fatal accident and had taken no action to mark the narrow areas, repair the unstable berms, or correct unstable roadway.

WEVA 84-169-R

Section 104(a) Citation No. 2127008, with "significant and substantial" (S & S) findings, citing a violation of mandatory safety standard 30 C.F.R. 77.1605(k), was issued on March 6, 1984, and the conditions or practices cited are as follows:

> The berms provided along the outer bank of the elevated roadway was not adequate to restrain the heavy equipment utilizing the road in that loose, unconsolidated earth spoil material was used to construct the berms. This condition was one of the factors that contributed to the issuance of Imminent Danger Order No. 2127007 dated 3-6-84; therefore no abatement time was set.

WEVA 84-170-R

Section 104(a) Citation No. 2127009, with "significant and substantial" (S & S), findings, citing a violation of mandatory safety standard 30 C.F.R. 77.1600(c), was issued on March 6, 1984, and the conditions or practices cited are as follows:

> The haulage roadway leading to the pit in a fatal accident area was not conspicuously marked or warning devices installed to insure the safety of the workers in that the roadway width was reduced from 25 feet to 14 feet and 2 inches, without markers or devices to indicate the change. This condition was one of the factors that contributed to the issuance of Imminent Danger Order No. 2127007 dated 3-6-84; therefore no abatement time was set.

WEVA 84-173-R

Section 104(a) Citation No. 2352240, with "significant and substantial" (S & S), findings, citing a violation of mandatory safety standard 30 C.F.R. 77.107-1, was issued on March 7, 1984, and the conditions or practices cited are as follows:

Roy Hanshaw, whose work assignments require that he be certified or qualified has not received the required annual training under part 77.107-1 for certified persons in that Mr. Hanshaw has not received annual training courses in the tasks and duties which he performs at this mine as a certified person since December 4, 1982.

WEVA 84-172-R

Section 104(a) Citation No. 2352241, with "significant and substantial" (S & S), findings, citing a violation of mandatory safety standard 30 C.F.R. 77.701-1, was issued on March 7, 1984, and the conditions or practices cited are as follows:

> Louis Maggard, evening shift foreman at this mine whose work assignments require that he be certified or qualified has not received the required annual training under part 77.107-1 for certified persons in that Mr. Maggard has not received annual training courses in the tasks and duties which he performs at this mine as a certified person since December 4, 1982, and therefore has not been trained within the past 12 months.

Procedural Rulings

When the hearing was convened on Tuesday, March 12, 1985, MSHA's counsel moved to amend the civil penalty proposals to allege a violation of section 77.107, as an alternative to the original citation of section 77.101-1, in connection with citations 2352240 and 2352241. In support of the motion, counsel asserted that both sections deal with training programs and may be read and considered together, and that any evidence adduced during the course of the hearing in support of the citations could be used to support violations of either section 77.107 or section 77.107-1, and that the respondent would not be prejudiced since the citations have been abated and respondent's counsel had been previously notified that MSHA would seek to amend the pleadings to conform to the evidence.

Valley Camp's counsel objected to the proposed amendments to the pleadings, and after hearing arguments on the record, the objections were overruled and MSHA's motion to amend was granted from the bench. My ruling in this regard is reaffirmed. I believe it is clear that under Rule 15(b) of the Federal Rules of Civil Procedure, which apply to this case, 29 C.F.R. 2700.1(b), I have the authority and duty

to consider issues raised by the evidence, even if they are not specifically pleaded. Further, in view of the fact that Valley Camp was on notice of the proposed amendment and abated the cited conditions, I cannot conclude that Valley Camp has been prejudiced. The courts have liberally construed the rules concerning pleadings, and have held that they are easily amended, National Realty and Construction Company, Inc. v. Occupational Safety and Health Review Commission, 489 F.2d 1257 (D.C.Cir.1973).

Valley Camp's counsel also raised an objection to the testimony of MSHA's witness, Dr. Wu. The basis for the objection was the assertion that Valley Camp was not specifically informed during the discovery in this case that MSHA intended to call any expert witnesses. In addition, counsel asserted that she had no opportunity to depose Dr. Wu, and that absent this opportunity, she was ill-prepared to prepare for his testimony, or to challenge it.

While it is true that Valley Camp's counsel was advised aproximately a week or so in advance of the hearing that MSHA intended to call Dr. Wu as a witness, Valley Camp's counsel did accompany Dr. Wu during a site visit to the mine on Monday, March 11, 1985, the day before the commencement of the hearing, and had an opportunity to speak with him. It is my understanding that Valley Camp's counsel did in fact speak with Dr. Wu concerning his knowledge of the facts of this case, and that MSHA's counsel had made a profer concerning Dr. Wu's testimony.

After further consideration of Valley Camp's objections to Dr. Wu's testimony, it was denied. In addition, Valley Camp's motion for a continuance of the hearing in order to afford Valley Camp an opportunity to depose Dr. Wu was likewise denied. My rulings in this regard are based on my belief that Valley Camp had adequate knowledge as to the nature of Dr. Wu's testimony, and had a full and fair opportunity to cross-examine him. In addition, the parties were advised that I have discretion to weigh Dr. Wu's testimony in light of his knowledge, or lack thereof, of any specific facts of the case, and that any further continuance of the hearings for the purposes of deposing Dr. Wu was not warranted.

MSHA's Testimony and Evidence

MSHA Inspector Homer S. Grose testified as to his background and experience, and he confirmed that he has been an inspector since 1971, and that his experience includes inspections of underground and surface mines. He has

received training, and has attended surface mining training sessions at MSHA's Beckley Mine Academy and Belmont Technical College. Prior to his employment as an inspector, he was employed in the private mining industry, and has worked as a general laborer, jack setter, section foreman, and mine foreman, and he confirmed that he is a certified mine foreman.

Mr. Grose stated that his prior mining experience includes employment in 1969 with the engineering department of the Island Creek Coal Company. This experience included work in underground and surface mine surveying, and he has worked as a roadman and transitman.

Mr. Grose confirmed that he issued the imminent danger order, the citation for insufficient berms, and the citation for lack of warning devices on the haulage road where a fatal accident occurred on March 5, 1984 (exhibits G-1, G-2, G-3). He stated that these citations were issued after the completion of an accident investigation on March 6, 1984 (exhibit G-7). He confirmed that he was in charge of the investigation and authored the report. The evaluations, discussion, and conclusions which are in the report are based on information and statements he received from miners and management representatives interviewed during the course of the investigation.

Mr. Grose identified exhibit G-4 as a series of 25 photographs taken during the course of the investigation on March 6, 1984, and he explained what was portrayed in each of the photographs. He also explained the basis for each of the numered "evaluations" discussed in numbered paragraphs 1 through 6 of his report of investigation, and confirmed that the information and conclusions stated therein were obtained through his interviews conducted during the investigation. He confirmed that he did not view the haulage road in question prior to the accident, and that all of the information and evidence to support the order and citations which he issued was obtained after the accident during his investigation.

Mr. Grose testified that he issued the imminent danger order because the information he developed during the course of his investigation indicated to him that the roadway was not designed and constructed in a manner consistent with prudent engineering practices. He also believed that the roadway berms were constructed of loose, unconsolidated materials, and that there was loose spoil materials consisting of wet materials, rocks, and loose dirt, which had slipped along the edge of the roadway at the location where

the haulage truck in question had run off the road. He also determined that one portion of the haulage road had been reduced from a width of 25 feet to 14 feet 2 inches, and that this area was not marked or otherwise provided with warning devices to alert or warn the truck drivers. Given these conditions, plus the fact that mine employees reportedly were reluctant to use the road after the accident, he decided to issue the order so as to preclude further use of the road until the conditions could be corrected.

Mr. Grose stated that he measured the axle height of the haulage truck which ran off the road and determined that the distance from the road vertically to the mid-axle of the truck was 22 inches. His measurements of the existing berm heights along certain locations on the roadway were 24 inches, 14 inches, and 18 inches, and the 14 and 18 inch measurements were in the proximity of that portion of the roadway where the truck tires made marks in the roadway before going off the edge. He issued the berm citation after determining that the berm height at the point where the truck left the road was not 22 inches high, and he confirmed that this mid-axle berm height requirement was not in compliance with MSHA's policy guidelines. In addition, he was of the opinion that the berm heights were also insufficient in that the driver of a truck would have difficulty seeing the berm and would be unable to distinguish it from the roadway itself. The inability of the driver to distinguish the berm would impact on safety since the driver would not be able to use the berm to restrain his vehicle.

With regard to the citation for inadequate warning devices on the narrow portion of the roadway, Mr. Grose confirmed that he found no evidence that any such warning devices had ever been installed, and he indicated that mine management did not disagree with his finding in this regard.

Mr. Grose identified exhibit G-8 as a copy of his notes made during the course of his investigation, and he explained how he made his measurements concerning the noted widths of the roadway. He confirmed that the measurements recorded by the mine operator were close to his and only differed by a matter of inches. He explained that the differences were the result of the precise locations and reference points used to make the measurements, and he did not believe that such differences were significant or material (Tr. 58-185).

On cross-examination, Mr. Grose conceded that he had no personal knowledge as to how the haulage road in question

was originally constructed, and he confirmed that no tests or other determinations were made to ascertain the specific materials used in the construction of the haulage road. He stated that he was concerned over the fact that the roadway was not provided with any drainage ditches to allow for water drainage, and he was of the opinion that any water accumulations on the roadway would tend to undermine its stability and would contribute to the slippage of the spoil materials used to support the roadway.

Mr. Grose confirmed that he was not present during the abatement of the order or the citations which he isued. However, he stated that he learned from the inspector who abated the citations that spoil materials were used to construct and repair the roadway, and that the spoil was cut from the highwall side of the haulageway to widen it at the point where it was originally narrow. He conceded that the same spoil materials used to originally construct the roadway were also used to achieve abatement, but that the materials were compacted and consolidated by a bulldozer to insure stability.

Mr. Grose believed that the failure of the outer edge of the roadway, the inadequate berms, and the narrow roadway width all contributed to the fatal accident. In his opinion, the failure of the roadway was due to the lack of prudent engineering design.

Mr. Grose stated that the ground geology and terrain will affect the condition of a roadway, and he conceded that in a contour surface mine such as the No. 45 mine, there is limited room to move equipment on the roadways. He also confirmed that such factors as the speed of the truck, the skill of the driver, and his knowledge of haulage procedures should all be considered in determining the safe utilization of the roadway.

Mr. Grose indicated that he determined that the accident victim Bruce Hartwell had driven trucks on the haulage road in question at least two weeks prior to the accident, and that the roadway was changing during this period of time in that portions of the roadway were slipping and failing.

Mr. Grose confirmed that his investigation revealed that at least one ground slip had ocurred on the roadway at least two weeks prior to the accident when the roadway was constructed. He also confirmed that an unidentified employee advised him that another slip had occurred at the accident area, or in close proximity to the location where

the truck left the roadway, and that drivers were reluctant to use the roadway. The condition was corrected by moving spoil material from the adjacent bank into the affected portion of the roadway which had failed. The roadway was also widened in this same manner at that time.

Mr. Grose stated that he measured the roadway width at the location where the truck went over and that it was 14 feet, two inches wide. He identified the map included as part of the accident report (G-7), and stated that he had "no problem" with the accuracy of the measurements or the information shown on the map.

Mr. Grose identified photograph No. 3 in exhibit G-4 as the tire tracks of the truck as it left the road. He also confirmed that photographs numbered 3, 6, and 10 show no evidence of any braking or sliding by the truck. He believed that the weight of the loaded truck expedited the road failure process, and that other factors, including standing water, indicated that the roadway was failing. He conceded that his order and accident report do not state that the presence of any water, or lack of adequate water drainage, were factors contributing to the failure of the roadway.

Mr. Grose confirmed that he had no knowledge of the mine haulage procedures, but that a mine representative advised him that the general widths of the mine haulage roads were 20 to 30 feet wide. In response to further questions, he stated that given the history of roadway slippage, and given the fact that heavy equipment used the roadway, which was slick and wet, he would have insured that the roadway materials were compacted, and he would have sought advice from "higher mine management" as to how to maintain the roadway in a safe condition.

Mr. Grose was of the opinion that the roadway berms should be high enough to permit the equipment operators to visually observe them so that the trucks would be deflected back onto the roadway in the event they encountered the berm. In his opinion, the berms should have been constructed with a wide base, and at heights of six to eight feet. He also believed that the mine operator should have made a better selection of materials to construct the roadway, and should have insured that the materials were adequately compacted. He confirmed that he did not survey all of the berms along the haulage roadway in question.

Mr. Grose stated that an eyewitness to the accident had stopped his truck on the outer portion of the roadway to allow the right of way to the loaded truck which went off

the road to pass between him and the base of the spoil bank on the inside of the roadway, and that this was a standard practice (Tr. 185-320; 335-445).

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MSHA Inspector Beauford T. Slaughter testified that he has 18 years of experience in surface mining and that he has been employed as an MSHA surface mining inspector for 10 years. His prior mining experience includes work as a shift foreman and equipment maintenance work. He confirmed that prior to the accident he last inspected the No. 45 mine in July 1983, but the roadway was not inspected because mining had not yet progressed that far and the road was not as yet built.

Mr. Slaughter confirmed that he assisted Inspector Grose during his accident investigation and helped him make his measurements. He also confirmed that he reviewed the mine training records on foremen Roy Hanshaw and Louis Maggard and found no evidence to establish that they had received annual refresher training as required by MSHA's Part 77 regulations. Company records indicated that they last received training on December 14, 1982 (exhibits G-11 and G-12).

Mr. Slaughter identified exhibit G-12 as the MSHA approved training program for the mine. He asked mine management for evidence of any training received by the two individuals subsequent to 1982, and when it could not be produced he issued the citations. He believed that the negligence was moderate because he was not sure whether the two individuals were not trained or whether the company records were lost. The citations were terminated by another inspector after the training was given.

Mr. Slaughter confirmed that he terminated Mr. Grose's imminent danger order after meeting with MSHA and State of West Virginia officials and verifying that proper abatement methods were followed. The affected road materials were removed by a bulldozer, but he did not observe the entire reconstruction of the roadway and was only present for part of the abatement. He observed the materials used to repair the roadway, and he described them as a "grey, slate-like material." The material he observed on the outer edge of the roadway which had failed was different material, and upon observation prior to the abatement, it appeared to be brown in color, and appeared to be loose spoil and rock. He also believed that the materials used to construct the outside edge of the roadway was different from the materials used on the inside portion of the roadway. The outside roadway portion consisted of soft materials incapable of ~1208 holding the truck, and he believed that this portion of the roadway was unsafe.

Mr. Slaughter stated that he was only present for a half hour during the abatement, but he believed the dozer dug up the roadway which needed to be repaired to a depth of two to three feet. After the abatement was completed, he observed that the berms were constructed higher and larger than they were at the time of the accident, and while he did not measure them, he believed that after abatement, the berms were three to four feet high, with a three foot base. All of the old berm was taken out and replaced during the abatement. After the roadway slipped, he considered it to be unsafe.

Mr. Slaughter confirmed that he regularly inspected the mine at least two times a year, and he did not believe it was unusual for a roadway to permit the passage of only one truck at a time. After abatement, the roadway was 16 to 18 feet wide, and stakes with signs stating "one lane traffic" were installed where the roadway permitted the passage of only one truck at a time (Tr. 489-490). With regard to the training citations, Mr. Slaughter stated that he would have accepted the State certifications for medical technician training in lieu of the required first aid training, but that he did not know about these certifications when he issued the citations (Tr. 452-495).

On cross-examination, Mr. Slaughter confirmed that prior to the accident, he had visited the mine on at least 20 or more occasions during his inspections. He indicated that the last page of the training plan covers the required "Part 77" training requirements. He believed that the cited mandatory standard requires annual training for both qualified and certified persons, and he conceded that Mr. Hanshaw and Mr. Maggard were "certified persons" under the applicable state law.

Mr. Slaughter testified as to what he believed the training requirements under Parts 77 and 48 to be (Tr. 496-500; 509-512). He confirmed that he found no evidence that the two cited individuals had been trained in 1983, and that this formed the basis for the citations (Tr. 517-519). He believes that "refresher training and retraining" are synonymous terms (Tr. 520).

Mr. Slaughter confirmed that he terminated the imminent danger order, and he described the area where the abatement work took place (Tr. 526-535). He confirmed that he never issued any previous citations at the mine for narrow road widths, and he could not recall whether he had issued any previous berm citations (Tr. 538).

Mr. Slaughter stated that in order to satisfy the requirements of Part 77, certified individuals have to undergo training under Part 48, and that this training could be used for certified individuals (Tr. 544}. He explained the different provisions of the applicable training program, and the operator's obligations pursuant to the plan (Tr. 545-551).

James W. Westfall, testified that he was employed at the No. 45 surface mine in March 1984, and that he started work there on February 8, 1984. He was employed as a truck driver, and was at work on the evening shift on the day of the accident. He confirmed that he operated one truck along the haulage road, and that the accident victim, Bruce Hartwell, operated a second truck. Mr. Hartwell made the first trip, and Mr. Westfall made the second one.

Mr. Westfall stated that immediately before the accident he pulled his truck over to the outside portion of the roadway in anticipation of Mr. Hartwell passing him on the inside between his truck and the spoil bank.

Mr. Westfall identified photograph No. 2 in exhibit G-4 as the area where his truck was stopped, and he stated that he first observed Mr. Hartwell as he came around the curve in the roadway at the area shown in the top of photograph No. 22, and that he was travelling at an approximate speed of 5 to 10 miles per hour.

Mr. Westfall stated that he observed Mr. Hartwell attempt to get out of the truck as it began to leave the roadway, but he could not state precisely where he saw Mr. Hartwell on the roadway when he first observed him because he was not paying close attention to him. He stated that Mr. Hartwell attempted to get back onto the roadway after his truck was at the edge of the roadway, and that his front wheels were cut to the left towards the roadway. He believed that Mr. Hartwell had skidded over to the edge of the roadway, but that he was over "too far," and that is what caused him to skid towards the outer edge. He believed that Mr. Hartwell was "on or close to" the berm, but he was not sure whether he skidded or drove off the edge of the roadway.

Mr. Westfall stated that it appeared that Mr. Hartwell's truck "took out the berm" and that the truck appeared to begin to turn over "in slow motion" as it began to go

over the edge. Mr. Westfall indicated that the roadway surface was wet and that there was a "drizzly" rain all day.

Mr. Westfall stated that when he travelled the roadway he always stayed away from the berm because the presence of the berm indicated to him that this was an area to stay away from. He confirmed that he never encountered any problem driving through the accident area, and that he would be approximately a foot from the berm as he would pass along the roadway near the scene of the acident.

Mr. Westfall stated that a loaded truck always has the right of way on the roadway and that empty trucks always stayed to the outside to permit loaded trucks to pass to the inside. There are several narrow road locations where empty trucks pull over to yield the right of way to loaded trucks coming in the other direction.

Mr. Westfall confirmed that he had worked with Mr. Hartwell in the past and that he considered him to be a good driver, and he was not aware of any problems with Mr. Hartwell's driving ability. Mr. Westfall also confirmed that drivers normally do not wear seat belts.

Mr. Westfall identified exhibit G-13 as a statement he signed for the Kanawha County Sheriff's office after one of its representatives interviewed him during the course of the accident investigation. Mr. Westfall stated that after the accident, he would not drive his truck on the roadway because he was too "shook up" (Tr. 557-580).

On cross-examination, Mr. Westfall identified photograph No. 2, exhibit G-4, as an area where he knew that only one truck could pass. He stated that a loaded truck should always "haul toward the spoil," and that he would always stop in a wide area with an empty truck and wait for the loaded truck.

Mr. Westfall stated that after he stopped his truck to wait for Mr. Hartwell, the mine superintendent passed him in a Ford Bronco shortly before Mr. Hartwell came around the curve (Tr. 587). Mr. Westfall confirmed that he had never driven into the berm and never experienced any trouble in traversing the roadway. Although safety meetings are normally held on Mondays, Mr. Westfall could not specifically recall whether such a meeting was held on the day of the accident.

Mr. Westfall confirmed that he had also driven over the other mine haul roads, and that there were several places

where only one vehicle could pass, and that he did not consider this to be unusual. He also confirmed that he had worked at other mine sites and the road construction at those mines was similar to the road construction in question in this case (Tr. 586).

Mr. Westfall stated that when he observed Mr. Hartwell's truck close to the outer edge of the roadway, there was room close to the spoil side, and he indicated that "there was bound to have been room over there" (Tr. 589).

Eric V. Augustine, was called as Valley Camp's witness, and he testified that he is now laid off from his job at the Valley Camp Coal Company, but that prior to December 1984, he was the chief engineer, and was employed in this capacity on the day of the accident. He is a graduate of Lehigh University, with an inter-disciplinary degree in mechanical engineering and systems level biology. He was informed of the accdent by a telephone call to his office located in the town of Shrewsbury, some 15 minutes from the mine site. He went to the accident scene the next morning and accompanied the inspection team during its investigation. He was with Inspector Grose for approximately 35 to 45 minutes while conducting a preliminary visual inspection of the accident scene. Mr. Grose then asked him to produce a map of the area, and since Mr. Grose indicated that he wanted a scale map which would fit in a folder, Mr. Augustine took this to mean a map 8 1/2 by 11, or "legal size." Mr. Augustine believed that this would be difficult to produce, and after further discussion, it was agreed that the map would be to "20 foot scale," with "five foot contour" lines. Mr. Grose also suggested that the location of berms be included on the map, as well as other information concerning the accident (Tr. 594-605).

Mr. Augustine stated that he "stayed close" to the inspection party the day after the accident so that he could take notes and listen to what may be required to produce a map, and he confirmed that he began the actual site survey after the inspection party left at noon that same day. His survey crew consisted of a rodman, a transitman, and a draftsman who took notes, and they were all experienced men. Mr. Augusttine supervised them during the survey (Tr. 608-610).

Mr. Augustine stated that the map which appears as part of MSHA's accident report (exhibit G-7), was not the final map he produced, and he indicated that it was a reduced photocopy of his map (Tr. 614). He stated that he could not make any measurements from the map in the accident report,

and that he would need the original map to verify distances accurately.

With regard to his original map, exhibit ALJ-1, Mr. Augustine stated that the single asterisk numbers are primarily road widths measured by his crew during the survey (Tr. 623). The double asterisks are MSHA's measurements (Tr. 632). In response to questions concerning some of his measurements, Mr. Augustine stated that the measurements depict an area from the outermost discernible tire tracks on the road. He explained that he used these measurements because prior to contour surface mining, "a dirt road is where there are tire tracks, not a flat area" (Tr. 626). He explained further that a road was not considered to be the width of the bench, but rather, the area where the vehicles traveled. This distance was determined by measuring the outside-to-outside tire tracks or "usable roadway" (Tr. 626).

Mr. Augustine explained how he plotted the elevation contour lines shown on his map (Tr. 634-646). He conceded that he could not tell what type of vehicle made the tire tracks shown on photographic exhibit CR-3, and he marked the areas on the photograph where he placed his tape measure to measure the width of the useable roadway, and he explained how the distances were determined (Tr. 662-665). When asked whether anyone measured between the two points drawn on the exhibit, Mr. Augustine stated that "I measured the tire tracks" (Tr. 667). He also explained his observations as he watched Inspector Grose make his measurements with a cloth tape (Tr. 668-670).

Mr. Augustine stated that he and his crew took three and one-half hours to survey the accident area, and that he applied acceptable survey practices in making his map (Tr. 671). He confirmed that the subject surface mine is adjacent to a nearby underground mine and that there are known surveyed elevations within the underground mine. He also confirmed that Valley Camp has done extensive core drilling operations to ascertain "the dip of the coal" (Tr. 673). He stated further that any water below the surface would tend to collect to the base of the highwall, and that the horizontal distance from the base of the highwall to the outermost edge of the bank where the truck went over was 130 to 140 feet (Tr. 675).

On cross-examination, Mr. Augustine explained the significance of the "certification" process for mine maps, and he confirmed that the map which is a part of MSHA's investigative report is not "certified" (Tr. 683). He

confirmed that he is not a registered engineer or surveyor, and that none of his survey crew were registered surveyors (Tr. 684). He reiterated the significance of the elevation contour lines as shown on the map which he produced, and he explained how the information appearing on the map was obtained (Tr. 685-693). He confirmed that the contour lines are of no use in determining the width of the roadway (Tr. 693).

In response to questions concerning any discrepancies in his measurements of the width of the roadway, and those made by Inspector Grose, Mr. Augustine indicated that it would depend on the point of reference used in the measurements, and that measuring from tire track to tire track, as opposed to measuring from the base of the spoil bank to the berm would account for some of the differences and discrepancies (Tr. 720-724). He also believed that his measurements were more accurate than the inspector's, and that it was possible that the person holding the other end of the inspector's tape measure may have been standing two feet from the end of the road (Tr. 729). Mr. Augustine demonstrated how he arrived at certain measurements by using a triangular engineer's ruler, and he did so in response to questions from MSHA's counsel (Tr. 735-739).

Mr. Augustine stated that he was not aware of the fact that a portion of the roadway was falling or slipping out on the morning before the day of the accident, but that two weeks before the accident he was aware that "there had been some movement of the material downslope from the road" (Tr. 764). When asked to explain how he became aware of this condition, Mr. Augustine responded as follows (Tr. 766-769):

Q. Okay. Well, let me ask you this: How did you become aware of the slip two weeks previous to the accident?

A. Let's see, in the process of driving through the area. It was not such that--you know, I'd seen it, went through the area or had noticed that, you know, there were no trees, this gap and no trees down below, and went through it and just had a casual conversation with the pit forman at the time.

Q. Was that on the day shift or the evening shift?

A. That probably would have been around shift change. That's usually when I tried to get up

~1214 there. I found it more productive for use of my time. Q. Okay. Well, who did you have the conversation with? A. It would have been one or both of the shift foremen, and it was--what happened down there, well, it was moving a little bit, so, you know, it was taken care of. Q. Okay. So, you didn't play any part in the correction of the slip? A. No. No. No. Q. The one that was two weeks before the accident, right? A. Yeah. Q. Okay. And you didn't know about the one that was the morning of the accident? A. No. * * * THE WITNESS: Well, I was about to say that it was in the area--JUDGE KOUTRAS: Where? THE WITNESS: In the area of the accident. JUDGE KOUTRAS: Two weeks before, you saw a slip, evidence of a slip? THE WITNESS: Some material movement. Yes. JUDGE KOUTRAS: Okay. All right. BY MS. GISMONDI: Q. Was there anything else? Did you have any other involvement with this, other than you had a casual conversation with one or both of the foreman and they said it was corrected and--was there anything beyond that, any involvement that you had--

A. Based on my observation, you know, based on my observation, my question satisfied the--you know, I'd satisfied my information request on the way out, there was no material movement in the consequent--and I was up there, we brought an auger up later through the area, or there was an auger brought up at about that time sometime. I went up and was checking on the auger, would drive through and glance down over the road. That's the kind of thing where you notice--you know, people tend to notice things as they change, not that something's the same for 15.2 days, and I just looked at it because that's--I drove by it. But, I had no information in hand to be concerned about it or to generate some kind of investigtion.

Q. Did you look at it from the road's surface, or from the side of the road?

A. Well, from, you know, walking down over the berm, getting down on the slope. Because from, you know, looking down at that distance, you know, sometimes in the evenings you can't really--because of the shadows, you can't tell--of displacement, whether it's displacement or a shadow, and I was curious enough to walk down there and wasn't overly impressed with the severity of it.

Mr. Augustine stated that he travelled the roadway in question prior to the accident and viewed the berms. Although he did not measure them, he indicated that he did walk over them and he estimated that the height of the berms were "somewhere between the height of my knee, and my, you know, my belt buckle, my waist" (Tr. 778). He estimated the heights to be between 19 and 31 inches (Tr. 778). He did not view the berms on the day of the accident (Tr. 779).

Winford L. Saunders testified that he was employed at the No. 45 mine from November 22, 1979 to February 20, 1985, when he was laid off. He was employed as a "heavy truck driver, and he is familiar with the haulage road where the accident occurred. He identified the photographs in exhibit G-4 as the haulage road area in question, and he believed the roadway had been in existence for at least 60 days prior to the accident, or at least until all of the coal was mined (Tr. 906-909).

Mr. Saunders confirmed that he took part in the construction of the roadway, and he indicated that spoil and overburden materials taken from the spoil pile were used in its surface construction. The materials were trucked from the pit to the roadway location, and then dumped and spread out by a bulldozer. The roadway materials consisted of the outcrop of shale, sandstone, soil, and some rocks. The larger rocks were not used, and while some of the materials were used to construct portions of the roadway, other spoil materials were left on the inside of the spoil bank to serve as the inside of the roadway. Mr. Saunders indicated that the spoil materials were not separated or sized, but that the outcrop consisting of shale and dirt provided the main source of the materials for the roadway. He described a roadway "lift" as a layer of materials six to ten inches high which is compacted on the roadway by equipment running over it, and this serves as the roadway surface and base (Tr. 910-922).

Mr. Saunders stated that there was a water problem with the roadway area during "this entire period." He stated that water was coming out of the coal seam and running under the spoil bank and roadway. He observed some slips in the roadway areas in question, and he mentioned evidence of earth and tree movement as an indication that the bank adjacent to the roadway was slipping. He specifically recalled a large beech tree approximately 60 feet from the edge of the roadway incline which he observed "leaning and moving," and each day he viewed it, it was leaning and moving more. He called this to the attention of foreman Roy Hanshaw, and Mr. Hanshaw informed him that he "would watch it." Mr. Saunders also indicated that the beech tree in question was also discussed in safety meetings (Tr. 922-934).

Mr. Saunders believed that water was trapped behind the spoil bank and was leaking through the roadway. He also believed that the source of the water was an old abandoned underground mine which had been augered through, thereby releasing 10,000 gallons of water per minute. Mr. Saunders indicated that mine engineer Eric Augustine was aware of the presence of the water, and that a week or two before the accident, the water washed out part of the haulage road materials. The water washed fresh dirt "down to the solid" portion of the roadway, and Mr. Saunders asserted that nothing was done to correct the condition. He stated that Foreman Hanshaw was working the day the water was released, and the force of the water pushed the auger out of the bore hole. Augering was done in an effort to recover some of the

coal left in the abandoned underground pillars (Tr. 934-941).

Mr. Saunders identified photograph #3, exhibit G-4, as the bank adjacent to the roadway, and he indicated that on the day of the accident four feet of that roadway had slipped. He believed that the slippage was caused by rain and mud. Because of this condition, a 12-foot wide truck could not pass through the roadway, and he and another truck driver, Clarence Coleman, refused to drive their truck through the area because of the road condition. Mr. Saunders believed that Foreman Hanshaw was informed of the condition, and that he instructed end loader operator Bruce Estep to "take enough spoil out of the bank" to permit the trucks to cross the area (Tr. 948-953).

Mr. Saunders stated that Mr. Estep widened the road by digging into the inside adjacent spoil bank, and that Mr. Estep dumped the materials which he had dug out of the bank over the edge of the roadway where it had slipped, and simply left it there. After the roadway was widened in this manner, there was room for the trucks to pass, but it was a "tight fit." Mr. Saunders indicated that he had to "hug the spoil bank" to maneuver through the area, and had a one-foot clearance on either side of his truck. He estimated that the roadway had been widened by two to three feet on the inside, and one foot on the outer edge by the process of digging into the spoil bank and dumping the material at the edge of the road. Mr. Saunders stated that while Mr. Hanshaw did not personally come to the area prior to the work done by Mr. Estep, he believed that had Mr. Hanshaw seen the condition he would have told the truck drivers about it (Tr. 954-959).

Mr. Saunders identified the pile of material shown on the edge of the roadway in photograph #2, exhibit G-4, as a three foot high berm, approximately three feet thick. The purpose of the berm is to warn a driver that he is at the edge of the roadway, and Mr. Saunders indicated that he does not like to get too close to the berm. In his opinion, a berm should be constructed at least six feet thick at the base, and with a height of four feet or more, so that he can observe it or "feel it" with his truck. He believed that an 18 to 22 inch berm constructed of loose mud and materials is insufficient to serve as any warning (Tr. 962-967; 990-992).

Mr. Saunders stated that he had driven the same truck driven by the accident victim and found nothing wrong with the truck. After the accident, he would not have driven

across the roadway because he did not believe it was safe (Tr. 994).

On cross-examination, Mr. Saunders conceded that he drove on the roadway with his truck prior to the day of the accident. His normal truck speed is maintained at five to ten miles per hour, and if it is raining, the speed is maintained at approximately seven miles an hour with fully loaded truck. He believed that a loaded truck at this speed should be able to stop within 20 feet after the driver applies all of his brakes (Tr. 995-997).

Mr. Saunders stated that the haul road was maintained by a dozer or loader, and the only time a scraper was used was when someone complained about the road condition. He recalled filing a safety complaint in the past on another haul road, but could not recall the details. He did not report any specific road conditions to anyone on the day of the accident, and when asked why reports are not made, he answered that he was reluctant to complain because he wanted to keep his job (Tr. 1063).

Mr. Saunders stated that the auger in question was operating against the highwall at the same level as the pit, and that it was located approximately 200 to 300 feet behind the open pit. Water was coming out of the coal seam at the bottom of the highwall, and he believed that this was a common occurrence. Mr. Saunders stated that the haulage road in question was approximately 1200 feet long, and that there were times when there were no berms on it at all. He maintained that berms were constructed by mine management as soon as they believed that an inspector was on the way to the mine to conduct an inspection.

Mr. Saunders stated that there was a "serious water problem" in the haulage road area, and he attributed this to augering which he believed began sometime in February or March 1984 (Tr. 1029). He indicated that the water was coming out of the coal seam, and he confirmd that this is common when mining is conducted around deep mines (Tr. 1032). He indicated that the water was present in the pit under the spoil and that "it was just sitting there" in pools, and possibly running off to the outside lowest portion of the pit (Tr. 1033-1035).

Mr. Saunders alluded to the fact that the haulage road in question along the accident scene was only one-lane wide. However, when asked to explain further, he stated that a disabled bulldozer was parked along the edge of the roadway

and that is what caused the roadway to be narrowed down to one lane (Tr. 1074-1076).

Bruce Estep testified that he has been employed at the No. 45 mine for approximately four and one-half years as a day shift end loader operator. He stated that he was familiar with the scene of the accident along the haulage road in question, and he identified the photographs in exhibit G-4 as the area where the accident occurred.

Mr. Estep confirmed that he participated in the original construction of the haulage road, and he stated that road construction was accomplished with an end loader, a bulldozer, and three trucks transporting road materials. Road construction was usually done during the day shift. The materials used for the roadway construction consisted of spoil and overburden which had been shot. The material consisted of small rocks and dirt which was hauled and backfilled on the roadway and spread out to a height of four to four-and-one-half feet by a bulldozer. Although there was no separation of the materials, large rocks were removed, and the materials were hauled and dumped on the roadway as it was dug out. The dozer operator compacted the roadway as it was being constructed, and the berms were then added. The dozer operator usually supervised the construction, and the foreman, Roy Hanshaw, usually did not give day-to-day instructions to the crew as to how to go about their road construction duties (Tr. 1085-1091).

Mr. Estep stated that during the construction of the road, there was water in the materials removed from the pit and used to construct the road. The pit area was approximately 150 to 200 feet from the accident scene, and water seepage was present in the pit where the coal was being removed. He identified the water shown on photograph #2 in exhibit G-4, as "water under the spoil pile," and he indicated that any water which was detected in the pit area was usually covered over with spoil materials. Mr. Estep believed that the area circled in photograph #4, exhibit G-4, approximately eight to ten feet below the roadway, was standing water, and he was concerned because he believed the water affected the outer edge of the roadway (Tr. 1091-1095).

Mr. Estep testified that there was a slip in the roadway area shown in photograph #3, exhibit G-4, at the area shown by the crib block which appears in the photograph, and he stated that he observed this slip two weeks before the accident occurred. He could not state whether the foreman observed it. Mr.Estep stated that the slip extended for an

approximate distance of 150 feet from the crib block towards the back of the photograph. He also indicated that the berm had slipped off the edge of the roadway for a distance of 30 to 40 feet, and that it had been replaced. He believes that this berm condition had been brought to the attention of the foreman. Prior to the slip, berms had been constructed to a height of two feet, but they were later reconstructed to a height of three to four feet. He confirmed that the height of the berms depends on the width of the available roadway. Prior to the accident, the roadway at that location was approximately 14 feet wide (Tr. 1096-1110).

Mr. Estep confirmed that he did not participate in the road repairs or berm construction after the accident, and he indicated that the roadway ceased to be used six months after the accident because mining had been completed in the area.

Mr. Estep stated that the roadway in question was constructed approximately three weeks before the accident, and that during this time there were indications of soil and tree movement along the bank of the roadway. He did not discuss these conditions with anyone, and while he did not know whether any of the foremen were aware of these conditions, he "was sure" that they were (Tr. 1110-1114).

Mr. Estep stated that on the day of the accident a portion of the roadway approximately 50 feet from the accident scene slipped, and he identified the location of this slip as the area at the "top and around the corner" of the roadway shown in photograph #3, exhibit G-4. On that same day, Mr. Estep walked the portion of the roadway shown in photograph #2, exhibit G-4, and trucks were parked around the corner behind the truck shown in the photograph. Truck driver Winford Saunders advised him at that time that the drivers refused to drive the roadway because "part of the road was gone." Mr. Estep then called foreman Roy Hanshaw, and Mr. Hanshaw instructed him to "make room for the trucks to get by." Mr. Estep then took some spoil materials to fill in the road, dumped it on the side of the road, and leveled it out with his bucket, and replaced the berm. He identified the location of this slip and the work that he performed to correct the condition as the area "near the pit," and around the corner and out of sight of the roadway as shown in photographic exhibit C-R-1. As for the immediate area of the accident, Mr. Estep stated that he noticed that about three to four feet of berm had fallen or slipped, and that the berm "was completely gone" (Tr. 1114-1129).

Mr. Estep stated that the roadway width at the accident scene was 12 to 14 feet, and he considers this to be a narrow road. He believed that the remaining portion of the roadway was also 14 feet wide, and he confirmed that he had never been specifically instructed as to how to construct a berm. He conceded that using MSHA's "axle height" guideline was difficult because the roadways were narrow. He believed that the purpose of a berm is to alert someone that they are "over too far." He would construct a berm four to four and one-half foot high and six feet wide so that a driver could see it (Tr. 1130-1133).

Mr. Estep stated that Mr. Hanshaw advised him to repair the roadway so as to permit the truck to pass and that he was to make enough room to allow a D-8 dozer to come to the area. Mr. Hanshaw advised him that the dozer would finish the road repair after Mr. Estep had completed his work. Mr. Estep believed that the repairs that he made to the roadway would permit a truck to drive into the pit, but he did not believe that it was safe for the trucks to drive out, and he would not have done so with a loaded truck. After the accident, he observed that the berm had "dropped down" two to three feet for a lateral distance of approximately 20 to 30 feet (Tr. 1134-1142).

On cross-examination, Mr. Estep confirmed that he served as a member of the mine safety committee before and after the day of the accident, and he conceded that even though he observed roadway slippage prior to the accident, he failed to report it to anyone. He stated that he did not consider the presence of water to be an unsafe condition while the roadway was being constructed, and he believed that the water was coming from an old coal seam under the roadway. Aside from the roadway being narrow, he did not believe it was unsafe to travel over the roadway while it was being constructed. He never refused to use the roadway, nor did he ever refuse to load materials on any trucks on the roadway during its construction. Although he observed trees leaning, and believed that this was an indication of an unsafe condition, he did not report this to anyone. He indicated that in his experience at the mine, berms were always constructed to a height halfway up the axle of the biggest piece of equipment using the roadway, and that berms were constructed three and one-half feet high, which is the "mid-axle height" of a 988 end loader (Tr. 1145-1163).

David Nichols testified that he was last employed at the No. 45 mine in December 1984, as an end loader operator on the evening and day shifts. In March 1984, he worked the evening shift, and he was at work on the day of the accident.

After reporting for work that day he spoke with foreman Louis Maggard at the mine office, and Mr. Maggard informed him that "a piece of the road" needed to be repaired. Mr. Nichols confirmed that he traveled the haulage road in question at approximately 4:15 p.m. that same day and observed that the road was narrow at the location of the accident, and that there was no berm there except for one which appeared to be six to eight inches high. The berm appeared to have subsided or "slipped," and he assumed that this was the area that Mr. Maggard had in mind when he mentioned that "part of the road" needed to be repaired. Mr. Nichols stated that while he believed the road was not safe to travel, he did not report his observations to anyone because he assumed that this was the condition mentioned to him earlier by Mr. Maggard (Tr. 1164-1173).

Mr. Nichols stated that after passing the area which he believed was not safe to travel, he proceeded to the pit and loaded Mr. Hartwell's truck first, and then Mr. Westfall's. He loaded Mr. Hartwell a second time, and the accident occurred shortly thereafter. Mr. Nichols identified photographic exhibit G-4(3) as a photograph of the area which he passed on his way to the pit, and he identified what he believed to be a slip of the berm and roadway. He confirmed that a week before the accident he observed some trees "leaning and down" in the area of the bank adjacent to the roadway, and this led him to believe that the bank was slipping. He stated that he informed Mr. Maggard about his observations.

Mr. Nichols testified that he did not construct any berms on the haulage road in question, but that he has constructed them at other mine sites where he had previously worked. He confirmed that he did construct berms at other locations at the No. 45 mine, and that this was usually done by dumping and piling spoil materials with his end loader. He was aware of MSHA's "axle height" guidelines for berm construction, and he indicated that he usually constructed them four-and-one-half to five-feet high because that was his usual practice at other mines (Tr. 1174-1192).

On cross-examination, Mr. Nichols stated that he did not participate in the original construction of the haulage road, but that he did travel over it prior to the accident and always made it a practice to stay close to the inside of the roadway adjacent to the spoil pile. He confirmed that he did not inform Mr. Maggard about the slip conditions which he observed prior to the accident because foreman Hanshaw and mine manager Pendergast were "close by," and he

assumed they were aware of the conditions (Tr. 1192-1200; 1207-1210).

Mr. Nichols stated that he was not aware of any other slips in the roadway prior to the accident, and he confirmed that he was not present when the berms were reconstructed after the accident. He helped repair the roadway after the accident, and he indicated that the loose road materials were taken out "down to the rock," and additional road materials were used to make the repairs (Tr. 1204-1206).

Dr. Kelvin Ke-Kang Wu, Chief, Mine Waste and Geotechnical Engineering Division, MSHA, Pittsburgh, Pennsylvania, testified as to his background and expertise. He confirmed that he has a Ph.D. Degree from the University of Wisconsin in the field of soil mechanics and rock engineering. He is a registered professional mining engineer and has ten people on his staff at MSHA's Bruceton Safety Technology Center. In addition to his duties with the Department of Labor, he is an adjunct Professor at the graduate school of the University of Pittsburgh, teaching courses in mining geology and mine systems evaluation, and he has conducted seminars at the University of Alabama teaching courses in waste impoundment inspections (Tr. 1246-1253; 1261).

Dr. Wu stated that his work with MSHA involves the evaluation of waste and other mine impoundments, and work in connection with the stability of surface mining highwalls, benches, and pits. Part of his work entails the review, evaluation, and approval of waste impoundment and highwall control plans, and he has provided consultant and evaluation advice in areas such as highwall and bench stability, highwall failures, roof control engineering assistance, mine system evaluations, materials handling equipment evaluations, and matters dealing with roads at waste impoundments and surface mining facilities. He has also taught courses at MSHA's Mine Academy in Beckley, West Virginia, and these include the training of qualified people for impoundment inspections, water, waste, and slurry impoundment inspections, and the inspection of coal washing plants. He has also been called upon to provide advice in connection with enforcement problems which occur from time-to-time, and he indicated that 30 percent of his working time is spent in the field at various mine sites when his services are requested by various MSHA mine district offices (Tr. 1254-1261).

Dr. Wu stated that he has served as the chairman of the AME Health and Safety Committee, has published articles on

such subjects as rock and soil mechanics, slope and impoundment stability, and that three of the courses which he teaches at the University of Pittsburgh include studies in mine system evaluations, soil and rock mechanics, and underground mine layouts and designs. Although he has no direct experience in the actual construction of surface mining haulage roads, he indicated that all of these courses "touch on" that subject, and that roadways at waste and slurry impoundments are similar to those haulage roads found at surface mining facilities. He has also been involved in the review of water and waste impoundment plans submitted to MSHA for evaluation and approval, and his experience includes the interpretation of mine maps, and he is a professional land surveyor registered in the State of Pennsylvania (Tr. 1262-1265).

Dr. Wu stated that he was initially contacted to become involved in these proceedings by his Center Chief on Wednesday, March 6, 1985, but that his initial reaction was to decline because he did not have all of the facts, and he had not visited the site of the accident. A second contact and request for his services was subsequently made through MSHA's Arlington, Virginia, Solicitor's Office, and he then agreed to visit the site. The site visit was made on Monday, March 11, 1985, the day before the start of the hearing, and he was accompanied by counsel representing the parties in this case, as well as the inspectors who issued the citations, and other safety representatives of the company. As part of his preparation for testifying in these proceedings, he interviewed and spoke with the inspectors, other witneses, reviewed the citations and order, and MSHA's report concerning the accident investigation conducted by Inspector Grose and the inspection team. He has also reviewed all of the photographic exhibits introduced during the hearing, and was present during the testimony of the witnesses during March 12 through 14, 1985 (Tr. 1274-1276).

Dr. Wu confirmed that he had no personal knowledge of any of the facts or events which transpired before or after the accident in question, except for his review of the facts and circumstances as related to him by others, and his review of written reports and materials in preparation for the hearing. He confirmed that the haulage road where the accident occurred is no longer in existence, and that during his site visit he determined that the area has been mined out and abandoned. The old haulage road has been removed, and there is an existing road on a bench 40 feet below the area where the accident haulage road had once existed, and he described the existing road as "not in good shape," but

conceded that this was due to the fact that the area has been abandoned and is not maintained. The existing bench area is not a "working area," and he stated that he had an opportunity to generally view the area, including the soil geology and strata during his site visit. Having viewed the site, he believed that the maps introduced during the course of the hearing, exhibit ALJ-1, and the map attached to the accident report, exhibit G-7, appear to be reliable and reasonably accurate insofar as they portray contours, the parameters of the old haulage road, and the location of the pit and spoil piles.

Dr. Wu reviewed photographic exhibit G-4, and he described the area shown in several photographs. He stated that the terrain depicted in photograph #4 behind the individual shown in the photograph is composed of "natural materials," while the area below him is not. He also indicated that he was informed that there was a "heavy rain" on March 5, 1984, the day of the accident, and that "pools of water" were under the spoil pile, but that they were "covered up" with spoil materials. He stated that the areas shown to the right and left side of photograph #5 show evidence of "water seepage and piping." The gray colored materials shown in photograph #7 below the crib block shown on the road is indicative of "clay materials." The area at the top of photograph #8, to the right and below where the individual is standing indicates a "depressed area" immediately below where the two wooden cribs were embedded in the ground, and this indicates to him that rocks and loose materials were "layered" to form that portion of the road. The area behind the crib block lying at the edge of the roadway, as shown in photograph #6, and exhibit C-R-1, indicates a "crack" in the road which pushed out to the edge of the roadway. He identified the depressed areas shown in photographs #9 and #10 (circled in red), as "cracks" in the roadway. The area circled in photograph #23 was identified as a "crack" approximately 40 feet from the roadway (Tr. 1275-1309).

Dr. Wu indicated that it is a general practice to use whatever materials are available at the mine site for roadway construction, and he agreed that the filling in of road depressions with available materials in the normal course of mining is an acceptable practice. However, he indicated that the use of too much "fine" material does not permit proper road drainage (Tr. 1357, 1374).

Dr. Wu conceded that there was no way he could determine whether the entire roadway was suspect at the time of the accident. However, based on all of the information and

evidence made available to him, including the testimony of MSHA's witnesses during the course of the hearings of March 12-14, 1985, he was of the opinion that the haulage road failed due to poor construction and maintenance, lack of proper material selection, and seepage of water under the spoil bank and roadway. With regard to the berms, assuming the inspector's measurements of 14 inches high is correct, and assuming that the berms were constructed of soft, wet materials, he was of the opinion that a driver would not be able to "feel" the berm, and that they were inadequate (Tr. 1358-1383; 1387-1389).

On cross-examination, Dr. Wu conceded that he had never been involved in the actual construction of any haulage roads, and that he has viewed haulage roads a "couple of times" when asked to give his advice (Tr. 1395-1399). His testimony in these proceedings is based on his experience and knowledge in soil and rock mechanics, as well as his experience in investigating mine accidents when called upon to do so (Tr. 1400-1401). He conceded that he did not take the photographs which are in evidence and that he is not a forensic expert in photograph interpretations (Tr. 1402).

Dr. Wu conceded that when he visited the accident site prior to the hearing, there was a change in the confirguation of the site, and he described what he observed (Tr. 1405-1408). His observations included flowing muddy material which he considered to be unusual because the weather was dry. However, given the fact that there was recent heavy snowfall, he conceded that the presence of water and muddy materials was not unusual (Tr. 1408-1411).

Dr. Wu testified generally as to problems cause by water and lack of proper roadway compaction, and he did so by reference to the photographs and map which are in evidence in these proceedings (Tr. 1416-1432); 1435-1437). He also testified generally as to the effect of roadway construction materials to the stability of the roadway (Tr. 1445-1449).

Valley Camp's Testimony and Evidence

Franklin L. Simmons testified that he is employed by the Shrewsbury Coal Company, a subsidiary of the Valley Camp Coal Company, as the Manager of Technical Services. He has been in this position for over 3 years, and his present and past duties include supervision over a staff of 25 employees in such areas as mine engineering, construction, maintenance, and supervision over the laboratory. He has also been involved in the formulation and submission of surface mine plans and permits for state and federal approval, and

has also supervised all aspects of surface mines, including the supervision of construction foremen, carpenters and construction personnel.

Mr. Simmons confirmed that his duties also included the supervision of engineers and assistant engineers engaged in the haulage road construction, and he supervised the work necessary to obtain state mining permits for the No. 45 Mine. His education includes a two-year Associate Science degree in drafting and designing from the West Virginia Technical College, and engineering and water quality courses at the University of Charleston and Penn State University.

Mr. Simmons stated that he has been involved in the design and construction of 21 surface and 11 underground mines for the purpose of obtaining mining permits, and that this work included such areas as sediment control, water quality, and geology. He has also been involved in the design of three refuse piles, and he supervised the engineering work that went into the planing of these facilities. He conceded that he is not a professional registered engineer, and that while he has not personally constructed any haulage roads, he has observed them while they were being constructed. During his design and planning duties, he determined where the roads would be placed in order to comply with state requirements concerning sediment controls and the amount of materials placed on the out-slopes.

Mr. Simmons stated that he gave no specific instructions to the foremen who were engaged in the construction of the haulage road in issue in this case. However, he described how the roadway was constructed, and he explained the steps taken to construct the roadway by reference to two graphic charts, exhibits CR-12 and CR-13.

Mr. Simmons confirmed that he was familiar with the scene of the accident and that he traveled that portion of the road several days before the accident. He described the pit floor area just under the first coal seam as shale material, sandstone, and then another coal seam. He confirmed that the procedures and methods used to construct the road in question were also followed in the construction of other roads at the No. 45 Mine (Tr. 1523-1580).

On cross-examination, Mr. Simmons confirmed that he had no registered engineers or surveyors working for him, and that he was Mr. Augustine's supervisor. He confirmed that a "typical" roadway width at the No. 45 Mine was 16 to 17 feet, and that some areas where there was a need to provide a passing lane for vehicles, the widths would range from 20 to

30 feet. He estimated the width of the roadway at the accident scene to be somewhat less than 16 to 18 feet, and he believed that the company expected the roadways to remain 18 feet wide.

Mr. Simmons reiterated that he generally observed the construction of the road in question, and that the map area which is a part of MSHA's investigation report, exhibit G-7, showing the 14 foot, 6 inches to 14 foot 3 inches measurements where the accident occurred is somewhat lower than the other roadway areas. He identified this area as that shown in photograph No. exhibit G-4.

Mr. Simmons confirmed that prior to the accident, he was aware of some slips which had occurred on the roadway, and that Mr. Augustine brought this to his attention. Mr. Simmons agreed that such slips should be watched and taken care of. He also confirmed that approximately 2 weeks before the accident, a berm had slipped, but that it was corrected and replaced. He denied that he was aware of any roadway or berm slips on the day of the accident, and he stated that no one ever brought such conditions to his attention. He was also aware of the presence of water in the pit area but he did not consider this to be an unusual problem (Tr. 1580-1650).

Roy Hanshaw, foreman, Valley Camp No. 45 Mine, testified that he has been employed in this capacity for approximately 5 years, and that prior to this time he worked as a dozer, end loader, and auger operator. He confirmed that he helped construct haulage roads and berms at the No. 45 and 46 Mines, and that his prior experience includes work with Carbon Fuel Coal Company, FMC, and several road construction contractors. He has operated forklifts, 50-ton road rollers, rock crushers, and water trucks during his construction work on interstate highways. While employed with Valley Camp, he estimated that he supervised the construction of 20 miles of haulage roads.

Referring to a sketch of a typical haulage road, exhibit CR-13, Mr. Hanshaw explained the procedures followed in the construction of such a road. After reaching the pit floor, materials are trucked in and dumped and spread by a bulldozer to construct a 4 foot lift, and the bulldozer spreads and compacts the materials. Compaction is also accomplished by the 70-ton loaded trucks as they bring the materials to the roadway. Mr. Hanshaw indicated that "the best materials available" are used to construct the roadway, and that wet materials are not used.

Mr. Hanshaw stated that the actual construction of the roadway in question was done on the evening shift, and that he built part of the road. The roadway width averaged 16 to 25 feet, and it was approximately 1,500 feet long. It was not unusual to have a single lane road at a contour mine such as the No. 45 Mine, and the drivers knew where these areas were located and would wait for loaded trucks to pass them.

Mr. Hanshaw stated that the berm heights at the mine haulage road varied, and that at some switchback and steep turn locations, they were as high as 15 feet. The purpose of the berm is to allow the driver to guide his vehicle onto the roadway.

Mr. Hanshaw stated that he has never experienced any accidents along any haulage roads which he has constructed and he is not aware of any roadway failures on roadways where he has supervised the construction.

Mr. Hanshaw stated that he was familiar with the haulage road where the accident occurred and that he was aware of a berm slip which had appeared in the accident area on February 21 or 22, 1984, before the accident. He explained that he detected slippage in the berm during a preshift examination, but he detected nothing wrong with the roadway surface. Materials were brought in from the high wall and they were used to reconstruct the berm. In addition, the roadway was widened some 6 to 8 feet into the spoil bank.

Mr. Hanshaw stated that after he detected the slip, he "monitored the area," and estimated that the roadway was 15 to 16 feet wide after it had been cut into the spoil. Spoil material was also used to build up the area which had slipped, and it was possible that some shot materials" may have gone over the outslope, but that no fill material was deliberately placed or dumped over the outside slope of the roadway. The berms were also replaced to a height of 4 feet.

Mr. Hanshaw stated that on the day of the accident, March 5, 1984, there were problems with the berm in the area near the pit. While taking loader operator Estep to the pit, rocks came off the spoil bank into the roadway. It had been raining that day and part of the berm on the haulage road near the pit had slipped. He also observed an area at the accident scene which had slipped, and he observed this about 2 p.m. on the day of the accident. He walked along the berm at the accident location to check on the "slide area" and he estimated that the slip which was present on

the out slope extended for a distance of some 40 feet. Had the slip continued, it was his opinion that another roadway would have to be constructed under the area. Mr. Hanshaw believed that the two slip areas which he described were the only ones which existed from approximately February 20 to the day of the accident.

Mr. Hanshaw stated that he preshifted the roadway every morning, that no one ever refused to drive over the roadway, and no one ever complained to him about any hazardous conditions on the haulage road.

Mr. Hanshaw stated that after the accident, he measured the road where the left front tire of the truck slipped sideways, and that from the spoil pile to where the truck cut into the road, the roadway was 14 feet, 6 inches wide. He did not measure any other portions of the roadway. He participated in the rescue operations, and he observed no breaks or faults in the roadway after the accident.

Mr. Hanshaw examined photograph No. 10, exhibit G-4, and he could not state that a "crack" was present in the roadway. He confirmed that he had never observed any such condition shown in the photograph. He also stated that he saw no evidence of any braking by the truck involved in the accident, and he believed that the truck stopped and then slid over the side of the road.

Mr. Hanshaw stated that he helped to supervise the abatement of the order and that materials were removed from the slip area and signs were posted which read "danger, one lane." After abatement, he believed that the roadway looked no different than it did before the accident. He also indicated that MSHA Inspector Wayne Lively and State Inspector Gordon Wiseman advised him to build the roadway closer to the spoil bank and to reconstruct the berm.

Mr. Hanshaw stated that augering was taking place around the haulage road toward the pit area, and that there was some water in the pit prior to the accident. He was not aware of any water flowing from the spoil pile onto the roadway (Tr. 1650-1744).

On cross-examination, Mr. Hanshaw stated that the outcrop is not usually taken out while mining is taking place, and he confirmed that he did not participate in the construction of the original roadway from the pit area to the scene of the accident. He confirmed that the slippage which he observed in February was noted in his preshift report and that the conditions were corrected. He also confirmed that the berm was gone that day, but that this was not a typical

condition and he did not know what actually caused the berm to slip. He stated that he talked to Mr. Pendergrass about the slippage the next day and that he "put a stick in it to watch it."

Mr. Hanshaw stated that after the accident, he did not believe it was safe to drive through the area with the berm gone. He also indicated that when he last saw the berm at 2:00 p.m., on the day of the accident, it was approximately 4 feet high and 6 feet wide at the base.

Mr. Hanshaw confirmed that he was not involved in the original construction of the roadway in question. Although he indicated that the width of a roadway had to be 28 feet in order for the dozer and truck to work side-by-side, he conceded that he had no knowledge that this was the case at the accident location on the day of the accident. He also explained the spoiling methods and the manner in which a roadway is compacted by using trucks and dozers.

Mr. Hanshaw stated that there was a problem with some water which was released from an abandoned mine after an auger drilled into it. This happened on March 19 or 20, and the augering was being conducted some 2,000 feet from the accident area. As far as he knew, there were no water problems caused by augering prior to the time of the accident, but that rainwater did collect in the pit from time to time. He confirmed that there was approximately 1 foot of accumulated rainwater in the pit on the day of the accident, and he indicated that it had accumulated over a period of days. However, it was drained away from the pit area by means of a "french drain," and the roadway portion which was built on top of this drain "is still holding in that area" (Tr. 1782).

Mr. Hanshaw stated that he never observed any water seeping out of the spoil pile in the immediate accident area. He did observe some puddles of water, but these were the result of rainwater. He confirmed that he was aware of berm slippage on the road on February 23, 1984, the day after the road was constructed. He detected the slippage during his preshift examination, and it extended for some 30 feet in length. All of the material under the berm slipped with the berm, and while he considered the condition to be hazardous, it was immediately corrected (Tr. 1795). Mr. Hanshaw could offer no explanation for the slippage, and he indicated that "it's not typical" (Tr. 1796). The condition was corrected by digging into the adjacent spoil bank to widen the road and the berm was replaced. He informed Mr. Pendergrass that the slip would have to be monitored, and that if it continued, an additional roadway might have to be constructed
below the slip area in order to contain it and to stay in compliance with the State Department of Natural Resources regulations (Tr. 1800-1801; 1809-1810).

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Mr. Hanshaw stated that the only slippage he was aware of on the morning of the accident was the area around the corner from the accident site. A berm had slipped, and he sent Mr. Estep to repair it and widen the roadway. No one reported any slippage at the immediate accident scene (Tr. 1808). When asked about the testimony of Mr. Saunders and his refusal to drive through the accident area on the day of the accident because the roadway and berm had slipped, Mr. Hanshaw replied that Mr. Saunders "was confused," and that the slippage which he had repaired on March 5, was around the corner from the accident scene. The drivers could not get through because an end loader was working on the roadway (Tr. 1812).

Mr. Hanshaw stated that he first discovered the slippage on March 5, at approximately 7:00 a.m., when he was taking Mr. Estep to his end loader. The slippage was about 80 to 90 feet closer to the pit than where the slippage had occurred on February 23rd (Tr. 1814). He did not note the March 5 slippage on his preshift report, and could not explain why he failed to include it (Tr. 1815). He agreed that the area was not safe to drive through, and no one drove through until the conditions were corrected. Since it was obvious that an end loader was working on the road, and since the repair work took about 15 minutes, he did not specifically advise any of the truck drivers that the road was being repaired (Tr. 1820).

Mr. Hanshaw stated that on both February 23 and March 5, his instructions for the repair work to be done included instructions to widen the roadway by cutting into the spoil bank and replacing the berms which had slipped (Tr. 1822). He confirmed that during the shift change on March 5, he had no opportunity to inform Mr. Maggard about the slippage, but that he had intended to tell him. He did mention the berm slippage to Mr. Pendergrass and informed him that the condition had been corrected (Tr. 1826-1827).

Mr. Hanshaw stated that there was no standardized company policy with respect to the speed limit on the haulage road, and that there were no standardized traffic rules, signals, or warning signs (Tr. 1831; 1833). When asked about the kind of berm he would construct at the immediate scene of the accident, Mr. Hanshaw replied as follows (Tr. 1851-1852): THE WITNESS: What kind--well, I built a berm four foot high.

JUDGE KOUTRAS: And why did you build it four foot high?

THE WITNESS: Just about the standard procedures.

JUDGE KOUTRAS: You built it four foot high. Would it surprise you if I was to tell you that MSHA only required it to be 22 inches high?

THE WITNESS: Well, if they did require me to build it 22 inches high, I'd still build it four foot or higher if I could.

JUDGE KOUTRAS: Why would you do that?

THE WITNESS: Give the truck driver more--

JUDGE KOUTRAS: If you built it four foot high or higher, the base would have to be wider, wouldn't it?

THE WITNESS: Yeah. That's right.

JUDGE KOUTRAS: If the base is wider that narrows the road, doesn't it?

THE WITNESS: That's true.

JUDGE KOUTRAS: So, you're doing one thing and you're defeating something else, aren't you?

THE WITNESS: That's true.

In response to further questions, Mr. Hanshaw stated that he was not concerned about the integrity of the roadway from the day it was built on February 21 to March 5, the day of the accident. However, he was concerned about the slip below the roadway and his concern was that it might go beyond the area for which the company had a permit (Tr. 1865). He denied that any berm slippage at the immediate scene of the accident involved any of the useable road, and he also denied that any portion of the roadway was constructed on the outcrop (Tr. 1859, 1965).

Louis Maggard, testified that he is not presently employed, but that he had been previously employed by the respondent as a foreman for approximately 4 years. His prior mining experience includes 9 years as a surface miner, 4 years as a loader and dozer operator, and supervisory experience in connection with the construction of interstate highways. He confirmed that he supervised the construction of the haulage road on February 22, 1984, including the portion which is in issue in this case. Mr. Maggard explained how the road was constructed, and he indicated that when it was first constructed it was 28 feet wide, but after spoiling, the width was down to approximately 16 feet on the day of the accident. Mr. Maggard stated that he had no problems with the roadway after it was constructed, and he conceded that no signs were posted because he did not believe the roadway was narrow. He also indicated that Mr. Hanshaw informed him that the berm had slipped away, and he corrected the condition.

Referring to respondent's sketch, exhibit CR-13, Mr. Maggard explained that the roadway was constructed from rock materials, and that the roadway was built on 4-foot high lifts. Berms were installed at heights of 4 feet along the roadway where the accident occurred, but at other locations, such as "switchbacks," higher berms were constructed. Mr. Maggard was not aware of any water "dammed up" in the area of the roadway, and he observed no hazardous conditions along the roadway on the day of the accident. He conceded that he would not drive through the area after the accident occurred. He believed that both Mr. Hartwell and Mr. Westfall drove past the accident area on many occasions without incident, and he believed that they followed the usual procedures and "rules of the road." On the day of the accident, four trucks were in operation; one loading, one dumping, and two waiting to pass each other on the roadway.

Mr. Maggard stated that he took no measurements of the width of the roadway after the accident, and he confirmed that he observed no slips or fractures in the roadway when he walked it the next day during the recovery operations. After reviewing photograph number one, exhibit G-4, Mr. Maggard stated that the outslope of the roadway may have slipped during the night between the accident and the day of recovery operations.

Mr. Maggard stated that the day shift began abatement by removing a portion of the roadway 15 feet down to the coal seam, and then rebuilding it up in 4 foot lifts. Berms were then added, and signs stating "one lane road" were installed. He was of the opinion that the accident resulted after Mr. Hartwell "got too far over," and that a large rock

which he was hauling shifted in the truck bed and caused the truck to turn over at the edge of the roadway.

Mr. Maggard stated that he had never previously been cited for improper road construction. He confirmed that he and Mr. Nichols did not get along well. He also confirmed that a drill auger was on the mine site on the day of the accident, and that it had been there for about 2 weeks. However, no augering was done in the area of the accident, and it was confined to an area near the pit some 200 feet away. Although Mr. Maggard did see water in the pit on the day of the accident, it was flowing away from the accident area toward the pit floor some 200 feet away. He also indicated that there was one place where the auger did push through to water, but this occurred after the accident, and it was at a location some 500 to 600 feet from the accident site.

Mr. Maggard indicated that the three elements of a properly constructed haulage road include the selection of materials, the location of the materials on the pit floor, and the compaction of the materials as the road is being constructed. He believed that compaction is the most important element because the roadway has to be built on solid materials. He stated that no portion of the roadway in question was built on the outcrop (Tr. 1871-1898).

On cross-examination, Mr. Maggard confirmed that prior to the accident, he served as a mine foreman for approximately 3 years. He confirmed that the road in question had been constructed sometime between February 21 and 23, 1984. He stated that approximately 150 feet of roadway can be constructed during one shift, and he confirmed that the portion of the roadway where the accident occurred was built by his shift on February 22, 1984. He also confirmed that there was some slippage on the roadway the next day, and that part of the berm had fallen away. He had supervised the construction of the berm the day before, and he acknowledged that a berm could slip if the adjacent slope is too steep. He conceded that anytime a berm slips away, a hazardous condition is created. However, he stated that immediate corrective action was taken and Mr. Hanshaw advised him that the slippage of the berm had been taken care of. Since only a part of the outer berm had slipped, Mr. Maggard did not believe it was a problem, and he did not inform the employees of the condition. It was his understanding that the conditions were corrected by taking some materials from the spoil pile and "firming up" the berm that very same day.

Mr. Maggard stated that the original roadway was constructed on a solid rock base across the entire 28 foot

width, and that it was constructed on 4-foot high lifts, with good compaction. Mr. Maggard stated that the terrain does not affect the overall way in which the road is constructed, and he would not consider the area of the accident to be a "hollow area" where any place in the roadway was lower than other place. Mr. Maggard denied that Mr. Popps ever said anything to him about pushing soft materials to the outside edge of the roadway, but that he (Maggard) had warned Mr. Popps about this practice in the past.

Mr. Maggard confirmed that when the roadway was constructed, some water was encountered in a "rider seam" and a "little puddling" was detected. However, large rocks were placed in to allow the water to run off, and he detected no problems with any water after the roadway was completed. He also confirmed that it was normal to take out the coal out-crop when building a road so that there is a flat base. He did not did not consider the accident scene to be in a "slip area," and he was not aware of any tree movement, nor was he aware that Mr. Hanshaw was monitoring the area.

Mr. Maggard stated that he was not aware of any slippage of the roadway on the day of the accident, and that he observed Mr. Hanshaw in the pit area at approximately 3:15 p.m., and that Mr. Hanshaw never mentioned any berm movement to him at that time. Mr. Maggard stated that during his preshift inspection on March 5, he remained in his truck and noticed no problems with the roadway. After arriving at the accident scene after the accident, he did not observe which portion of the berm was gone because he was more concerned with assisting the accident victim. He did observe that the truck's under carriage or "protection plate" had taken out part of the berm. While he was at the site the next day, he did not observe any evidence of a truck "slide," nor did he observe any cracks or faults in the roadway.

Mr. Maggard stated that he was aware of the fact that an MSHA inspector inspected the roadway after the accident during the abatement process and that he refused to terminate the order. Mr. Maggard believed that a 2-foot berm would be adequate at the place in the roadway where the accident occurred. He confirmed that the accident victim had worked for him for about 2 months as a truck driver and that he never had problems with his driving abilities. Mr. Maggard also confirmed that the day after the accident, he did make a statement that he was not sure whether berms were present at the roadway location where the accident occurred at the time that he conducted his preshift. He

explained that he saw nothing that day which he believed were hazardous conditions or violations (Tr. 2060-2062).

Mr. Maggard stated that he was not present in the pit area when Mr. Hartwell's truck was loaded, and he confirmed that he (Maggard) and Mr. Nichols did not get along well. He stated that Mr. Nichols has a temper, is insubordinate, and does not like to take orders (Tr. 2069). Mr. Maggard stated that in all of his previous work at other mine sites, the haulage roads were constructed no different than the one in question in this case (Tr. 2110).

Carl S. Anderson testified that he is currently laid off from his employment with the Valley Camp Coal Company, but that he previously worked at the No. 45 Mine as a dozer and loader operator for 3 years and that he worked for Mr. Roy Hanshaw. He confirmed that he worked on the haulage roads at the No. 45 mine, and he referred to the charts depicting how haulage roads are generally constructed, exhibits CR-12 and CR-13, and described the construction sequence.

Mr. Anderson stated that he was working the day shift on the day of the accident and was not present at the mine when it occurred. He stated that he traveled the roadway in question on approximately March 1, 1984, and that "he worked the road" that day. He explained that a berm had washed away because of some rainfall and that he rebuilt the berms with some materials which had been trucked in from the pit.

Mr. Anderson identified the area shown in photograph No. 2, exhibit G-4, as the area where he built the berm 3 feet high, and the materials used were dirt, rock and slate. He saw no slips in the area shown in photograph No. 3, exhibit G-4, and he indicated that some of the materials may have fallen over the side of the roadway bank when he was constructing the berm. He identified the material shown in photograph No. 1, exhibit G-4, as some of the materials which may have fallen, and he indicated that the berm would not have been disturbed.

Mr. Anderson stated that the purpose of a berm is to serve as a visual guideline to deter anyone who may be too close to the edge of the road. He described his equipment as a 992-b end loader, and he stated that he has driven into a 3 foot berm with his equipment, and that when he did so, he "could feel it."

Mr. Anderson stated that he observed no cracks or slips on the roadway when he was on it and that he was not aware of any employee safety complaints about any cracks or slips.

He was aware that rock trucks, coal trucks, and loaders had driven over the road and no one ever complained (Tr. 2133-2146).

On cross-examination, Mr. Anderson confirmed that he normally worked in areas other than those near the road in question, but that on or about March 1, 1984, he "worked the road" for about 2 hours constructing a berm. He was not aware of any locations along the haulage road where there was no berm, but that at the location where the accident occurred the berm was "small." He conceded that there was a berm problem in one area along the road where "it was real bad," and that in the area where the truck went off the road, there was a "problem" for a distance of some 60 feet.

Mr. Anderson identified the area shown in photograph No. 6, exhibit G-4, and extending outby to the area in front of the truck shown in photograph No. 2 as the area where the berm was constructed about 3 feet high and 4 feet thick at the base. Two feet of the berm was "probably" located on the road surface itself, and 2 feet was on the bank where he had dumped the material which had been trucked in from the overburden which had been shot some 100 feet away near the pit. He estimated that approximately eight to 10 loader buckets of material had been dumped and used in the roadway area which he worked. Since the area was a narrow place, some of the materials went over the side of the embankment while it was being dumped. No materials were taken from the adjacent spoil pile.

Mr. Anderson stated that he did not participate in the repair of the road after the accident. However, he visited the area the next day with a mechanic to determine what had to be done to recover the truck which had gone off the road. He observed no fractures in the road at the location where the truck left the road.

Mr. Anderson stated that his loader was 13 feet wide and the road was wide enough for him to turn around to work the materials which had been trucked in. He estimated that the roadway was approximately 16 feet wide where he was working on the berm. He indicated that he had also worked on other roadway areas after a heavy rainfall, and that the berms had to be reconstructed (Tr. 2146-2169).

Nathan King testified that he was employed by Valley Camp Coal as a D-9 dozer operator and that he has been so employed since 1979. Prior to this employment, he worked as a dozer operator on construction projects building dams,

freeways, and strip mines. He has also been a heavy equipment construction boss supervising construction work on the Los Angeles freeway, the Masschusetts turnpike, and the Summersville Dam, and that most of his work experience has been as a dozer operator. He has also been directly involved in the construction of many surface coal mine haulage roads similar to the ones at the No. 45 Mine.

Mr. King identified the diagrams depicted in exhibits CR-12 and CR-13, as typical construction methods used in building surface mine haulage roads. He explained that the actual road construction begins after the pit coal is taken and spoiling begins. The road is constructed on a solid rock base or "coal pavement" which generally rests on a sand rock base. Overburden materials are trucked in to the road construction area and then spread out with a dozer in lifts which average 4 feet in thickness depending on the rock materials used. The normal practice is to use the finest and driest overburden materials. No wet materials or dirt are used to construct the roadway lift, and the dozer operator is responsible for compacting the materials. Compaction is accomplished by means of the dozer and the trucks which come in and out to dump the materials. The dozer spreads and compacts the materials as the lift is being constructed. He confirmed that he has rejected materials which are unsuitable for compaction.

Mr. King stated that during the period subsequent to March 4, 1984, he constructed roads at the No. 45 Mine and that the construction procedures were the same as those which he has explained. He confirmed that he returned to work at the mine after a back injury on March 5 or 6, 1984, and worked there until he was laid off. Two days after the accident, he was at the accident scene and helped recover the truck by means of cables fastened to two or three D-9 dozers. He confirmed that he drove a 48-ton dozer with a 16 foot blade through the accident area and around to the spoil pile near the pit to do some work on the spoil pile, and that he had no difficulty in safely doing so.

Mr. King confirmed that after the accident, he worked on the removal of materials from the roadway to assist in the abatement of the order. He identified the area shown in photographs No. 20 and 3, exhibit G-4, as the area on the embankment from which he removed materials with his dozer. He confirmed that he also removed approximately 3 feet of the outer edge of the roadway to achieve abatement, and the materials removed included top soil and the outcrop down to the rock roadway base. In some of the areas, he had to "chisel out" the roadway base materials with the "bit" end of his dozer, and he estimated that he took out materials

over an area of approximately 16 feet at an angle along the embankment adjacent to the road.

Mr. King stated that he noticed nothing unusual about the roadway as he was taking the materials out. He confirmed that Mr. Hanshaw advised him that the berm "had to be re-established." The roadway had been constructed on shale and sandstone and Mr. King saw "no problem" with the road bed when he uncovered the materials. He estimated that he removed materials along an area of some 60 feet from a point beyond where the truck left the road and back toward the pit area. He did not participate in the replacement of any materials, and he observed no cracks or fractures in the roadway when he drove over it. The materials which he removed during the abatement process were not wet or "runny or soupy" materials. He believed that one can "feel" a berm, and that he has done so on several ocassions when he backed into a berm with his equipment (Tr. 2169-2221).

On cross-examination, Mr. King reiterated his prior roadway construction experience, and he stated that if the roadway is wide enough, it is desirable to build a berm on the roadway because it is the stronger area. He confirmed that he had not previously travelled the roadway where the accident occurred until 2 days after the accident when he was engaged in the abatement work. He again described the areas where he removed materials during the abatement, and he did so by references to photographs Nos. 2, 3, and 20, exhibit G-4. He also indicated that it was not unusual for the outer slope of the roadway to move (Tr. 2221-2264).

Tom Pomeroy testified that he was laid off by Valley Camp on December 28, 1984, and had previously worked with the company since 1978 operating a 988-B loader, a dozer, and a 50-ton caterpillar rock truck. Prior to this time, he worked for the Princess Susan Coal Company at its contour surface mine, operating a 38-ton Euclid, a D-8 and D-9 dozer, and a rock drill.

Mr. Pomeroy stated that his work experience includes the building of haulage roads at the Valley Camp No. 45 Mine, and he described the procedures he follows in the construction of such roads. He described how the materials are trucked in, dumped, spread out, and compacted into 4 foot lifts. The materials consisted of the shot loose rock from the "side of the hill," and he indicated that as a dozer operator, he has rejected materials as unsuitable. It was not uncommon to construct a berm on the outcrop outer bank of a roadway, nor was it uncommon to have a one-lane roadway at a surface mine. The berms are constructed after the roadway is completed.

Mr. Pomeroy indicated that he drove across the haulage road in question about a week or so before the accident and observed no cracks. He also indicated that he would have noticed if there were no berms present on the roadway. He confirmed that he has made general safety complaints to mine management in the past and that he is not shy in doing so.

Mr. Pomeroy stated that he observed some slippage of materials along the outer bank of the roadway a week or two before the accident, and had also observed slips on other ocassions. However, he indicated that these slips never bothered him and he did not believe that they were critical.

Mr. Pomeroy confirmed that he took materials out of the affected areas after the accident during his evening shift which was supervised by Mr. Maggard. He stated that he encountered some water seepage at the outslope coal seam, but he did not believe it was significant. He estimated that he took out material over an area approximately 60 to 70 feet in length along the outslope, and that he replaced it with shot rock materials. He constructed lifts of 4 to 5 and 10 feet on the outslope to reconstruct the roadway during the abatement period, and that a 3 to 4 foot berm was then constructed on the rebuilt roadway.

Mr. Pomeroy estimated the width of the roadway at the location of the accident, both before and after that incident, to be 15 to 16 feet, and he observed no cracks or slips on the roadway base after the accident. He described certain tire tracks which he observed at the accident scene, including an area where the truck left the road. He believed that the material at that location had been taken out by the "belly pan" of the truck as it left the roadway (Tr. 2264-2307).

On cross-examination, Mr. Pomeroy identified a "slip" in the area shown below the line drawn on photograph No. 3, exhibit G-4, and he stated that he was not aware of any problems on the roadway during the morning shift on the day of the accident. He arrived at the accident scene some 45 minutes after the accident and assisted in the recovery operations.

Mr. Pomeroy stated that he observed some trees which appeared to be slipping in an area not shown on the photographs below the outslope of the roadway, and that he had reported this to Mr. Hanshaw and Mr. Maggard a couple of weeks before the accident. He confirmed that Mr. Maggard instructed him as to what had to be done to reconstruct the roadway during the abatement period (Tr. 2307-2368).

Ireland Sutton testified that he has been the safety director at Valley Camp since 1978, and prior to that, worked as the training director. He testified as to his prior experience and indicated that he had a degree from the West Virginia Institute of Technology. He confirmed that he participated in MSHA's accident investigation, and that he also conducted his own. He arrived at the scene 45 minutes after the accident and explained what he did (Tr. 2368-2372). He stated that he heard no one ask any questions as to how the roadway in question was constructed (Tr. 2373, 2374).

Mr. Sutton confirmed that all of the citations and the order which were issued after the investigation were served on him. It was his understanding from MSHA that the decision was made to remove the outer slope area of the roadway "down to solid" and to rehabilitate it "back to its normal condition" (Tr. 2376). He also stated that at no time was he ever advised as to what practices he should employ in the construction of haulage roads (Tr. 2376). He confirmed that he has observed the construction of haulage roads and would trust the opinions of Mr. Hanshaw, Mr. Maggard, Mr. King, and Mr. Pomeroy as to how they should be constructed (Tr. 2377).

Mr. Sutton stated that after the cited conditions were corrected, Mr. Pendergrass advised him that he would contact MSHA to come to the mine on Saturday to abate the violations. However, he later learned that one of the outer berms had slipped or sloughed off and that Inspector Lively would not terminate the violations (Tr. 2379). He examined photographic exhibit G-5, and stated that the photographs accurately depicted the accident area the day after the accident when he was there, but that he did not observe the conditions shown in photograph No. 1 on the day of the accident (Tr. 2381).

On cross-examination, Mr. Sutton confirmed that Valley Camp does not have a formal training course concerning the construction of a haulage road. However, the foremen and the superintendent do communicate with the men in this regard, and the foremen should know what to look for when they examine haulage roads since this is part of their annual retraining (Tr. 2389-2391).

With regard to the abatement process, Mr. Sutton stated that the instructions he received were "vague," and he was simply told that the area would have to be rehabilitated and the loose unconsolidated material would have to be removed (Tr. 2396). He was not present when Inspector Lively came to the mine on Saturday to abate the violations, and it was

his understanding that the berm which Mr. Lively was concerned about had cracked along the outer edge and showed signs of sloughing or sliding (Tr. 2397).

Mr. Sutton stated that prior to the accident, he had traveled the roadway almost daily. While he was not aware of any slip on the morning of the accident, he was aware of the berm which had slipped earlier, and he confirmed that Mr. Hanshaw told him about it (Tr. 2401-2402).

Frank Simmons was recalled by Valley Camp, and he testified that based on his familiarity with mine planning, design, and permitting, he is familiar with the geology of the area which is being mined. He also learned the geology of the mine through core drilling, prospecting, and soil sampling and analysis. He confirmed the presence of an underground mine No. 36 in the Coalburg Seam which is in the area of the No. 45 surface mine, and he located the mines by reference to a mine map (Exhibit CR-14).

Mr. Simmons stated that the No. 36 underground mine is inside a hill directly across from the Number 45 surface mine, but at the same approximate level as the scene of the accident. He indicated that the coal pavement dipped from the accident area towards the pit, but that the roadway surface was relatively level. The auger in question was put in during the last part of February, 1984, and was located toward the pit and out of sight of photographic exhibit CR-1. The augering operation struck water approximately 600 to 700 feet from the accident area, and this occurred approximately March 19, after the accident. Prior to this time, he received no reports of any water problems resulting from the augering operation. In his opinion, the augering operations had no effect on the scene of the accident (Tr. 2434-2448).

Mr. Simmons confirmed that he was aware of a slip which occurred on Februry 22 or 23 in the accident area, and that Mr. Augustine told him about it. Mr. Simmons also confirmed that he was aware of other slips on the mine haulage roads, and he stated that these were common occurrences. He explained that the inside or outside cut of the roads are subject to rain, freezes, and thaws and if the roadway is on the soil, rather than rock, slips will occur. However, he was not concerned about the slips reported by Mr. Augustine because the mine haul road surfaces are built on the coal pavement which is composed of solid material (Tr. 2455-2456).

Mr. Simmons stated that he travelled the haul road in question and saw no evidence of slippage, cracks, or fractures, and he received no complaints from any of the truck

drivers who used the roadway (Tr. 2457). He agreed with the work done by Mr. Hanshaw to correct the slippage which was reported to him, and in Mr. Simmons' opinion, he would not have dug up the roadway and rebuilt it because there were no fractures or anything to reflect a problem on the immediate road surface (Tr. 2458). He further explained his answer as follows (Tr. 2459-2460): JUDGE KOUTRAS: This is over the berm and down the slope and on the slope of the out-crop, down on the embankment. What if you saw cracks and fractures there? Would that concern you? THE WITNESS: Down below the roadway? JUDGE KOUTRAS: Yes. THE WITNESS: It would--not necessarily. When you say "concern," you mean would you be alarmed? Not necessarily alarmed, but you should pay attention to it, yes, sir. JUDGE KOUTRAS: How long do you pay attention to it--would you pay attention to it? THE WITNESS: Well, in-as long as you're using the roadway. JUDGE KOUTRAS: Uh-huh. And what would you be looking for? THE WITNESS: To see if there's any additional slippage or if it's going to cause the integrity of the--you know, jeopardy of the integrity of the roadway. When asked about his opinion as to what caused the slip which occurred on the outslope of the road bank on February 23, Mr. Simmons replied as follows (Tr. 2462-2463):

> A. Well, there's, I think, several factors, some of which everybody else has stated. One thing that has not been stated was that there was a prospect road down below there in the Winifred Seam.

Okay, having that undercut some of this material, and with some of the testimony that some of the people saw water when they got down to 15 or 16 feet below the roadway, that

freezing and thawing and heavy rains--you know, there's so many things that could contribute to the slip--lots of things.

Q. And am I hearing you tell me that it was a combination of things, in your opinion, including the prospect road, the water out of the coal seam that was several feet below the road base, and the weather conditions and the heavy rain?

A. I'm saying they are all a possibility, and without testing, you don't know. You do not know.

Q. Now, about this water coming out of the coal seam that there's been testimony on. You've heard that testimony, is that correct?

A. Yes, ma'am.

Q. Mr. Simmons, in your opinion, did that water in any way effect the stability of the roadway in this case?

A. No, ma'am, not the roadway at all.

Q. Why do you say that?

A. Well, because it was coming out of strata, solid rock and coal, one or the other, below there, and there was sandstone above, shale above that, that was hard, solid material, as--which has been discussed in prior testimony.

Q. And that material was between the coal seam--the small coal seam and the road base, is that correct--and the roadway?

A. Yes, ma'am.

Mr. Simmons stated that he traveled the roadway at the accident scene on March 5, shortly after the accident occurred, and that he observed no cracks, breaks, or fractures in the roadway surface. He observed the right rear tire trucks and believed that the victim was simply not paying attention (Tr. 2464-2465). He testified further as to his opinions and interpretations concerning certain photographic exhibits, as well as the maps included as part of MSHA's accident report (Tr. 2465-2469).

Mr. Simmons stated that prior to the accident, the width of the roadway at the accident location was approximately 15 to 16 feet (Tr. 2469). He also believed that the left front truck tire was off the roadway, and that the truck traveled for some distance in the berm. This area was sufficient to support the truck "until the angle of the truck out over the edge of the truck (sic) exceeded what it could withstand" (Tr. 2470, 2472).

On cross-examination, Mr. Simmons was of the opinion that the accident victim would have traveled on the berm for a distance of 70 feet, and that it would have taken him 10 seconds to travel this distance at a speed of 5 miles an hour (Tr. 2488). Mr. Simmons confirmed that he was at the accident scene for approximately 15 to 20 minutes, and he testified further as to his observations concerning the tire tracks (Tr. 2492-2494). He was asked about his "concerns" regarding road outslope slippage, and he responded as follows (Tr. 2499, 2501):

> JUDGE KOUTRAS: Let me just ask the question a different way. Assuming that someone came to you, prior to the accident, and said over a period of three weeks and said we had 30 foot of berm slip or slide in one area, we had 60 feet slip or slide at the immediate area, and we had another 30 feet slip or slide right there--and by the way, after we abated it, we had a crack in the berm and MSHA wouldn't abate it. Assuming that you were aware of all these things that I've just told you, would that concern you?

THE WITNESS: Yes, sir, it would.

JUDGE KOUTRAS: Why would it concern you?

THE WITNESS: Because it would--there was some instability on the outside--on the outslope.

* * * * * * * * *

BY MS. GISMONDI:

Q. Mr. Simmons, the facts that the Judge asked you to assume, would they concern you with respect to the stability of the roadway?

A. Yes, ma'am.

~1247 When asked about the "slip" which appears to be depicted in photographic exhibit No. 1, G-4, Mr. Simmons responded as follows (Tr. 2504-2506): JUDGE KOUTRAS: Now, Mr. Simmons, I'm going to ask you if--if you were driving along the haulage road and you saw these conditions, would that concern you? THE WITNESS: Yes, sir. JUDGE KOUTRAS: Why? THE WITNESS: Because it's in the close poximity of the roadway. JUDGE KOUTRAS: And how would you characterize these conditions? THE WITNESS: Well, that is a slip. JUDGE KOUTRAS: Which is a slip? THE WITNESS: Right here below this fill. (Indicating.) JUDGE KOUTRAS: Okay, and what would you do about it? THE WITNESS: Well, in this particular case, I would get a-hold of Mr. Hanshaw and let's see what we can--you

a-hold of Mr. Hanshaw and let's see what we can--you know, move the road to the inside, build the berm back on the solid.

Wayne Lively, MSHA Surface Mine Inspector, testified as to his background and experience, and he confirmed that he has been an inspector since July, 1977. He worked in the mining industry for about 5 years before he was an inspector, and he has operated coal trucks, haulers, loaders, dozer, and augers. His present work includes the regular inspection of haulage roads on surface mining facilities, and he has received regular MSHA-training as a coal mine inspector, including on the job training. His formal training with regard to haulage roads is from reviewing books and materials on that subject. Mr. Lively confirmed that he visited the No. 45 Mine on Saturday, March 10, 1984, and he did so to abate the imminent danger order. He stated that his supervisor telephoned him the evening before and instructed him to go to the mine and abate the order which had been issued on the haulage road. His supervisor advised him that someone from Valley Camp had called to advise that the haulage road conditions cited in the order had been corrected.

Mr. Lively stated that upon arriving at the mine at approximately 7:00 a.m., he met with Foreman Roy Hanshaw, mine superintendent Zeb Pendergrass, State Mine Inspector Gordon Wiseman, a UMWA safety committeeman, and several others. Mr. Lively stated that the accident area looked different than the way it is shown in the photographs, exhibit G-4, and he explained that this was because the berm along the haulage road had been reconstructed.

Mr. Lively stated that when he arrived at the haulage road, he was shown the location where the truck had gone over the road. Upon inspection of the area, Mr. Lively observed a crack in the roadway approximately 2 to 6 inches wide and extending for approximately 30 feet in the roadway. The crack then extended into the berm at the outer edge of the roadway and was visible for the entire length of the top of the berm. The crack at the top of the berm ranged from 2 to 6 inches in width and extended the entire length of the berm, for approximately 150 feet.

Mr. Lively viewed photograph No. 3, exhibit G-4, and he stated that the crack in the road and berm began at the approximate location of the crib block shown in the photograph, and extended out to the top of the photograph toward the curve in the roadway in the direction of the pit.

Mr. Lively stated that the ground conditions at the haulage road were frozen, and it was his opinion that had the ground thawed, the crack might have worsened and continued. Under these circumstances, he advised Mr. Hanshaw and Mr. Pendergrass that he could not terminate the order. Mr. Lively believed that the crack was "one continuous crack," and he believed that it was the result of the berm and roadway being constructed on unstable ground.

Mr. Lively stated that he made certain recommendations to Mr. Hanshaw as to how to correct the conditions, and that Mr. Pendergrass advised him that he would contact MSHA again when the roadway was ready so that the order could be abated. Mr. Lively stated that he was at the mine for approximately 2 1/2 hours.

On cross-examination, Mr. Lively reiterated his observations of the crack in the roadway and berm, and he confirmed that he made brief notes of his observations. He stated that the berm which had been reconstructed was approximately "waist high" or 3 1/2 to 4 feet in height. Since it had cracked while the ground was frozen, he believed that the crack resulted from movement of the ground and that it would continue to crack once the ground thawed. Mr. Lively stated that the berm was constructed of overburden materials with rocks mixed in, but that most of the berm consisted of "yellow clay" material. He conceded that he had observed berms of similar construction at other surface mines, and apart from the crack which he observed, he had no problem with the berm.

Mr. Lively stated that he gave no specific instructions to Mr. Hanshaw or Mr. Pendergrass as to how to correct the crack in the berm, but he did suggest or recommend that the haulage road be relocated to the top of the spoil bank or that it be widened by cutting into the spoil bank. Mr. Hanshaw and Mr. Pendergrass "ruled out" these suggestions and said nothing further to him. Mr. Lively believed that the haulage road had been constructed on unstable ground.

Mr. Lively stated that when he was at the haulage road, he looked over the embankment and observed evidence of frozen dirt material sloughing on the outside bank. He also identified the "tree line" shown at the base of the hill in photograph No. 3, exhibit G-4, and stated that he also observed this while at the haulage road.

In response to further questions, Mr. Lively stated that he had not previously observed the haulage road prior to the time he visited the mine on March 10, 1984. He confirmed that he was aware that an accident had occurred, but that he did not discuss his observations of the cracks he observed with Inspector Grose or with Inspector Slaughter. He also confirmed that after Mr. Slaughter abated the order the following Monday, March 12, 1984, he did not discuss the matter further with Mr. Slaughter and had no knowledge as to how the cracks in the roadway or berm were corrected to achieve abatement.

Steve Popp, testified that he has been laid off from his job at the No. 45 Mine since January, 1985, and that prior to this, he worked at the mine for approximately 1 year and 3 months as a dozer operator. His prior experience includes the operation of a track loader and end loader doing reclamation work for about 1 1/2 years, and as a back

~1250 hoe and loader operator on Interstate I-64 for about 3 years.

Mr. Popp stated that he worked the evening shift with accident victim Bruce Hartwell during March, 1984, and that he was aware of the accident which occurred on March 5. Mr. Popp stated that he was aware of certain problems in the accident area prior to the day of the accident and that he could see dirt and other materials over the hill, and could hear the tree timbers "cracking." He believed that this was caused by the movement of dirt against the trees.

Mr. Popp reviewed photograph Nos. 2 and 3, exhibit G-4, and stated that approximately a week or so before the accident, he observed the slip conditions which appear in the photographs, and he specifically identified the material below the "black line" drawn on photograph No. 3 as a slip.

Mr. Popp indicated that the truck drivers on his shift knew about these slip conditions because "they had to drive through the area" and that it was a topic of discussion. He also stated that he spoke with Mr. Hanshaw about these conditions and that Mr. Hanshaw walked through the area and told him that "it was not working that much." Mr. Popp could not specifically recall when he spoke with Mr. Hanshaw, but confirmed that it was sometime before the accident occurred. Mr. Popp had no personal knowledge that foreman Maggard was aware of these conditions.

Mr. Popp stated that approximately 2 to 3 days, or a week before the accident, he did some work in the slip area, and that this work was an attempt to fill in and over the slip area. He stated further that this work took place in the area starting where the two individuals are shown in photographic exhibit CR-1, that approximately 500 to 1,000 tons of materials were trucked in to do this work, and that Mr. Maggard assigned him to do this work.

Mr. Popp stated that he reported for work at approximately 4:00 p.m. the day of the accident, and that prior to the accident, he observed that the slip over the hill or the embankment was still visible. While there was some material approximately a foot high at the edge of the roadway where the truck went over, he did not consider this to be a berm. He also indicated that there were daily maintenance problems with the berm at the location where the truck went over the hill and that this was true during the period before the accident and on the day of the accident.

Mr. Popp stated that after the accident, he worked on the haulage road removing materials to achieve abatement of

the order. Materials were removed "from the outside slip down to solid ground" and a V-ditch was constructed with a core-rock base in order to allow water to drain off. He indicated that after the materials were removed, the area was back-filled with 2 foot lifts in the slip area and then "stepped" in a manner to reconstruct the slip area to the level of the original roadway. Mr. Popp indicated that part of this abatement work was accomplished during the day shift by Mr. King, and that the evening shift would continue the work where the day shift left off. He estimated that he worked two shifts to complete his portion of the work.

Mr. Popp sketched a diagram, exhibit G-15, and explained how he "stepped" the slope area during the abatement process. He indicated that when he began his work on this abatement, he took out the first 5 feet of material down to solid rock, and then proceeded to "step-out" to the next location for another 5 foot depth to solid rock, and then repeated the process down to solid material.

Mr. Popp stated that during his abatement work, approximately 2 to 3 feet of the outer edge of the roadway surface itself was removed. In his opinion, the width of what was left of the roadway surface after the accident and during the abatement at that location was approximately 8 feet. He also indicated that he trammed his dozer through the area by driving on a portion of the spoil bank. He indicated that he could have driven a dozer with a 16 foot blade and a 12 foot wheel base through the accident location, but that he would have had to drive on a portion of the spoil bank to do so.

Mr. Popp confirmed that he participated in the rescue operations after the accident, and in his opinion, the accident resulted from a failure of the roadway in that the edge of the roadway and the berm "gave out."

Mr. Popp stated that while he was reconstructing the slip area during the abatement, he encountered some water at both of the coal seams below the roadway level. He confirmed that he did not build the original roadway, but that the portion which he reconstructed during the abatement was constructed of good rocky materials.

On cross-examination, Mr. Popp confirmed that he observed the slipping and cracking tree line while traveling the haulageway. He stated that he had repaired different portions of the haulage road and that Mr. Maggard instructed him to do so as required. Mr. Popp stated that as the dozer operator doing the repair work a week or so before the accident, he directed the trucks where to dump the materials.

Mr. Popp then pushed the materials over the slope with his dozer where he was to construct the berm, but that "it wasn't working out." He explained that the materials could not be stabilized, and after his work shift ended, he went home and said nothing to Mr. Maggard about the situation. Later, 1 to 3 days before the accident, Mr. Popp was at the roadway and he observed that the materials had slipped, but he did not report the situation to anyone because he believed that the foreman could see the conditions.

Mr. Popp stated that he was satisfied with the work performed to abate the order and that he was confident that the berm and roadway which had failed had been reconstructed on a solid base and that the materials used were adequate to stabilize the slip conditions.

Mr. Popp confirmed that he was not contacted by MSHA during the investigation of the accident. He stated that he was contacted 2 days before he testified in this case by a UMWA representative and was asked about his knowledge of the haulage road construction. He also confirmed that Valley Camp's safety director Sutton also contacted him, but that he would not speak with him about the matter without the benefit of counsel. Mr. Popp asserted that he harbored no grudge against Valley Camp and that he had not discussed his testimony with the UMWA representative who contacted him.

Inspector Grose was called in rebuttal and testified that he did not instruct Mr. Augustine to take measurements from the outside tire tracks to outside tire tracks which were on the roadway. He confirmed that he did not specifically instruct Valley Camp officials as to how to go about abating the conditions he cited because this would be contrary to MSHA policy. He stated that when he walked the out slope area during his investigation, on March 6, the ground was soft. It was his opinion that day that the berms were inadequate, and after walking the edge of the roadway and the berm area, he was of the opinion that the roadway construction was inadequate in that it was constructed on loose unconsolidated materials. He estimated that the berms ranged in height from 12 to 24 inches, and he did not believe they were adequate to restrain a vehicle.

Mr. Grose stated that constructing a berm on out crop or out slope material rather than on a roadway surface, is not a per se violation of section 77.1605(k), and that it would depend on whether the ground under the berm is stable or not. He also stated that his report does not contain any information about the presence of any water, or that water undermined the surface of the roadway because he did not believe that this was the most important factor which may

have contributed to the failure of the roadway. He also confirmed that his concern about the stability of the roadway was with respect to the outer edge of the actual surface of the roadway and the berm which had been constructed on the bank, rather than the entire width of the roadway.

On cross-examination, Mr. Grose confirmed that he could not recall specifically asking anyone about how the roadway in question was originally constructed. He also stated that the width of the roadway after abatement was 14 to 16 feet and that the berm was constructed of clay material and rock. He also believed that roadway construction after abatement was "better."

Dr. Wu testified in rebuttal that a mine operator should be able to control the amount of spoil he will produce and that he should consider the desired widths of any haulage roads during the initial planning stages of any surface mining which is to take place. He did not believe that the slip conditions shown in photographs 1 and 3, exhibit G-4, resulted from rainfall during the period between the accident and the next day when the photographs were taken.

Dr. Wu was of the opinion that the work done by Mr. Popps on the berm and road compounded the problem with the slip conditions which were present in the area where he was working and that this work was simply a "superficial dressing" for an area which had evidence of ground movement. Dr. Wu also believed that water is always a problem at any mine, but that the presence of any water at the accident location in this case had a limited affect on the roadway. However, if water is present, it must be disposed of, and if not, it will in time impact on a haulage road. Dr. Wu was also of the opinion that given the signs and warnings of ground movement along the haulage road in question, the operator should have paid closer attention to address those conditions.

On cross-examination, Dr. Wu stated that in his opinion the spoiling method used by the operator contributed to the existence of narrow portions along the haulage road. He also conceded that a variety of factors contributed to ground movement in the area of the haulage road.

Mr. Hanshaw was called in rebuttal by Valley Camp, and he stated that he monitored the slip condition in the area of the accident where Mr. Westfall's truck was parked, and that on February 22, a stick was placed along the out slope in that area so that the slip could be observed and monitored.

Mr. Hanshaw stated that he had no knowledge of the work performed by Mr. Popp and he explained that Mr. Popp worked the evening shift and that it was possible that his work was performed as described, but that he (Hanshaw) had no knowledge of it.

Findings and Conclusions

Docket No. WEVA 84-169-R

In this case Valley Camp is charged with a violation of mandatory safety standard 30 C.F.R. 77.1605(k), for inadequate berms along the outer bank of the haulage roadway. The allegation is that loose, unconsolidated earth spoil material was used to construct the berms and that they were not adequate to restrain the heavy equipment using the roadway. The cited standard reads as follows: "Berms or guards shall be provided on the outer bank of elevated roadways."

The term "berm" is defined in 30 C.F.R. 77.2(d) as "a pile or mound of material capable of restraining a vehicle." In Secretary of Labor v. United States Steel Corporation, 5 FMSHRC 3, 6, January 27, 1983, the Commission noted as follows:

> "Restraining a vehicle" does not mean, as U.S. Steel suggests, absolute prevention of overtravel by all vehicles under all circumstances. Given the heavy weights and large sizes of many mine vehicles, that would probably be an unattainable regulatory goal. Rather, the standard requires reasonable control and guidance of vehicular motion.

And, at 5 FMSHRC 5:

We hold that the adequacy of a berm or guard under section 77.1605(k) is to be measured against the standard of whether the berm or guard is one a reasonably prudent person familiar with all the facts, including those peculiar to the mining industry, would have constructed to provide the protection intended by the standard.

* * * * * * * * * *

Under our interpretation of the standard, the adequacy of an operator's berms or guards should thus be evaluated in each case

by reference to an objective standard of a reasonably prudent person familiar with the mining industry and in the context of the preventive purpose of the statute. When alleging a violation of the standard, the Secretary is required to present evidence showing that the operator's berms or guards do not measure up to the kind that a reasonably prudent person would provide under the circumstances. This evidence could include accepted safety standards in the field of road construction, considerations unique to the mining industry, and the circumstances at the operator's mine. Various construction factors could bear upon what a reasonable person would do, such as the condition of the roadway in issue, the roadway's elevation and angle of incline, and the amount, type, and size of traffic using the roadway.

Truck driver James Westfall, the only eyewitness to the accident, testified that the truck which left the roadway appeared to be "on or close to" the berm at the edge of the outer bank of the roadway for a distance of approximately 40 feet and that it "took out" the berm as it went over the edge. The estimated speed of the truck was 5 to 10 miles an hour, and there is no indication of any mechanical defects. As described by Mr. Westfall, the truck appeared to turn over "in slow motion" as it began to go over the edge of the roadway. Thus, it would appear that any existing berm was inadequate to restrain or otherwise physically prevent the truck from leaving the roadway. The test to be applied in determining whether a violation has been established is whether or not MSHA has established by a preponderance of the evidence that the berm which the inspector alleges was constructed of loose, unconsolidated earth spoil material was the kind which a reasonably prudent person would provide under the roadway conditions which existed at the time of the accident.

There is a difference of opinion as to what constituted an adequate berm height along the roadway in question. Inspector Grose believed that the berm should have been constructed on a wide base, and at heights of 6 to 8 feet. Inspector Slaughter stated that after abatement, the berms appeared to have been constructed on a 3-foot base, and at heights ranging from 3 to 4 feet. Since he abated the order, I assume that Inspector Slaughter would agree that a 3 to 4 foot high berm was adequate.

Loader operator Estep testified that the height of the berm would depend on the width of the available roadway, and he was of the view that in light of the narrow roadway, MSHA's mid-axle height guideline was difficult to achieve. He stated that the berm was originally constructed to a height of 2 feet, but that after it was replaced when the roadway slippage occurred, it was constructed to a height of 3 to 4 feet. He believed that the purpose of the berm is to alert a driver that he is "over too far," and he would construct a berm 4 1/2 feet high on a 6 foot wide base so that the truck driver could see it. He also indicated that in his experience at the mine, the berms were always constructed at a height halfway up the axle of the largest piece of equipment using the roadway, and this would be 3 1/2 feet high, the mid-axle height of a 988 end loader.

Loader operator Nichols testified that while he was aware of MSHA's mid-axle high policy, he usually constructed the berms at heights ranging from 4 1/2 to 5 1/2 feet high, and he did so because that had been his practice at other mines. He also indicated that he constructed the berms by "dumping and piling spoil materials" with his end loader.

Foreman Maggard was of the opinion that a 2 foot berm would have been adequate at the roadway location where the accident occurred, and he confirmed that when the berm was replaced after it had slipped the day after construction was completed, it was simply "firmed up" with materials taken from the spoil pile.

Dr. Wu testified that assuming Inspector Grose's measurements of a 14-inch berm are correct, he was of the opinion that a truck driver would not be able to "feel" the berm, and that it would therfore be inadequate.

Mr. Saunders, Mr. Estep, and Foremen Hanshaw and Maggard all agreed that a berm should be constructed high enough so as to alert a driver that he is close to the edge of the road. They all agreed that a driver should be able to visually observe the berm so that he may "guide" his vehicle away from it. Further, both Mr. Maggard and Mr. Hanshaw confirmed that at some areas at the mine where there are curves or "switchbacks" in the roadway, the berms are constructed larger than 4 feet high, and Mr. Hanshaw stated that he has seen them as high as 10 to 15 feet (Tr. 983-984; 1135; 1682-1683; 1887-1889).

The record in this case establishes that from the day construction was completed on the roadway, and for an approximate 2-week period after that, problems were encountered with berms slipping or subsiding along the roadway.

Mr. Estep, Mr. Simmons, Mr. Hanshaw, and Mr. Maggard all confirmed that the day after construction was completed, the berm slipped off the edge of the roadway for a distance of approximately 30 to 40 feet. Although the berm was immediately reconstructed, additional slippage continued. Mr. Popp testified that there were daily maintenance problems with the berm at the location where the truck went over the hill both before and after the accident. Mr. Anderson testified that 3 or 4 days before the accident a berm had been washed away by rain, but that he replaced it with materials trucked in from the pit. He also testified that the berm at the accident location was "small," that there was a berm problem in one area along the roadway where "it was real bad," and that at the accident location there was a "problem" for a distance of some 60 feet.

Mr. Estep testified that on the day of the accident and prior to that incident, the berm at the immediate accident location had slipped about 3 or 4 feet, and he described it as "completely gone." Mr. Nichol's viewed that same area shortly before the accident, and he stated that the berm had slipped or subsided to a point where it was only 6 to 8 inches high. Mr. Popp also view that same area, and while he observed "material" approximately 24 inches high along the edge of the roadway, he did not consider this to be a berm. Although Mr. Hanshaw testified that when he last observed the berm along the roadway at approximately 2:00 p.m., the day of the accident it appeared to be 4 feet high and 6 feet wide at the base. He also stated that he observed some slippage at the accident location for a distance of some 40 feet. He also confirmed that he was aware of some berm slippage around the corner from the accident scene, and that he dispatched Mr. Estep to that area to repair the berm.

Inspector Slaughter noted differences in the composition of the berms on the day of the investigation, as well as several days later after abatement was achieved. He testified that the berm on March 6th was "a soft dirt-type berm, which was saturated" but that on March 12th, the berm "was a blue-type material which indicates shale and rock and a solid-type material. The berm on the 12th also appeared to be higher and wider and "a more firm berm" (Tr. 479-480).

Inspector Grose testified that he measured the axle height of the haulage truck which ran off the road and determined that the vertical distance from the road to the mid-axle was 22 inches. He measured the existing berm heights along portions of the roadway, and found that they were 24, 14, and 18 inches high. The 14 and 18 inch berm heights were at the location where the truck left the road.

Referring to his notes which were made at the time of his investigation, Mr. Grose indicated that the berm was "constructed of soft earth--inadequate to retain vehicles--stepped on berm and foot submerged" (Tr. 96, exhibit G-8). He testified that upon visual observation, the berm was constructed of "earth-type spoil material" and was "just a unit of mud and water" (Tr. 113). He also indicated that the "very soft earth" berm materials were not compacted, and that without some "additional materials or elements in it, it's hard to compact this type of material" (Tr. 135). The "additional materials" would have been "more rock than earth" as were used in the abatement of the citation (Tr. 136).

Inspector Grose testified that one of the factors which influenced his decision to issue the citation was the fact that the berm heights at the roadway location where the truck left the road were not at least 22 inches as specified in MSHA's "mid-axle height" policy guidelines (Tr. 113-114). Additional factors which influenced his decision are reflected in the following testimony (Tr. 114-115):

BY MS. GISMONDI:

Q. Just limiting ourselves to this particular vehicle, Mr. Grose, if this berm had been 24 inches throughout the entire area, but none of the other conditions were changed, it was still made of the same material and the rest of the conditions remained the same, would you have considered that to be adequate?

A. No.

Q. Okay, And why not?

A. He couldn't use it as a site guide to see where he was in relation to the edge of the roadway, and it would not be stable enough to give him any indication that he had hit the berm if, in fact, a tire would hit a berm.

If it was a berm, and the tire would hit it, he wouldn't know he hit it. This soft material--a 65-ton--you wouldn't know if you was hitting the berm, if you was in the berm. It would have no means to retain or deflect or warn the driver that he was near the edge of a road.

Q. Okay, so would I be correct in understanding that your concern with this berm was not limited to the height of the berm?

A. No. I have to consider it, but there's several factors I consider besides the fact of the height.

Q. Okay. Well, what else do you consider besides the height when you try to determine the adequacy of a berm?

A. Two of the main things I consider is if the operators of the equipment can see it. Is it of such a configuration and design that the operators can see it within a normal distance of where they are in relation to their vehicle?

Another thing I consider is the ability of the berm to help retain or deflect a vehicle back to the roadway in the event it should slide. While going parallel, if it should slide over against the berm, the ability of the berm to deflect the vehicle back to the roadway.

Although Mr. Augustine stated that he observed the berm sometime prior to the accident and that it was approximately 19 to 31 inches high, he did not view it on the day of the accident or at anytime immediately before that event. With regard to the testimony of Mr. Anderson that the berm was 3 feet high when he worked on it, the fact is that he worked on it several days prior to the accident and had no opportunity to view it on the day of the accident or at anytime immediately before the event. As for the testimony of Mr. Hanshaw that the berm at the accident location was approximately 4 feet high when he viewed it at approximately 2:00 p.m., or approximately 2 hours before the accident, I give more credence to the testimony of Mr. Estep and Mr. Nichols that it was substantially less than that claimed by Mr. Hanshaw.

In its posthearing brief, Valley Camp's counsel argues that Inspector Grose's observations the day after the accident are not representative of the construction of the berm prior to the accident due to overnight heavy rainfall, the disturbance caused by the truck travelling over the bank, and the subsequent rescue efforts. Counsel concludes that the construction of the berm prior to the accident was consistent with what a reasonable person familiar with the situation would construct in the area of the accident.

I have carefully reviewed the record in this case, and while Valley Camp presented detailed testimony as to the methods and procedures used in the construction of the roadway, I find very little to rebut Inspector's Grose's testimony as to the condition of the berm. As a matter of fact, Mr. Hanshaw testified that the berm is constructed as the road is being constructed by simply dumping and leaving materials on the roadway to be shoved out by the dozer to form a berm. When asked whether the materials are compacted, he replied "some of it is and some of it's not" (Tr. 1674). Mr. Nichols testified that he constructed berms by simply dumping and piling spoil material with his end loader, and Mr. Maggard indicated that the berm which had slipped a week or so before the accident was reconstructed by "firming it up" with materials taken from the adjacent spoil pile.

After careful consideration of all of the testimony and evidence adduced in this case, I conclude that MSHA has established a violation by a preponderance of the evidence. Although I have considered the fact that part of the berm was taken out by the truck when it left the roadway I find the testimony of Mr. Estep, Mr. Nichols, and Inspector Grose to be credible, and it supports a conclusion that prior to the accident, the berm along the roadway in the area where the truck went off the edge was at most 18 inches high. I also find credible Inspector Grose's testimony that the berm was constructed of loose and soft materials which were not compacted. Given the size of the 65-ton haulage trucks which used the roadway, I conclude and find that a driver would have difficulty distinguishing the roadway from a berm in the condition as the one described by Inspector Grose. Not only would the driver have difficulty seeing the berm from the driver's side of his truck, but he would also have difficulty in "feeling it" with the truck tires.

Given the fact that the berms and roadway outslopes had shown prior evidence of slippage and subsidence, particularly when it rained, and given the additional fact that mine management personnel were aware of these problems, I believe that a reasonably prudent person would have taken positive steps to insure that the berm was constructed of materials which would be compacted in such a manner as to allow a driver to know when he is on the berm. I also believe that a reasonably prudent person would have insured that the berm was constructed and maintained at a height which would have been readily observable to a driver. On the facts of this case, I am not convinced that Valley Camp acted reasonably to insure compliance with the cited standard, and I agree with MSHA's argument that the berm was inadequate. Accordingly, Citation No. 2127008 IS AFFIRMED.

~1261 Docket No. WEVA 84-170-R

In this case Valley Camp is charged with a violation of mandatory safety standard 30 C.F.R. 77.1600(c), for failing to conspicuously mark or install warning devices at the haulage roadway location where the roadway was reduced from 25 feet to 14 feet 2 inches. The cited standard reads as follows: "Where side or overhead clearances on any haulage road or at any loading or dumping location at the mine are hazardous to mine workers, such areas shall be conspicuously marked and warning devices shall be installed when necessary to insure the safety of the workers."

There is a dispute as to the accuracy of the measurements concerning the width of the roadway as reflected in the map which is a part of MSHA's accident investigation report. Valley Camp's counsel asserted that the map measurements are critical because the useable portion of the roadway on which a truck could travel would be from the base of the spoil bank to the inner edge of the berm opposite the spoil (Tr. 647). Counsel took issue with Inspector Grose's testimony and notes concerning his measurements of the roadway as 14 feet 11 inches, and suggested that Mr. Augustine's testimony and calculations are more credible and reliable (Tr. 649).

MSHA's counsel expressed "tremendous difficulty" with Mr. Augustine using an "uncertified" map and a ruler to determine roadway widths (Tr. 650). Counsel pointed out that the mine superintendent took a measurement of the roadway width with a tape measure on the evening after the accident, and that at the point where Mr. Grose measured 14 feet, 11 inches, the superintendent's measurement was 14 feet, 8 inches (Tr. 653).

Mr. Augustine confirmed that his survey crew used a steel tape measure, as did Inspector Grose, but that while he observed Inspector Grose taking his measurements, at no time did Valley Camp and MSHA take the measurements together, nor were there any mutually agreed upon measurements taken at the time of the investigation. Valley Camp's counsel suggested that Mr. Grose deleted the single asterisk measurements from the map provided him by Mr. Augustine because Mr. Grose did not take those measurements (Tr. 652-653). Mr. Augustine could not recall where he observed the inspector's party taking measurements, nor could he identify the specific locations where these measurements were taken by reference to his map, other than "close to where the truck went over the road" (Tr. 667). Valley Camp's position is that the accident victim was well over the berm in an area that was never intended to be driven on, and that the berm was built on the useable portion of the roadway from compacted materials brought in from the bedrock (Tr. 657). Assuming that the victim was out of control, or through "driver error" drove into or to the top of the berm, counsel asserted that at that point the victim had 19 feet 11 inches of roadway width to maneuver his truck, and more than adequate room to "hug the spoil." Counsel concludes that his failure to do so constituted "driver error," and that this error, rather than a slip in the roadway, caused the accident (Tr. 657). Counsel suggested further that had the victim followed "normal operating procedures," the accident would not have happened (Tr. 658).

The evidence in this case establishes that the haulage road in question was approximately 28 feet wide when it was first completed approximately 2 weeks before the accident. During this period of time, the roadway widths at the approximate location where the accident occurred were narrowed by the process of spoiling, as well as roadway maintenance and repair work which became necessary as a result of outslope slippage and berm subsidence. Estimates of the width of the roadway immediately before the accident varied, and after the accident, Inspector Grose, assisted by Inspector Slaughter, measured the width of the roadway at the point where the truck left the roadway, and he determined that the roadway was 14 feet 2 inches wide.

There are no mandatory safety standards covering roadway construction, nor are there any standards or guidelines which set forth the required roadway widths for haulage roads. Given the fact that 65 ton haulage trucks approximately 12 foot wide used the roadway in question, the critical question here is whether or not MSHA has established by a preponderance of the evidence that the side clearances along the stretch of the roadway where the accident occurred were hazardous. While the width of the roadway is critical in any determination of adequate side clearance, consideration must also be given to the condition of the roadway slope, the immediate edge of the roadway, and the adequacy of the berms.

Although truck driver James Westfall stated that he experienced no problems driving through the accident area prior to the accident, he confirmed that he would be about a foot from the berm as his truck passed through that portion of the roadway. He also confirmed that there were several narrow road locations where empty trucks would have to move over to yield the right-of-way to loaded trucks, and he

identified the roadway area at the accident location as an area where he knew that only one truck could pass.

Truck driver Winford Saunders testified that because of the rain and mud, at least 4 feet of the roadway at the accident location had slipped on the day of the accident, and that this resulted in the width of the roadway being reduced to a point where a 12-foot wide truck could not pass through. Mr. Saunders also testified that as a result of this condition, he and another driver refused to drive their trucks on that portion of the roadway.

Loader operator Bruce Estep testified that on the day of the accident a portion of the roadway approximately 50 feet from the accident location slipped, and he confirmed that Mr. Saunders advised him that truck drivers refused to drive their trucks through the area because "part of the road was gone." Mr. Estep also testified that in the immediate area of the accident location, he noticed that 3 to 4 feet of berm had fallen or slipped, and that the berm was gone. He estimated that the roadway at the accident location was 12 to 14 feet wide, and he considered this to be a narrow road. Although he believed that it was safe for an empty truck to drive through the area to the pit after he repaired the roadway which had slipped, he did not believe it was safe for a loaded truck to drive through, and he would not have done so.

Dozer operator Carl Anderson described the berm along the roadway at the scene of the accident as "small," and he indicated that the roadway at that location was at a "narrow place" which had been a problem area for a distance of at least 60 feet.

Loader operator David Nichols testified that on the day of the accident he observed that the berm at the accident location appeared to have subsided or slipped to a height of 6 to 8 inches, and that the roadway was narrow at that location. In his opinion the roadway at that point in time was not safe to travel.

Loader and dozer operator Steve Popp testified that there were daily maintenance problems with the roadway berm at the accident location up to and including the day of the accident. Mr. Popp was of the opinion that after the accident, the width of the roadway was only 8 feet, and while he indicated that he could have driven a dozer with a 12-foot wheel base over the roadway, he would have had to drive on a portion of the spoil bank.

Valley Camp's manager of technical services, Franklin Simmons, testified that except for certain areas where there was a need for providing a passing lane for vehicles, the "typical" roadway widths at the mine ranged from 16 to 18 feet. He estimated the roadway width at the accident location to be somewhat less than 16 to 18 feet, and he did not take issue with the roadway measurement widths of 14 feet 6 inches to 14 feet 2 inches, as shown on the map which is a part of MSHA's accident investigation report. Mr. Simmons confirmed that prior to the accident he was aware of slips which had occurred on the roadway, and he conceded that such slips should be monitored and taken care of.

Mine Foreman Roy Hanshaw testified that he was aware of berm slips a week or so before the accident and that spoil materials were used to widen the roadway for an additional 6 to 8 feet in the accident area. After the roadway was cut into the spoil, he estimated that it was 15 to 16 feet wide. He also mentioned the fact that on the day of the accident, there were problems with the berm in an area near the pit, and that in the area where the accident occurred he observed that there was some slippage on the outslope of the roadway for a distance of some 40 feet. After the accident, Mr. Hanshaw measured the distance from the spoil pile to the point where the truck cut into the road, and it was 14 feet 6 inches wide. Mr. Hanshaw conceded that it was not safe to drive through the accident area after the accident occurred, and he also indicated that had the outslope slippage prior to the accident continued, it was possible that an additional roadway would have to be constructed to contain the slippage.

Inspector Lively initially refused to abate the imminent danger when called upon to do so on March 10, 1984, several days after the accident. His refusal to do so was based on the fact that he observed a large crack in the berm, approximately 2 to 6 inches wide, and extending for a distance of approximately 150 feet. Mr. Lively was of the opinion that the crack resulted from the berm and roadway being constructed on unstable ground, and he was concerned that the crack would continue in the event of the ground freezing and thawing.

Although Mr. Saunders testified that 4 feet of the roadway at the immediate location of the accident had slipped prior to the accident, the testimony of Mr. Hanshaw and Mr. Estep is that the slip occurred at a roadway location closer to the pit and approximately 50 feet away. Having viewed the witnesses during their testimony, I conclude that Mr. Saunders was mistaken as to the actual location of the

slip in question. He appeared rather tentative in his testimony, while Mr. Estep and Mr. Hanshaw impressed me as being rather positive as to where that particular slip occurred, and MSHA did not recall Mr. Saunders in rebuttal even though he was available.

Apart from the conflict as to the location of the slip on the day of the accident, the witnesses were rather consistent in their description of the conditions which prevailed along the roadway in question immediately before the accident, particularly with respect to the condition of the berms and the outer edge of the roadway. The testimony establishes that the berm had slipped at the immediate accident location, that the roadway had narrowed to a point where there was only a foot or so of clearance between the outer edge of the roadway or the berm and a haulage truck driving through the area, and that slippage had occurred on the outslope of the roadway for a distance of some 40 feet.

Loader operators Nichols and Estep were of the opinion that it was not safe for loaded trucks to use that portion of the roadway at the accident site prior to the accident, and foreman Hanshaw believed that had the slippage continued, another roadway would have to be built to contain it. Foreman Maggard conceded that anytime a berm slips, a hazardous condition is created. It seems clear to me that when viewed collectively, these conditions establish that the side clearances along the haulage road at the immediate location of the accident, as well as at the roadway location nearer to the pit area some 50 feet away, were hazardous within the meaning of section 77.1600(c), and required markings or warning devices to alert the drivers of the hazardous conditions. Since it is clear from the record that no such markings or warning devices were provided, a violation has been established. Accordingly, Citation No. 2127009, IS AFFIRMED.

During the course of the hearing, Valley Camp's counsel asserted that as long as the miners are familiar with the conditions of the roadway and followed the traffic procedures, i.e., pulling over on the narrow portion of the roadway and yielding the right of way to a loaded truck, no warning signs or markers should be required. Counsel asserted further that if one knows that there is one-lane traffic in an area, a warning sign would make no difference, and "the question of whether it's hazardous is whether you know it's a one lane road or not" (Tr. 1344-1346). Counsel has reasserted this defense in her posthearing brief. In my view, the fact that such haulage procedures were in effect, and the fact that drivers were familiar with the one-lane portions of the roadway do not detract from the fact that

the standard requires that warnings be posted as necessary where the side clearances are hazardous. On the facts of this case, I have concluded that the side clearances were hazardous and that a warning sign was necessary.

In her posthearing brief, Valley Camp's counsel asserts that Inspector Slaughter testified that the one lane area was not unsafe since traffic travelled slowly and the designated pass areas were known to employees. Inspector Slaughter's testimony was in reply to a hypothetical question from me, and the question included the fact that such a single lane is posted. As a matter of fact, part of Mr. Slaughter's reply includes the statement that "these areas were marked for where the road is narrow" (Tr. 483). Taken in context, I cannot conclude that Inspector Slaughter agreed that warning signs were not required in this case. In any event, I reject Valley Camp's interpretation of the cited standard.

Significant and Substantial

Inspector Grose explained the reasons for his "S & S" findings as follows Tr. 450):

JUDGE KOUTRAS: You made S & S findings in both of these citations, significant and substantial. Can I ask you the basis on which you made the significant and substantial findings?

THE WITNESS: Yes. The basis I used to find S & S is that I felt that the event that would occur if this--as a result of this violation would be--have a high likelihood of occurring. And if, in fact, the event did occur the injury resulting from the occurrence would be very serious or fatal.

I conclude and find that the berm violation was significant and substantial. Given the conditions of the berm as discussed earlier in this decision, and particularly the fact that eyewitness Westfall indicated that the truck appeared to be on or near the berm for some distance before leaving the roadway, it seems clear to me that the berm did not provide an adequate warning to the driver. In these circumstances, the inadequate berm created a reasonable likelihood of an injury. In this case, the injury proved to be fatal. The inspector's "S & S" finding is therefore AFFIRMED.

I conclude and find that the failure by Valley Camp to install a warning sign or to conspicuously post the roadway area where the accident occurred constituted a significant and substantial violation. Given the hazardous side clearances of the road, which has been described as allowing a foot or so of clearance on the outer edge, and given the wet weather conditions and the fact that the area had shown evidence of slippage and subsidence for a period of time up to and including the very day of the accident, one would think that mine management would have acted promptly to post that portion of the roadway so as to alert the drivers and to remind them of the hazard which existed. While it may be true that the drivers were aware of the "rules of the road," and often passed through the one lanes of the roadway, rainy weather and other conditions such as outslope slippage, berm subsidence, sudden over-night slippages, and other such conditions could cause rather instant deterioration to the roadway. Unless such areas are constantly monitored and posted when signs of deterioration or failure appear, a driver may be lulled into a false sense of security, and absence a posted warning sign or other device to alert him of such conditions, I believe it is reasonably likely that an injury or accident would occur. The inspector's "S & S" finding is AFFIRMED.

Docket No. WEVA 84-168-R

In this case Valley Camp Coal Company challenges the legality of a section 107(a) imminent danger order issued by Inspector Grose in the course of his accident investigation. The order on its face alleges that an imminent danger existed because of the following collective conditions: (1) the roadway extending from the pit was not constructed of material selected to insure stability in that a section 200 feet outby the pit was constructed of spoil material with cracks and slips along the elevated edge; (2) the width of the roadway was reduced from 25 to 14 feet at the location where the truck involved in the fatal accident left the roadway; (3) the berm at the outer edge of the roadway was not adequate to retain the heavy equipment using the roadway in that loose, unconsolidated earth material was used to construct the berms; (4) there were no conspicuous markings or warning devices installed at the roadway location where the roadway width was reduced from 25 to 14 feet 2 inches; and (5) foremen Hanshaw and Maggard failed to conduct an adequate onshift examination.

Inspector Grose testified that the portion of his order regarding the alleged failure by Mr. Hanshaw and Mr. Maggard to conduct an adequate onshift examination of the roadway was deleted upon instructions from MSHA's District Manager
Kress, and Mr. Grose confirmed that he modified the order on April 10, 1984, by deleting this allegation (Exhibit CR-11). In explaining why this finding was deleted from the order, MSHA counsel Gismondi asserted that information available to her reflects that Mr. Kress acted after information received during a conference with the operator's representative indicated that the examinations were conducted and that the alleged violation of section 77.1713(a) could not be supported.

Section 107(a) of the Act provides as follows:

If, upon any inspection or investigation of a coal or other mine which is subject to this Act, an authorized representative of the Secretary finds that an imminent danger exists, such representative shall determine the extent of the area of such mine throughout which the danger exists, and issue an order requiring the operator of such mine to cause all persons, except those referred to in section 104(c), to be withdrawn from, and to be prohibited from entering, such area until an authorized representative of the Secretary determines that such imminent danger and the condition or practice which caused such imminent danger no longer exists. The issuance of an order under this subsection shall not preclude the issuance of a citation under section 104 or the proposing of a penalty under section 110.

"Imminent danger" is defined in section 3(j) of the Act, 30 U.S.C. 802(j) as: "The existence of any condition or practice in a coal or other mine which could reasonably be expected to cause death or serious physical harm before such condition or practice can be abated."

The former Interior Board of Mine Operations Appeals has held that an imminent danger exists when the condition or practice observed could reasonably be expected to cause death or serious physical harm to a miner if normal mining operations are permitted to proceed in the area before the dangerous condition is eliminated. The dangerous condition cannot be divorced from normal work activity. Eastern Associated Coal Corp. v. Interior Board of Mine Operations Appeals, et al., 491 F.2d 277, 278 (4th Cir.1974). The test of imminence is objective and the inspector's subjective opinion need not be taken at face value. The question is whether a reasonable man, with the inspector's education

and experience, would conclude that the facts indicate an impending accident or disaster, likely to occur at any moment, but not necessarily immediately. Freeman Coal Mining Corporation, 2 IBMA 197, 212 (1973), aff'd., Freeman Coal Mining Companym v. Interior Board of Mine Operations Appeals, et al., 504 F.2d 741 (7th Cir.1974). The foregoing principles were reaffirmed in Old Ben Coal Corporation v. Interior Board of Mine Operations Appeals, et al., 523 F.2d 25 (7th Cir.1975), where the court, following Freeman, phrased the test for determining an imminent danger as follows:

> [E]ach case must be decided on its own peculiar facts. The question in every case is essentially the proximity of the peril to life and limb. Put another way: Would a reasonable man, given a qualified inspector's education and experience, conclude that the facts indicate an impending accident or disaster, threatening to kill or to cause serious physical harm, likely to occur at any moment, but not necessarily immediately? The uncertainty must be of a nature that would induce a reasonable man to estimate that, if normal operations designed to extract coal in the disputed area proceeded, it is at least just as probable as not that the feared accident or disaster would occur before elimination of the danger.

In her posthearing brief, Valley Camp's counsel takes issue with Inspector Grose's conclusion as reflected in his accident investigation report that the accident and resulting fatality were the result of mine management's failure to design and construct the roadway in question "in a manner consistent with prudent engineering." Counsel also takes issue with MSHA's contentions that substandard road construction, i.e., the asserted failure by Valley Camp to select suitable construction materials to insure the stability of the roadway, caused the accident.

As correctly pointed out by Valley Camp, there are no specific MSHA mandatory safety standards governing the construction or maintenance of surface mine haulage roads. Nor are there any published MSHA guidelines or other published standards defining or otherwise explaining "prudent engineering design." However, Inspector Grose was of the opinion that a properly constructed roadway is one which is constructed (1) on a rock base, (2) compacted out of material specially selected for road construction, and (3) constructed in layers or "lifts" that are properly compacted. Dr. Wu

agreed with the inspector, but added that compaction should be done at no greater than 2 foot lifts, and that adequate drainage be provided to avoid water saturation.

Inspector Grose conceded that he had no personal knowledge as to how the haulage road in guestion was originally constructed. He also conceded that he conducted no tests, took no soil samples, and made no other determinations as to the specific materials used to construct the roadway. Although he expressed some concern over the lack of drainage ditches, the fact is that none were required by MSHA to achieve abatement. Further, the same type of spoil materials used to initially construct the roadway, were also used to reconstruct it to abate the order. Inspector Grose was not present during the abatement, and Inspector Slaughter was there for only a half-hour at most. Under the circumstances, I can only conclude that they had little or no personal knowledge as to what was specifically done in terms of actual construction work to achieve abatement. As for MSHA's theory that the roadway was somehow undermined by water draining from a nearby augering operation, I reject that notion as total hindsight unsupported by any credible evidence.

Dr. Wu conceded that he had never been involved in the construction of haulage roads, and the record establishes that he never viewed the actual roadway at any time. When he made the site visit, the area had been mined out and the roadway was gone. His knowledge of the facts and circumstances in support of MSHA's theories as to how the roadway was constructed was obtained through contacts with the inspectors and miners during the preparation for the hearing, and his review of MSHA's accident report and other materials in preparation for the hearing.

I am not convinced that MSHA has established by a preponderance of the credible testimony and evidence in this case that Valley Camp's construction of the actual roadway itself was substandard. On the other hand, Valley Camp produced credible testimony from those directly involved in the roadway construction which establishes that the roadway was constructed on a solid rock base, was properly compacted with suitable spoil materials, and was constructed in appropriate layers or lifts. However, I am not convinced that the same can be said for the construction and maintenance of the berms, or for the slips on the outslopes adjacent to the roadway.

Valley Camp's counsel also takes issue with MSHA's assertion that the narrow width of the roadway, the failure to install warning signs, and the inadequacy of the berms contributed to the asserted imminent danger. In view of my

prior findings and conclusions on these issues, they need not be repeated here. However, the fact that a cited condition may or may not constitute a violation of any mandatory standard, is not relevant in any determination as to whether an imminent danger exists. What is relevant and critical is whether or not the conditions found by Inspector Grose after the accident support his conclusion that an imminently dangerous condition existed at that time. In order to support the order, MSHA must show that reasonable men with the inspector's education and experience would conclude that the condition of the roadway constituted a situation indicating an impending accident or disaster, likely to occur at any moment, but not necessarily immediately.

The accident in this case occurred on Monday, March 5, 1984, at approximately 4:30 p.m. Inspector Grose arrived at the mine the following morning March 6, at approximately 9:00 a.m., and he assumed supervision over the accident investigation. At the conclusion of his investigation, he issued the imminent danger order at approximately 4:00 p.m., on March 6. Inspector Grose confirmed that he issued the order because of the collective conditions described on the face of the order, and to preclude use of the roadway until those conditions could be corrected. While he believed that no one would attempt to use the roadway, he had to insure that no one attempted to drive it until the conditions were corrected (Tr. 183).

It seems clear to me that at the time of the investigation and inspection conducted by Inspector Grose the condition of the roadway was such as to support his conclusion that it was an imminent danger under the Act. Regardless of how the roadway was originally constructed, or whether or not the edge of the roadway failed or whether it was "taken out" by the accident victim driving over it, it clearly was not travellable by haulage trucks which normally used the road. In addition, the inadequacy of the berms, the hazardous side clearances, and the lack of readily identifiable warning signs, all contributed to a situation which in my view supports the action taken by Inspector Grose in issuing the order. Under all of these circumstances, I believe that any reasonable person would conclude that an accident was likely to occur at any moment if normal mining operations were allowed to continue. As a matter of fact, foreman Hanshaw and Maggard conceded that it was not safe to use the roadway after the accident and before abatement of the conditions. Truck driver Saunders would not drive the roadway after the accident because he feared for his safety, and driver James Westfall stated that he would not drive it because he was "shook up" over the accident. Under all of these circumstances, I conclude that Inspector Grose acted

 ${\sim}1272$ appropriately and properly in issuing the order, and IT IS AFFIRMED.

Docket No. WEVA 84-352

Fact of Violations

In view of my previous findings and conclusions, Citation Nos. 2127008 and 2127009 citing violations of mandatory safety standards 77.1605(k) and 77.1600(c), ARE AFFIRMED.

History of Prior Violations

Exhibit G-16, is a computer printout summarizing the mine compliance record for the period January 1, 1980 through March 4, 1984. That record reflects that Valley Camp paid civil penalty assessments totaling \$653 for 19 section 104(a) citations issued at the mine. One of those citations is for a violation of the berm standard (77.1605(k)), on March 27, 1982, for which a civil penalty of \$20 was paid.

Inspector Slaughter confirmed that he has never issued citations for inadequate road construction at the mine, and he did not recall ever issuing any berm citations (Tr. 538). Valley Camp's counsel noted during the hearing that one previous citation for "no berm in an area" was issued (Tr. 539).

I cannot conclude that Valley Camp's compliance record warrants any additional increases in the civil penalty assessments made by me in this case. To the contrary, its history of compliance over the prior 4-years is good, and I have taken this into account in assessing the penalties in question.

Good Faith Abatement

The parties have stipulated that Valley Camp exhibited good faith compliance in achieving abatement of the citations and the order in question, and I adopt this as my finding in this matter and have taken it into account in assessing the penalties in question.

Size of Business and Effect of Civil Penalties on the Respondent's Ability to Continue in Business

The parties do not address the size of the mining operation in question in their briefs. MSHA's computer print-out, exhibit G-16, identifies the mine "controller" as the Quaker State Oil Refining Corporation. However, testimony at the hearings indicated that many of the miners were laid off, and that coal production may have been curtailed somewhat at the mining operation in question. I assume that Valley Camp is a small-to-medium sized mine operation.

Although Valley Camp's counsel argues that any civil penalties assessed by me should be nominal, there is no information or argument to suggest that the penalties proposed by MSHA will adversely affect Valley Camp's ability to continue in business. Under the circumstances, I conclude that the penalties which have been assessed by me for the violations which have been affirmed will not affect Valley Camp's ability to continue in business. See: Sellersburg Stone Co., 5 FMSHRC 283 (1983), aff'd, 736 F.2d 1147 (7th Cir.1984).

Negligence

Inspector Grose testified that he believed that Valley Camp was "moderately" negligent with respect to both citations. He considered the weather conditions to be a mitigating circumstance, and he believed that the immediate supervisors may not have understood soil compaction and mechanics and the impact that adverse weather would have on the roadway in question (Tr. 184).

The evidence adduced in this case reflects that various members of mine management were aware of the slips that occurred near the roadway prior to the accident. It is also true that various miners were aware of slips and other signs of earth slippage along the roadway outslopes, as well as berm subsidence at the location of the accident, but did not inform mine management. However, mine management has the primary responsibility of insuring that such conditions are attended to and that corrective action is immediately taken to insure against roadway hazards.

While it is true that Mr. Hanshaw "monitored" the slip area, and that Mr. Augustine was "watching" it, I am not convinced from the record in these proceedings that much careful or detailed attention was paid to these conditions. Although Mr. Simmons testified that he never observed any breaks or fractures on the roadway surface itself, his concern appeared to be with the condition of the surface portion of the roadway and not the berms or adjacent slopes. In addition, Mr. Simmons conceded that when he examined the roadway, he simply looked at it while driving and did not get out of his vehicle to walk the roadway. Mr. Maggard testified that when he conducted his preshift examination on March 5, he remained in his vehicle. He also confirmed that he was unaware of any tree movement along the described slip

area adjacent to the roadway, and he did not know that Mr. Hanshaw had been monitoring the area.

I believe that the record here supports a conclusion that mine management had prior warnings that the roadway and berm in question was susceptible to slippage and subsidence. Given the roadway failure the day after the roadway was completed, the failure which occurred near the pit the very morning of the accident, and the prior evidence of slippage which had been noted by Mr. Augustine and Mr. Hanshaw, mine management should have taken immediate action to determine the causes for these events and should have taken precautionary or corrective steps to mark those areas of the roadway which were suspect, and to insure that the berm was adequately constructed and maintained. Under the circumstances, I conclude and find that Valley Camp knew or should have known of the violative berm and warning sign conditions cited in Citation Nos. 2127008 and 2127009, and that its failure to take corrective action before the inspectors found the conditions is the result of its failure to exercise reasonable care.

Gravity

Valley Camp argues that the berm violation had absolutely nothing to do with the cause of the accident, and that MSHA's proof went solely to the issue of whether the road construction caused the accident. This argument is rejected. I believe that the substandard and inadequate berm conditions played a role in the accident. Although I cannot conclude that the berm condition was the major cause of the accident, I do conclude and find that it contributed to the severity of the violation. Had the berm been constructed higher and been better compacted with solid rock materials, it is altogether possible that the driver would have been able to keep the truck on the roadway or at least had a greater opportunity to steer it back on the roadway. In this case, the eyewitness stated that the driver "got over too far" and appeared to be driving on or close to the edge of the berm. As I previously, concluded, a better constructed berm would have possibly permitted the driver to get a better "feel" for the actual roadway and may have served as a guide to keep him on the roadway surface. Under the circumstances, I conclude and find that the berm violation was serious.

With regard to the warning sign violation, I find that it too was serious. Since I have found that the side clearances of the roadway were hazardous, and that the roadway was narrow at the accident location, the lack of a warning sign or other conspicuous warning device was required in

order to alert the drivers to take extra care. While I cannot conclude that the lack of a warning sign caused or contributed to the accident, I still conclude that the failure to post any warnings constitutes a serious violation.

Civil Penalty Assessments

Valley Camp argues that the amount of the penalties assessed by MSHA were increased by the inspector's allegation that the berm and sign citations contributed to the existence of an imminent danger. Citing Consolidation Coal Company, 1 MSHC 1742 (1979), Valley Camp argues that the gravity of a violation must be weighed in light of a decedent's own contribution to the cause of the accident. In the instant case, Valley Camp maintains that the decedent contributed to the cause of the accident by driving the truck off the roadway or in other words, loosing control of the vehicle. Furthermore, once the victim lost control of the vehicle, Valley Camp points out that he attempted to jump from the cab of the truck, and that this caused him to be thrown to the ground and crushed by the truck. Therefore, under Valley Camp's theory of the case, the berm and sign citations had nothing to do with the cause of the accident, and Valley Camp suggests that any penalties imposed should be substantially reduced.

I have taken into account the possibility that the accident victim may have lost control of the truck for reasons other than the lack of adequate berms, and that he may not have suffered fatal injuries had he elected to remain inside the cab when the truck left the roadway and went over the hill. I have also taken into consideration the fact that MSHA failed to establish that Valley Camp's roadway construction methods did not comport with "prudent engineering designs." However, the fact remains that the conditions which prompted the citations which have been affirmed were serious violations; the berm condition to a greater degree than the warning sign condition.

On the basis of the foregoing findings and conclusions, and taking into account the requirements of section 110(i) of the Act, the following civil penalties are assessed by me for the citations which have been affirmed:

Citation No.	Date 30	C.F.R. Section	Assessment
2127008	3/6/84	77.1605(k)	\$2,500
2127009	3/6/84	77.1600(c)	500

ORDER

The respondent IS ORDERED to pay the civil penalties assessed by me in these proceedings within thirty (30) days of the date of these decisions. Payment is to be made to MSHA, and upon receipt of same, these proceedings are dismissed.

In view of my findings and conclusions in Docket Nos. WEVA 84-168-R and WEVA 84-170-R, Valley Camp's contests ARE DISMISSED.

Docket Nos. WEVA 84-172-R and WEVA 84-173-R

The violations in issue in these contests were settled by the parties after the conclusion of the first hearing session, and by motions filed pursuant to 29 C.F.R. 2700.30, the parties submitted their settlement proposals to me for consideration. Under the terms of the settlements, Valley Camp Coal Company admits to the violations and agrees to pay the full amount of the civil penalties proposed by MSHA. After review of the settlement proposals, and taking into account the civil penalty criteria found in section 110(i) of the Act, the citations ARE AFFIRMED, and the settlements ARE APPROVED. Valley Camp Coal Company IS ORDERED to pay civil penalties in the amount of \$210 for Citation Nos. 2352240 and 2352241 (\$105 each), and payment is to be made within thirty (30) days of the date of the decisions. Valley Camp's contests ARE DISMISSED.

> George A. Koutras Administrative Law Judge